VOLUME XII

Consciousness-Based Education and World Peace

Volume Editor, Rachel S. Goodman

MAHARISHI UNIVERSITY OF MANAGEMENT
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Higher education faces a complex set of challenges today. We are seeing resources diminish at the same time we are hearing calls for greater access and affordability. Demands for greater transparency and accountability are being sounded by both the general public and the government. Government is exerting increasing controls in this long-independent area.

These challenges, however, are merely financial and political, and they are hardly limited to colleges and universities. The fundamental challenges are educational and center around the students themselves. Challenges include high levels of stress, pervasive substance abuse (particularly binge drinking), lack of preparedness for college-level work, and mental and emotional disabilities. In most of these areas, the problem is serious and worsening. Though colleges and universities are striving to address these challenges, few would claim we are turning the tide.

An encouraging trend is the increasing focus in higher education nationwide on promoting student learning. Yet these laudable efforts do not take into account the powerful forces working in opposition. It is well known that learning is inhibited by stress, sleep deprivation, alcohol, and poor diet—and these are among the most conspicuous features of the college student experience.

Something new is required. Education needs a reliable means of developing students directly from within. We need a systematic method for cultivating their creative intelligence, their capacity to learn, and their natural humanity. All education aims at these goals, of course—but the approach thus far has been from the outside in, and the results have been haphazard at best.

Consciousness-Based education was established to address this need. It integrates the best practices of education and places beneath them a proper foundation—direct development of the student from inside out.

The outcomes of Consciousness-Based education have been unprecedented and scientifically verified. These outcomes include significant
growth of intelligence, creativity, learning ability, field independence, ego development, and moral maturity, among others. These results are remarkable because many of these values typically plateau in adolescence—but Consciousness-Based education promotes this growth in students of all ages, developing potentials that otherwise would have remained unexpressed.

Beyond this rich cognitive growth, Consciousness-Based education significantly reduces student stress, boosts self-esteem, improves health, reduces substance use, and enhances interpersonal relationships. All of this comes together to create exceptional learning environments. This approach even measurably improves the quality of life in the surrounding society.

Consciousness-Based education was founded by Maharishi Mahesh Yogi, the world authority on the science of consciousness. First pioneered at Maharishi University of Management (previously Maharishi International University, 1971–1995) in Fairfield, Iowa, Consciousness-Based education is being adopted by schools, colleges, and universities around the world. It is easily integrated into any school, without any change in mission or curriculum.

Consciousness-Based education recognizes that student learning depends fundamentally on students’ levels of consciousness or alertness. The more alert and awake the student, the more successful and satisfying the learning.

Consciousness-Based education consists of three components:

- a practical technology for directly developing students’ potential from within,
- a theoretical understanding of consciousness that gives rise to a unifying framework for knowledge, enabling students to easily grasp the fundamental principles of any discipline and to connect these principles to their own personal growth, and
- a set of classroom practices, arising from this understanding, that also helps promote effective teaching and learning.
The Transcendental Meditation program

At the heart of Consciousness-Based education is the practice of the Transcendental Meditation technique. The technique was brought to light by Maharishi Mahesh Yogi from the Vedic tradition of India, the world’s most ancient continuous tradition of knowledge. It is practiced for 20 minutes twice daily, once in the morning and once in the afternoon, while sitting comfortably with eyes closed. It is simple, natural, and effortless—so simple, in fact, that ten-year-old children can learn and practice it. It has been learned by more than six million people worldwide, of all ages, religions, and cultures.

The Transcendental Meditation technique differs from other procedures of meditation and relaxation in its effortlessness. It involves no concentration or control of the mind. Neither is it a religion, philosophy, or lifestyle. It involves no new codes of behavior, attitudes, or beliefs, not even the belief it will work.

The Transcendental Meditation program is the most extensively validated program of personal development in the world. It has been the subject of more than 600 scientific research studies, conducted at more than 250 universities and research institutions in more than 30 countries worldwide. These studies have been published in more than 150 scientific and scholarly journals in a broad range of fields, including Science, Scientific American, American Journal of Physiology, International Journal of Neuroscience, Memory and Cognition, Social Indicators Research, Intelligence, Journal of Mind and Behavior, Education, Journal of Moral Education, Journal of Personality and Social Psychology, Business and Health, British Journal of Educational Psychology, Journal of Human Stress, Lancet, Physiology and Behavior, and numerous others. No approach to education has as much empirical support as Consciousness-Based education.

This approach, moreover, has been successfully field-tested over the past 35 years in primary, secondary, and post-secondary schools all over the world, in developed and developing nations, in a wide variety of cultural settings—the United States, Latin America, Europe, Africa, India, and China.

The Transcendental Meditation technique enables one to “dive within.” During the practice, the mind settles inward, naturally and spontaneously, to a state of deep inner quiet, beyond thoughts and per-
ceptions. One experiences consciousness in its pure, silent state, uncolored by mental activity. In this state, consciousness is aware of itself alone, awake to its own unbounded nature.

The technique also gives profound rest, which dissolves accumulated stress and restores balanced functioning to mind and body.

This state of inner wakefulness coupled with deep rest represents a fourth major state of consciousness, distinct from the familiar states of waking, dreaming, and sleeping, known as Transcendental Consciousness.

In this restfully alert state, brain functioning becomes highly integrated and coherent. EEG studies show long-range spatial communication among all brain regions. This coherence is in sharp contrast to the more or less uncoordinated patterns typical of brain activity.

With regular practice, this integrated style of functioning carries over into daily activity. Research studies consistently show a high statistical correlation between brainwave coherence and intelligence, creativity, field independence, emotional stability, and other positive values. The greater one’s EEG coherence, in other words, the greater one’s development in these fundamental areas. At Maharishi University of Management, students even have the option of a Brain Integration Progress Report—an empirical measure of growth of EEG coherence between their first and last years at the University.

The brain is the governor of all human activity—and therefore personal growth and success in any field depend on the degree to which brain functioning is integrated. The increasingly integrated brain functioning that spontaneously results from Transcendental Meditation practice accounts for its multiplicity of benefits to mind, body, and behavior.

Every human being has the natural ability to transcend, to experience the boundless inner reality of life. Every human brain has the natural ability to function coherently. It requires only a simple technique.

**Theoretical component—**
**a unified framework for teaching and learning**

Scholars have long called for a way to unify the diverse branches of knowledge. Current global trends are making this need ever more
apparent. The pace of progress is accelerating, the knowledge explosion continues unabated, and knowledge is becoming ever more specialized.

Academic disciplines offer a useful way of compartmentalizing knowledge for purposes of teaching, learning, research, and publication. But each academic discipline explores only one facet of our increasingly complex and interrelated world. The real world, however, is not compartmentalized—an elephant is not a trunk, a tusk, and a tail. Academic disciplines, consequently, are criticized as inadequate, in themselves, for understanding and addressing today’s challenging social problems.

Today, more than ever, we need a means of looking at issues comprehensively, holistically. We need a way of discovering and understanding the natural relationships among all the complex elements that compose the world, even among the complex elements that compose our own disciplines.

Various attempts to address this need have been made under the rubric of interdisciplinary studies—programs or processes that aim to synthesize the perspectives and promote connections among multiple disciplines. Some of these efforts have been criticized as superficial joinings of disciplinary knowledge. But the chief criticism of interdisciplinary studies—levered even by its proponents—is that looking at an issue from multiple perspectives does not, in itself, enable one to find the common ground among contrasting viewpoints, to resolve conflicts, and to arrive at a coherent understanding.

The diverse academic disciplines can be properly unified at only one level—at their source. All academic disciplines are expressions of human consciousness—and if the fundamental principles of consciousness can be identified and understood, then one would gain a grasp of all human knowledge in a single stroke.

This brings us to the theoretical component of Consciousness-Based education. Consciousness-Based education does precisely this—and not as an abstract, theoretical construct but as the result of students’ direct experience of their own silent, pure consciousness. In this sense, practice of the Transcendental Meditation technique forms the laboratory component of Consciousness-Based education, where the theoretical predictions of Consciousness-Based education can be verified through direct personal experience.
This theoretical component offers a rich and deep yet easy-to-grasp intellectual understanding of consciousness—its nature and range, how it may be cultivated, its potentials when fully developed. This theoretical component also identifies how the fundamental dynamics of consciousness are found at work in every physical system and in every academic discipline at every level.

With this knowledge as a foundation, teachers and students in all disciplines enjoy a shared and comprehensive understanding of human development and a set of deep principles common to all academic disciplines—a unified framework for knowledge. With this unified framework as a foundation, students can move from subject to subject, discipline to discipline, and readily understand the fundamental principles of the discipline and recognize the principles the discipline shares with the other disciplines they have studied. This approach makes knowledge easy to grasp and personally relevant to the student.

**Pure consciousness and the unified field**

Consciousness has traditionally been understood as the continuous flux of thoughts and perceptions that engages the mind. Thoughts and perceptions, in turn, are widely understood to be merely the by-product of the brain’s electrochemical functioning.

Maharishi has put forward a radically new understanding of human consciousness. In Consciousness-Based education, pure consciousness is understood as the foundation and source of all mental activity, the most silent, creative, and blissful level of the mind—the field of one’s total inner intelligence, one’s innermost Self. (This unbounded value of the Self is written with an uppercase “S” to distinguish it from the ordinary, localized self we typically experience.) Direct experience of this inner field of consciousness awakens it, enlivens its intrinsic properties of creativity and intelligence. Regular experience of pure consciousness through the Transcendental Meditation technique leads to rapid growth of one’s potential, to the development of higher states of human consciousness—to enlightenment.

But consciousness is more, even, than this.

Throughout the twentieth century, leading physicists conjectured upon the relation between mind and matter, between consciousness and the physical world; many expressed the conviction that mind is,
somehow, the essential ingredient of the universe. But Maharishi goes further. He has asserted that mind and matter have a common source, and that this source is pure consciousness. Consciousness in its pure, silent state is identical with the most fundamental level of nature’s functioning, the unified field of natural law that has been identified and described by quantum theoretical physicists over the past several decades. Everyone has the potential to experience this field in the simplest form of his or her own awareness. Considerable theoretical evidence, and even empirical evidence, has been put forward in support of this position.

Maharishi has developed these ideas in two bodies of knowledge, the first known as the Science of Creative Intelligence, the second as Maharishi Vedic Science and Technology. The Science of Creative Intelligence examines the nature and range of consciousness and presents a model of human development that includes seven states of consciousness altogether, including four higher states beyond the familiar states of waking, dreaming, and sleeping. These higher states, which develop naturally and spontaneously with Transcendental Meditation practice, bring expanded values of experience of one’s self and the surrounding world. Each represents a progressive stage of enlightenment. Maharishi Vedic Science and Technology examines the dynamics of pure consciousness in fine detail. It reveals the fundamental principles of consciousness that may then be identified in every field of knowledge and every natural system.

Most important for teaching and learning, these sciences reveal how every branch of knowledge emerges from the field of pure consciousness and how this field is actually the Self of every student.

**Strategies for promoting teaching and learning**

Consciousness-Based education also includes a battery of educational strategies that promotes effective teaching and learning. Foremost among these is the precept that parts are always connected to wholes and that learning is most effective when learners are able to connect parts to wholes. In Consciousness-Based education, the parts of knowledge are always connected to the wholeness of knowledge, and the wholeness of knowledge is connected to the Self of the student.
One means of doing this is through *Unified Field Charts*. These wall charts, developed by the faculty at Maharishi University of Management and used in every class, do three things: (1) They show all the branches of the discipline at a glance; (2) They show how the discipline emerges from the field of pure consciousness, the unified field of natural law at the basis of the universe; (3) They show that this field is the Self of the student, which the student experiences during practice of the Transcendental Meditation technique.

In this way students can always see the relation between what they are studying and the discipline as a whole, and they can see the discipline as an expression of their own pure consciousness. Again, this is more than an intellectual formulation—it is the growing reality of students’ experience as they develop higher states of consciousness.

Another strategy is *Main Point Charts*. Developed by the faculty for each lesson and posted on the classroom walls, these charts summarize in a few sentences the main points of the lesson and their relationship to the underlying principles of consciousness. In this way students always have the lesson as a whole in front of them, available at a glance.

**The next paradigm shift**

If higher education is fundamentally about student learning and growth, then Consciousness-Based education represents a major paradigm shift in the history of education. To understand this change, it is useful to reflect on the encouraging paradigm shift that has already been taking place in education over the past several decades.

This shift involves a move from what many call an *instruction paradigm* to a *learning paradigm*. In the instruction paradigm, the mission of colleges and universities is to provide instruction; this is accomplished through a transfer of knowledge from teacher to student. In the learning paradigm, the mission is to produce student learning; this mission is achieved by guiding students in the discovery and construction of knowledge.

This shift is a vitally important advance in education, leading to more successful outcomes and more rewarding experiences for students and teachers alike. But a further paradigm shift remains, and we can understand it by examining a fundamental feature of human experience.
Maharishi observes that every human experience consists of three fundamental components: a knower, a known, and a process of knowing linking knower and known. We may also use the terms experiencer, object of experience, and process of experiencing, or observer, observed, and process of observation.

This threefold structure of experience is nowhere more evident than in schools: The knowers are the students, the known is the knowledge to be learned, and the process of knowing is what the full range of teaching and learning strategies seek to promote.

Understanding this threefold structure helps us understand the paradigm shifts that are taking place.

The instruction paradigm places emphasis on the known. It focuses on the information students are to absorb and the skills they are to learn. In this paradigm, the instructor’s role is to identify what students need to know and deliver it to them.

The learning paradigm emphasizes the process of knowing. It recognizes that students must be actively involved in the learning process, that knowledge is something individuals create and construct for themselves, that students have differing learning styles and differing interests that must be taken into account. In this paradigm, the instructor’s role is to create learning environments and experiences that promote the process of learning.

The Consciousness-Based paradigm embraces the known and the process of knowing but places primary emphasis on the knower—on
developing the knower’s potential for learning from within. The following diagram shows the respective emphases of each approach:

But the learning paradigm does not so much abandon the instruction paradigm as enlarge it, so that it includes the process of knowing as well as the known. And the Consciousness-Based approach completes the enlargement to include the knower:

Consciousness-Based education, in summary, is a theory and practice grounded in a systematic science and technology of consciousness, making available the complete experience, systematic development, and comprehensive understanding of the full range of human consciousness. More than 30 years’ experience and extensive scientific research
confirm the success of this approach and its applicability to any educational institution.

**About this book series**

This series of twelve volumes is the result of a unique faculty-wide project that began with the founding of Maharishi University of Management in 1971 and continues to this day. Each volume in the series examines a particular academic discipline in the light of our Consciousness-Based approach to education.

Volumes include:

- an introductory paper introducing the Consciousness-Based understanding of the discipline,
- a Unified Field Chart, if available for publication, for the discipline—a chart that conceptually maps all the branches of the discipline and illustrates how the discipline emerges from the field of pure consciousness and how that field is the Self of every individual. Thus, these charts connect the “parts” of knowledge to the “wholeness” of knowledge and the wholeness of knowledge to the Self of the student;
- subsequent papers that show how this understanding may be applied in various branches of the discipline,
- occasional examples of student work exploring how the Consciousness-Based approach enhances learning in the discipline, and
- an appendix describing Maharishi Vedic Science and Technologies of Consciousness in detail.
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We welcome inquiries and further contributions to this series.

**CONTACT INFORMATION**
Dara Llewellyn, Managing Editor
Consciousness-Based Books
Maharishi University of Management
Fairfield, Iowa 52557
Phone: 641-472-7000
The focus of Consciousness-Based education is to develop the full potential of the student. This approach allows students to experience pure consciousness within themselves through the practical technology of the Transcendental Meditation and TM-Sidhi® programs (also known as the Maharishi Technology of Consciousness) and to gain theoretical understanding of the fundamental principles or laws of nature in each discipline that they study. Students in Consciousness-Based education develop the harmonizing and balancing qualities essential to create world peace, and they comprehend the deep principles of nature that support peace in themselves and in society. When students practice the Transcendental Meditation and TM-Sidhi programs in a group, the students become peace generators, as the Maharishi Technology of Consciousness has an impact on the surrounding community, creating more orderliness and harmony in society, and ultimately contributing to and achieving world peace. This volume on Consciousness-Based education and world peace describes the principles in nature that promote peace and includes research studies on this technology in national and international settings. These studies reveal how practice of the Maharishi Technology of Consciousness in groups can effectively achieve world peace.

Maharishi’s approach to world peace is simple, natural, and effective. The Transcendental Meditation technique is the foundation of this approach. Individuals practicing this technique experience their own fundamental nature, a field of unbounded consciousness at the basis of thought and action. Experience of this field of consciousness, a state of lively restful alertness, enlivens positivity in daily life.

Results of over 600 research studies show the range of benefits of the Transcendental Meditation and TM-Sidhi programs in the following key areas: mental potential (utilization of the hidden reserves of the brain and development of coherence in brainwave patterns leading to increased intelligence, creativity, mind-body coordination, etc.); balanced health (including increased efficiency in activity, improved cardiovascular health, decreased need for medical intervention, etc.);
supportive social interactions (at home and at work); and, the topic of this volume, development of peace in the individual and in the world.

The advanced TM-Sidhi program further strengthens individual effectiveness and efficiency, and when practiced in a group, produces a powerful state of coherence in society, eliminating negative tendencies between individuals and nations and supporting progress and prosperity in life. In recent decades, quantum physics has discovered a unified field of force and matter fields, which account for all phenomena in nature. This unified field has been shown to have a one-to-one correlation in its attributes with the unified field of consciousness, suggesting that the unified field of physics appears to be the same underlying field as the field of pure consciousness at the basis of human awareness (Hagelin, 1992).

Technologies of consciousness, which operate at this deepest level of human awareness, are field-effect technologies. From the unified field of consciousness, only positive tendencies can arise as consciousness is a field of wholeness without divisions—without divisive qualities. Thus, the field of coherence created by groups practicing the Transcendental Meditation and TM-Sidhi programs propagates out into society to create positive tendencies in all areas of life. Only the square root of 1% of a nation’s or the world’s population practicing the Maharishi Technology of Consciousness in a group is necessary to produce this effect of peace and prosperity known as the Maharishi Effect, named for Maharishi Mahesh Yogi who predicted it.

This peace approach is unique in the world today, as it enlivens peace in society as a whole, as well as in the individual. Furthermore, Maharishi has pointed out that when a nation achieves coherent national consciousness through a permanent group that creates the Maharishi Effect, outside negative influences will not overwhelm that nation. This is known as invincible defense, and can be described in terms of physics principles, such as the Meissner effect that shows how a physical system can become impenetrable to outside disruptive influences.

The Maharishi Effect is also unique in that it combines theoretical understanding from both the ancient Veda (meaning pure knowledge) and modern quantum physics; its efficacy has been confirmed by more than fifty large-scale research studies utilizing rigorous statistical
analysis, and data primarily obtained from sources independent of the researchers and research institutions.

Early Maharishi Effect studies analyzed quality-of-life indices, crime rate trends, and accident rates in cities where 1% of the population were practicing the Transcendental Meditation program, in comparison with matched control cities. These studies showed increased positive trends in the one-percent cities in the indices studied, in contrast to the control cities.

After the TM-Sidhi program was introduced, with its powerful coherence-creating properties, Maharishi predicted that cooperation and harmony would grow in a society when only the square root of one percent of the population practiced the Transcendental Meditation and TM-Sidhi programs in one place. Depending on the size of the group, the effects and benefits radiate from the group to include a community, a nation, a region, or the whole world.

Studies documenting this extended Maharishi Effect have found improvements in quality-of-life indices and the economy; greater efficacy and harmony of governments (approval ratings, media positivity, bipartisanship in Congress, international relations); and decrease of incidents of violence during war, war deaths, and terrorism. These studies have been conducted on the regional (states and provinces), national, and international levels including studies in the U.S., Canada, the Philippines, Great Britain, Holland, India, Israel, Lebanon, the former Soviet Union, Iran, Zimbabwe, Kampuchea, and Nicaragua, among other nations.

The results occur effortlessly and spontaneously wherever a group of sufficient size is practicing the Transcendental Meditation and TM-Sidhi programs in one place; the research shows the universal applicability of the Maharishi Effect as the studies have been conducted in nations with diverse political, religious, and cultural traditions.

In each case, the prediction of the Maharishi Effect posits that positive trends including coherence, harmony, prosperity, and fulfillment will result wherever groups practicing the Transcendental Meditation and TM-Sidhi programs are located, and that world peace will become a practical, sustainable reality when 8,000 to 10,000 people (or the square root of one percent of the world’s population) practice the peace-promoting technologies in one place.
Contents of the World Peace Volume
This volume is divided into four parts. The first part introduces the principles of a Consciousness-Based approach to world peace and provides a summary of the research on the Maharishi Effect. The second part contains five selected articles from a conference on world peace held at Maharishi University of Management (Maharishi International University, 1971–1995) in 1991. All the talks from that conference were organized into a special issue of the Modern Science and Vedic Science journal (Vol. 5, nos. 1–2, 1992) published by Maharishi University of Management. Excerpts from the special issue were chosen for this world peace volume because they explore aspects of the theoretical understanding of Maharishi’s Vedic approach to world peace and invincible defense. The third and fourth parts present seven of the most well-known research studies on the Maharishi Effect. The third part includes studies on a national scale, and the fourth section includes peace research on a global scale.

Part One
Consciousness-Based Approach to World Peace
The first part introduces the principles and mechanics of Maharishi’s Vedic approach to peace and a summary of the research on the Maharishi Effect.

Part Two
Creating Coherence in World Consciousness
The first article in Part Two of this volume is also the introductory article of the Maharishi University of Management Peace Conference. Dr. David Orme-Johnson, who was Dean of Research at Maharishi University of Management and the Director of the Maharishi University of Management Institute of World Peace, introduces the work of Dr. John Hagelin who has derived thirty qualities of the unified field of consciousness and matter from the quantum physics equations of the “Lagrangian of the superstring” underlying all the relative force and matter fields in nature. Dr. Orme-Johnson then utilizes selected studies from the more than 600 research studies on the practice of the Transcendental Meditation and TM-Sidhi programs to illustrate how
these qualities are enlivened in both the individual and society in four main categories: physiology, psychology, sociology, and ecology. In a final section of the paper, he chooses five peace-building qualities among the thirty derived from the Lagrangian: Invincibility, Harmony, Self-sufficiency, Bountiful, and Bliss, and demonstrates through examples from research on the Transcendental Meditation and TM-Sidhi programs that these qualities are characteristic of peaceful individuals and peaceful societies.

Dr. Charles N. Alexander’s article, “Peaceful Body, Peaceful Mind, Peaceful World,” explores the applications of the Transcendental Meditation and TM-Sidhi programs for self-actualization and enlightenment. This highly respected researcher describes how world peace is achieved through these technologies that support development of higher states of consciousness in the individual.

The third paper, “Achieving World Peace through a New Science and Technology,” is presented by Dr. John Hagelin. Dr. Hagelin is an internationally known and award-winning quantum physicist, a pioneer in unified field theories, who has derived the qualities of the unified field of consciousness and matter via the equations of the Lagrangian of the superstring. Dr. Hagelin examines the scientific evidence for the Maharishi Effect, describing quantum mechanical principles that support the group dynamics of consciousness leading to improved quality of life in society and improved national and international relations.

In the next paper, “Maharishi’s Vedic Science and Technology: The Basis for Economic Development and World Peace,” Dr. Kenneth Cavanaugh, Professor of Applied Statistics at Maharishi University of Management’s Department of Business Administration, explores economic factors that contribute to development of a peaceful and prosperous society. He discusses the concepts of “negative” and “positive” peace and considers the relationship between a nation’s capital resources and the fulfillment of the citizens of that society. He closes the paper with a summary of the research on the Maharishi Effect and economics.

The author of the final paper in this section is Dr. Bevan Morris, the Prime Minister of the Global Country of World Peace (the international administration of Maharishi’s worldwide organization) and the President of Maharishi University of Management. Dr. Morris, in his paper “Maharishi’s Vedic Science and Technology: The Only Means
to Create World Peace,” unequivocally contrasts the current condition of modern life characterized by war and terrorism with the sustainable state of world peace that can be easily, systematically, and rapidly developed through the intervention of the Maharishi Effect: the result of a group of at least the square root of one percent of the population of the world practicing the Transcendental Meditation and TM-Sidhi programs in one place.

**Part Three**

**Peace within a Nation**

Part Three contains three papers describing research on the Maharishi Effect in the Middle East.

The first of these papers, “Assessing the Impact of Coherence-Creating Groups on the Lebanon War,” was presented at the Maharishi University of Management Peace Conference by Dr. John Davies, Co-Director of Partners in Conflict and Partners in Peace Building at the University of Maryland’s Center for International Development and Conflict Management (CIDCM). His research looked at the impact on the Lebanon War of seven coherence-creating conferences held at varying distances from Lebanon in locations around the world. His findings were highly statistically significant, showing reduced conflict and war fatalities, and increased cooperation in Lebanon during the conferences. He also found that peace-building methods such as negotiation and diplomacy were more successful as a result of the coherence-creating groups.

The second study, entitled “The Maharishi Technology of the Unified Field and Reduction of Armed Conflict: A Comparative, Longitudinal Study of Lebanese Villages,” was authored by Dr. Tony Nader, M.D., Ph.D., along with Drs. Alexander and Davies. Dr. Nader received his M.D. degree from the American University of Beirut and his Ph.D. in the area of Brain and Cognitive Science from M.I.T. In subsequent years, he successfully correlated each aspect of Vedic literature to a specific area of the physiology. In recognition of this and many other extraordinary achievements, in the year 2000 he was appointed the world leader of the Global Country of World Peace. In one of his earlier research studies related to world peace, over a five-and-half-year period in the 1980s, he looked at the impact of the Maharishi Effect on
a small Lebanese village, Baskinta, in which one percent of the population had begun practice of the Transcendental Meditation technique by July 1982. Dr. Nader found, utilizing time series analysis, that violence ceased in that village and war shelling and war casualties fell significantly, in comparison to four control villages where trends worsened.

The third paper in this section, “International Peace Project in the Middle East: The Effects of the Maharishi Technology of the Unified Field,” authored by Drs. David Orme-Johnson, Charles Alexander, John Davies, Howard Chandler, and Wallace Larimore, was published in the Journal of Conflict Resolution. The researchers predicted in advance that the group practice of the Transcendental Meditation and TM-Sidhi programs in Israel during the summer of 1983 would reduce societal stress and create greater coherence in Jerusalem, Israel and Lebanon. Results of this multivariate and multilevel study included statistically significant improvements in quality of life indices, reduction in crime rate in Jerusalem and Israel and decreased war intensity and deaths in Lebanon.

Part Four
International and World Peace

The first two papers in this section explore U.S. relations with the former Soviet Union. The third paper is a Maharishi Effect study in five nations. And the final paper in this section examines the impact of a group of more than 8,000 practitioners of the Transcendental Meditation and TM-Sidhi programs on national and international economic and quality-of-life indices.

In “Creating World Peace through the Collective Practice of the Maharishi Technology of the Unified Field: Improved U.S.-Soviet Relations,” Dr. Paul Gelderloos, a Professor at Maharishi University of Management in the 1980s and the author of several studies, assessed (along with doctoral students) the impact of the Maharishi Effect on relations between the U.S. and the former Soviet Union from 1985 through 1987 during a time when the numbers in Fairfield, Iowa, for the Transcendental Meditation and TM-Sidhi group ranged primarily between 1,500 to 2,000. Public statements by President Reagan were analyzed using the International Peace/War scale from Azar’s Conflict and Peace Data Bank and time series statistical analysis on a four-quar-
tile range of the independent variable (TM-Sidhi group participant numbers). Results showed increased positivity at a zero lag (contemporaneous) and a lag of three weeks.

Drs. Gelderloos, Davies, and Cavanaugh also studied U.S.-Soviet relations from 1979 to 1986 utilizing content analysis of articles coded by the Zurich Project on East-West Relations. Results described in “The Dynamics of U.S.-Soviet Relations, 1979-1986: Effects of Reducing Social Stress through the Transcendental Meditation and TM-Sidhi Programs” showed a highly statistically significant positive result of the Maharishi Effect on U.S.-Soviet relations including improved U.S. actions toward the U.S.S.R., and improved actions of the U.S.S.R. toward the U.S., particularly when the numbers of the Maharishi Effect group were higher.

The third paper in this section describes a pioneering research study in five countries by Drs. Orme-Johnson, Dillbeck, Alexander and Mr. Jean Bousquet, titled “An Experimental Analysis of the Application of Maharishi’s Vedic Approach to World Peace in Major World Trouble Spots: Increased Harmony in International Affairs.” The authors of this paper looked at results of groups of experts in the Transcendental Meditation and TM-Sidhi programs who traveled to five world trouble spots in several countries. The study, utilizing international events data from the Conflict and Peace Data Bank (COPDAB) showed a “significant shift in international relations and domestic affairs” with a decrease in hostile acts and verbal hostilities. There was also an increase in cooperative events in the countries during the ten weeks of the project, as well as an increase in cooperation in international relations and decreased hostilities for the world as a whole during the project, compared to a ten-year baseline period.

In the final study included in this volume, “The Influence of the Maharishi Technology of the Unified Field on World Events and Global Social Indicators: The Effects of the Taste of Utopia Assembly,” Dr. David Orme-Johnson, et al., report on results of research on the impact of the largest assemblage of practitioners of the Transcendental Meditation and TM-Sidhi programs—with approximately 8,000 participants—conducted to-date at Maharishi University of Management (then known as Maharishi International University) in Fairfield, Iowa, U.S.A. Nine variables were studied, including international events,
statements by heads of state, changes in the Lebanon war, a world stock index, and quality of life variables in the U.S. The changes in trends toward greater positivity were all found to be statistically significant.

**Conclusion**

This volume provides insight into the theoretical understanding of the Maharishi Effect as a peace creating technology. It also illustrates the practical applications of this technology across a broad spectrum of societal issues related to individual, national, and world peace, and it shows, via selected research studies, the rigorous scientific evidence for the efficacy of the Maharishi Effect. Furthermore, the studies in this volume show that the results can be replicated on every level of society. Finally, when groups the size of the square root of 1% of the population of each continent are established and maintained, world peace will be the natural and sustainable result, supporting all individuals to live in happiness, harmony, prosperity and fulfillment. We encourage collaboration with researchers to replicate and extend research on the Maharishi Effect. We also encourage the actualization of these findings in the establishment of a group of 10,000—sufficient to produce the Maharishi Effect for the global population of 7 billion people—so that the promise of world peace can be a reality.
Part I

A Consciousness-Based Approach to World Peace
Principles and Mechanics of Maharishi’s Program to Achieve World Peace*

Rachel S. Goodman, Ph.D., Editor

*This article includes revised and updated sections of the World Peace chapter from Heaven on Earth written by faculty of Maharishi University of Management in 1989.
ABOUT THE EDITOR

Rachel S. Goodman, Ph.D., is an Associate Professor in the Department of Business and Public Administration at Maharishi University of Management. She is a researcher on the Maharishi Effect and government, including studies on bipartisanship in Congress, international relations, Presidential approval ratings, and media positivity toward the President, and she has given numerous talks at conferences in the U.S. and Canada on Maharishi’s Absolute Theory of Government, the Maharishi Effect, and Maharishi Consciousness-Based Approach to World Peace. She has also taught courses on the theory, technology, and research of the Maharishi Effect at Maharishi University of Management. Dr. Goodman is the co-editor of a special quadruple issue of the Journal of Offender Rehabilitation titled: “Transcendental Meditation in Criminal Rehabilitation and Crime Prevention.” Volume 36, Numbers 1/2/3/4, 2003.
A CONSCIOUSNESS-BASED APPROACH TO WORLD PEACE

ABSTRACT

The fundamental principle of world peace is that the element of relationship between nations must be upheld by the absolute level of harmony and order, and this absolute level of harmony and order is available to national consciousness on the level of the self-referral level of consciousness of the individual.

(Maharishi Mahesh Yogi, 1996, p. 47)

Peace in individual life and in the world as a whole has been a goal of the wise throughout the ages. Maharishi Mahesh Yogi pointed out that peace must be holistic; unless it fulfills and integrates all aspects of life in all nations, it will not be lasting (1986b). He has introduced the Transcendental Meditation and TM-Sidhi programs to develop peace in the individual and the world. The Transcendental Meditation technique is a systematic, natural, and effortless procedure that allows the mind to experience the thinking process at more refined levels, until awareness reaches the deepest state of the mind, an unbounded field of pure consciousness that is the source of thought (1967).

The TM-Sidhi program is an advanced technique that, together with the Transcendental Meditation technique, accelerates development of full potential for the individual and, when practiced in a group, enlivens profound harmonious and progressive trends in society. As a foundational element of all disciplines in Consciousness-Based education (CBE) at Maharishi University of Management and affiliated colleges and universities around the world, students and teachers practice the Transcendental Meditation program, and many practice the TM-Sidhi program in a group. As a result, students in CBE programs are peace-generators, for themselves, their families, nations, and the world.

This paper provides key concepts of Maharishi’s approach to creating world peace that are elaborated in the full papers presented in this World Peace volume. It should be noted that throughout the paper reference will be made to various aspects of Consciousness-Based education that contribute to students’ intellectual understanding and direct experience of their role as peace-generators. This paper includes the following sections: Approaches to Creating Peace in Peace Studies, Research, and Practice; Maharishi’s Approach to Creating Peace and Its Foundation in Individual Consciousness; Creating Coherence on the Societal Level; Research on the Maharishi Effect; The Mechanics of the Maharishi Effect; Attunement with Natural Law; Invincibility: the Ideal Strategy of Defense; Old and New Principles for Creating World Peace; and A Summary of Maharishi’s Vedic Approach to Peace.
Approaches to Creating Peace in Peace Studies, Research, and Practice

Researchers study variables that contribute to war in the hopes that certain interventions will produce a lasting state of peace. Some researchers and policy makers think that war is deterred by the buildup of armaments. Others think that negotiation will contribute to peace. A third school of thought takes a structural approach, considering that society itself must change in order to promote fulfillment and harmony for all citizens, rather than a privileged few. Yet discovery of the fundamental factors that promote peace has eluded researchers and peace practitioners due to the complexity of human interaction, the changing nature of society, and the intrinsic enormity of the problem.

Moreover, there is debate about “positive” and “negative” peace, and which of them is realistic. Negative peace, by most definitions, is the absence of war. To some, this means that if war is alleviated, peace is obtained (Brunk, 2000). Others go a step further to consider what a true state of peace would be, where individuals of all nations could live in prosperity and fulfillment:

Put in the simplest possible terms, a peace culture is a culture that promotes peaceable diversity. Such a culture includes lifeways, patterns of belief, values, behavior, and accompanying institutional arrangements that promote mutual caring and well-being as well as an equality that includes appreciation of difference, stewardship, and equitable sharing of the earth’s resources among its members and with all living beings (Boulding, 2000, p. 1).

Although the fulfillment of positive peace in society has been elusive, there is no lack of theoretical perspectives and research aimed at discovering the factors that alleviate war. The primary theoretical rationale in the arena of international relations since 1945 has been that of “peace through strength,” or military deterrence. This is a “negative peace” approach based on the premise that there is no comprehensive influence of order at the international level. This view gained prominence after World War II and the failure of the earlier League of Nations to create international order and peace (Banks, 1984, 1986).
According to this premise, each nation must maintain its own strength, and military deterrence has been adopted as the means to this goal.

There are problems, however, with the use of military capabilities as a definition of national strength. Particularly telling is the research finding that a nation’s high military capability (either nuclear or conventional) is a strong predictor of participation in an international conflict (Singer, 1980, 1982). Even if high levels of military capability were an effect, rather than a cause, of possible conflict, this would still undermine the concept of deterrent capability, since military strength would not lead to the avoidance of conflict. Other difficulties with the military deterrence strategy center on its ineffectiveness in the current global situation characterized by terrorism, protracted intra-national conflict, and nuclear proliferation (Globalsecurity.org, 2007; Weede, 1982).

Research also indicates that wars cannot be reliably avoided through treaties, economic cooperation, reduced rivalry, reduced defense spending, reduced verbal conflict, or resorting to international organizations (Weede, 1982). Negotiations are intended to lead to a treaty expressing the joint intention of the countries to pursue peace as well as a plan of action to realize common goals; however, such treaties have historically been short-lived because they serve the immediate interests of the parties within a volatile international environment, and do not address the deeper causes of turbulence between and within nations, such as competition over resources, economic disenfranchisement, lack of human security and human rights, and the fomenting of conflict for political and financial gain (Naidu, 2001; Reychler, 2008). As a result, one can count an average of over eight treaties per year in the period from 1500 to 1970 (Index to Multilateral Treaties, 1965). However, tens of millions have been casualties in wars during the same period. Two-thirds of those casualties occurred during the twentieth century (Levy & Morgan, 1984) with approximately 187 million deaths (Hobsbawm, 2002), despite improved means of communication. In the current century, there are at least 42 ongoing inter and intra-state conflicts (Globalsecurity.org, 2007). Negotiation, by itself, is thus certainly not sufficient to ensure global peace, although it may resolve a very specific or limited conflict.
Another major theoretical approach in the study of peace focuses on factors within a nation that predispose it to conflict. Theorists argue that wars and other forms of violence arise from the failure of domestic political, social, economic, or educational systems to meet the inherent needs of the people or some sectors of the population (Banks, 1984; Burton, 1984, 1986). This failure, sometimes called “structural violence” (Brunk, 2000, p. 2) or “indirect violence,” can be defined more broadly in terms of citizens’ lack of access to full potential. Inadequate schools, housing, health care, and finances all contribute to stressors on both the individual and societal level. When individuals cannot achieve their goals and societies cannot achieve a “positive” state of peace due to environmental limitations, strain results in disruptive social behavior, leading to further stressors in the family and between various interest groups in society such as political, religious, environmental, and economic interest groups. This structural inadequacy is said to lead to internal tension, insecurity among those in power, and perception of threat from those who internally or externally propose change.

This is borne out in U.S. society today, where diversity of thought and action prevails, and a commonality of understanding and purpose is rare. If one simply considers all the input that must go into any bill before it can be passed in the House and Senate of the U.S. Congress—all the hours of negotiation, the continuous debate, the diversity of opinions, the polling of home constituencies—one realizes that it is exceedingly difficult to come to a conclusion favorable to all interest groups, and therefore to the fulfillment of all individuals. While some find their education, finances, safety, and security augmented through legislation, others are marginalized, remaining in conditions of poverty, poor healthcare options, failing educational systems, and generally a low quality of life (Naidu, 2001).

Rather than looking to painstaking reformation of current styles of government, it is necessary to look at methodology that will promote consensus, commonality of understanding, and adaptability to change on the societal level, thus fulfilling the inherent needs of the many, diverse elements in the population.

Another theoretical perspective on peace addresses the peace of the individual and its implications for peace in society and the world. As has been seen above, individuals comprise society, and their everyday
experiences affect others in their surroundings, including family, fellow
students, work colleagues, and any others with whom they interact. It
is clear that outbursts of anger and dissension, and in extreme cases,
criminal activity, stem from factors including stress in the individual,
and the individual’s lack of capacity to fulfill needs and goals.

Stress-induced abnormalities arise from the undue pressure of expe-
rience in daily life. Some theorists say that this overload can stem from
lack of fulfillment of the basic needs as described by Maslow (1946) or
from instances of pressure and violence at home, school and work, or
change in individual and societal life. Williams (1999) comments that
“Coping with stress and change have always been fundamental issues
for human survival and evolution” (p. 1). On a physiological level, stress
is associated with overload of the body’s adaptive or coping mechanisms
(Sapolsky, 1992; Walton & Pugh, 1995). Although sleep may alleviate
some fatigue of the previous day, ill health and behavioral imbalance
arise when stress builds up in the individual over time. Behavioral and
physiological imbalance can manifest as inappropriate responses to life
situations, causing instances of disease, divisiveness, and violence.

Many interventions have attempted to deal with the results of stress
in individual life. These include counseling, healthcare modalities,
social service programs, and educational interventions. Yet, the stress
of individual life spills over into society: when groups of individuals
are unfulfilled, the repercussions can encompass widening territories
of influence until the discontent of the individual may lead to unrest
and violence in a region or nation. Hauss (2003) describes intractable
conflict in terms of identity conflicts and unmet human needs. This is
seen in grievances among individuals, families and groups, at times
centering on cultural and religious distinctions, economic imbalance,
and matters of property. The Kosovo crisis and the conflict in Northern
Ireland are examples.

It is clear from current world conditions and from the failure of most
methods to promote a lasting state of peace, that a more comprehensive
understanding of peace is essential. Peace is more than the absence of
war. And development of a state of “positive” world peace involves a
more profound, encompassing strategy than previous isolated interven-
tions have provided. To create peace in its fullest expression, violence
in all its forms must be eliminated, and the health and progress of both individuals and nations must be optimized.

Theorists in peace studies today have called for a more interdisciplinary approach to peace (Brunk, 2000), and some have also begun to regard transformation in political process and structure as involving a new, and more holistic paradigm of thought than has previously been considered (Becker, 1991; Woolpert, Slaton & Schwerin, 1998). Past political theory was informed by Newtonian thinking, centered on a mechanical model or world view which regarded individuals, and all their actions, and systems as separate and isolated, one from the other (Becker, 1991). In contrast, the quantum mechanical paradigm is informed by physics descriptions of the dynamics of interaction occurring at the finest time and distance scales where fundamental force and matter fields in nature are unified. In a peace studies and political science context, one can apply the quantum mechanical perspective by asking how the natural laws that administer the functioning of the physical world at the finer time and distance scales apply to development of individual and world peace.

Maharishi’s Vedic approach to peace, as discussed in the remainder of this paper, incorporates the theoretical understanding of natural laws and unified field effects at finer time and distance scales, with applied technologies of human consciousness to enliven a fundamental and sustainable state of peace in the individual and in society. To understand what will produce a lasting state of peace on every level of society, one must consider the nature of peace itself, and the knowledge and applications that could produce this fundamental state of peace.

Maharishi’s Approach to Creating Peace and Its Foundation in Individual Consciousness

Maharishi Mahesh Yogi brought timeless Vedic Science to light in modern life by providing theoretical understanding of the peace-creating qualities of the unbounded field of pure consciousness and direct experience of this field through his Vedic Technologies of Consciousness, the Transcendental Meditation and TM-Sidhi programs. Maharishi sees peace as a natural state of life. His principles are taught in Consciousness-Based education, so that students are able to experience peace within their own consciousness, to comprehend the
fundamental scientific principles that govern development of peaceful societies, and to apply those principles in every discipline. Maharishi describes the individual as the unit of world peace. He explains that the individual creates life-supporting or life-damaging effects with every thought and action (1967). As has been seen in the previous section, through stress and fatigue, individuals may not be capable of doing action that has a positive influence on their own lives and the lives of others. On the other hand, because of contact with the unlimited field of pure consciousness through practice of the Transcendental Meditation program, individuals can locate the unbounded reservoir of energy and intelligence at the source of thought, and enliven the creativity and intelligence available within their own consciousness. When individuals experience this field of consciousness in a systematic way, stress and fatigue are alleviated, and the peace that is a natural characteristic of unbounded awareness becomes a living reality of daily life.

Consciousness is popularly described in terms of the varying degrees of alertness or quality of awareness through which the individual perceives daily life. Researchers have also used the term consciousness to define the major states of alertness (waking, sleeping, and dreaming) as distinct states characterized by fundamental differences in functioning of mind and body (Alexander & Boyer, 1989). As the most recent exponent of the ancient Vedic tradition of knowledge, Maharishi Mahesh Yogi has described consciousness as the essential constituent of human experience. Although Maharishi indicates that this field of consciousness is basic to experience, most individuals are not familiar with it in daily life. He explains that the mind is habitually drawn outward through the senses toward the objects of experience. Nonetheless, it is possible to draw the attention inward, and eventually locate the field of pure consciousness, through the systematic practice of the Transcendental Meditation technique. If action is to be harmonious and successful, thinking must also be balanced and cordial. For example, the course of events, which may either deteriorate into conflict, or develop into an accord, depends on the even-mindedness and balanced thinking of participants in a negotiation.

The field of pure consciousness is considered to be the “least excited” state of the mind (Maharishi, 1978a, p. 94). Inner calm is experienced as a state of “restful alertness,” in which the mind is awake but deeply
settled. This experience of consciousness in the state of transcendental awareness is also described as a “self-referral” state (Maharishi, 1995) because the awareness is experiencing its own nature, in contrast to the object-referral state when the mind’s attention is directed outward and interacting with the objects of perception. The mind, contacting its own fundamental nature, or “pure consciousness,” is enriched, and those qualities associated with this field of consciousness are enlivened in individual awareness, including, among others, the qualities of perfect balance and harmony (Hagelin, 1992 and this volume).

We can understand this further by realizing that due to the close connection between mind and physiological functioning, a more restful state of the mind will give rise to a more settled state of physiological functioning: the state of restful alertness in the mind resulting in from experience of pure consciousness produces a correspondingly deeper state of restfulness in the body. Stress-related imbalances occur when the body’s coping and adapting mechanisms are overloaded from excessive physical and/or mental experiences (Chrousos & Gold, 1992; Sapolsky, 1992). Depression, anxiety, negative self-perceptions, and other problems of psychological and social adjustment can result from an overload of stress.

Rest is a standard prescription for many ailments because it appears to activate the body’s own ability to heal itself. Research on the Transcendental Meditation technique shows that it is a highly effective stress-reduction technology. Rest gained during the technique results in more balanced physiological functioning, for example, in brainwave patterns, cardiovascular and respiratory functioning, and hormonal outputs (Wallace, 1993). A meta-analysis of 32 published studies has shown that practice of the Transcendental Meditation technique reduces respiratory rate and plasma lactate (indicative of anaerobic metabolism) significantly more than simply resting with eyes closed. These physiological changes reflect a deeper, more restful state of mind-body functioning during practice of the Transcendental Meditation technique than during ordinary eyes-closed rest (Dillbeck & Orme-Johnson, 1987). In light of the research, and the distinctions between this state and the other three commonly experienced states of consciousness on a number of psychophysiological parameters, pure or Transcendental Consciousness located through practice of the Transcendental Medita-
tion technique has been defined as a fourth major state of consciousness distinct from the other three states (Wallace, 1993).

A further practical outcome occurs as the individual continues the systematic twice-daily practice over time: experience of pure consciousness and more balanced functioning of the physiology become a feature of life, even in the midst of dynamic activity. This more expanded perspective and improved balance in physiological functioning contributes to increased quality of life for the individual, including diminished healthcare utilization (Orme-Johnson & Herron, 1997); normalization of high blood pressure (Schneider, Alexander & Wallace, 1992; Schneider, et al., 2005); and decreased cigarette and alcohol consumption (Alexander, Robinson, & Rainforth, 1994).

Studies show that the Transcendental Meditation and TM-Sidhi programs develop the following benefits: higher academic achievement (Nidich & Nidich, 1989; So & Orme-Johnson, 2001), ego or self-development (Chandler, 1991); emotional stability (Eppley, Abrams & Shear, 1989); and development of self-actualization (Alexander, Rainforth, & Gelderloos, 1991). This development occurs because the Transcendental Meditation and TM-Sidhi programs enliven the “hidden reserves of the brain” (Lyubimov, 1994) and create coherence in brain-wave patterns (Travis, 2001; Travis, Tecce, Arenander, & Wallace, 2002), unfolding the potential of the mind. Thus, students in a Consciousness-Based education program are developing their own talents and capabilities. In most schools, students gain information and learn methods of processing information to use for their goals and endeavors. In Consciousness-Based education, students also expand the container of knowledge, their own consciousness and their own minds, so that they become more creative day by day.

In particular, this research implies that students practicing the Transcendental Meditation technique as part of their school curriculum develop more peaceful tendencies which allow them to achieve more in school and also allow them to have better relationships with other students. For example, students in elementary and secondary schools report that they notice an improvement in their emotional stability (less angry outbursts, less fights) and their ability to stay on task and focus on their schoolwork (Dillbeck, Clayborne, & Dillbeck, 1990; Dillbeck &
Dillbeck, 1990). Researchers have also seen these results in standardized tests (Barnes, Bauza, & Treiber, 2003).

The comprehensiveness of the research findings leads to a clear conclusion: an individual experiencing pure consciousness develops an essential balance and peacefulness within, which promotes more balanced behavior, greater health, greater resilience (Walton & Levitsky, 2003), and improved overall quality of life. This is a key concept for understanding how the Consciousness-Based approach resolves entrenched societal problems. Peace in the world results when peace is available to individuals as well as to societies. Peace, although associated with relationships among nations, is promoted by the development of constructive relationships among individuals, families, and communities. When individuals are subjected to the stress and strain of modern life, constructive behavior is hampered. Thus, it is essential that the individual cultivate the experience of inner peace in order to uphold the peace and progress of the society.

**The Transcendental Meditation-Sidhi Program**

In the late 1970s Maharishi introduced an advanced program of the Transcendental Meditation technique known as the Transcendental Meditation-Sidhi program. Maharishi (1995) explains its value:

The TM-Sidhi Programme is an advanced aspect of Transcendental Meditation. It trains the individual to think and act from the level of Transcendental Consciousness, greatly enhancing the coordination between mind and body, and developing the ability to enliven Natural Law to support all avenues of life to fulfill one’s desires (p. 308).

From Maharishi’s description and from research on this technology, it can be seen that practice of the TM-Sidhi program accelerates the benefits of the Transcendental Meditation technique and results in more effective and fulfilling thought and action. He has indicated that all the aspects of the TM-Sidhi program cultivate ability to act from the level of the transcendent, but the most powerful aspect of this advanced program, Yogic Flying, appears to produce optimal coherence in brain functioning. Maharishi (1995) explained that the experience of Yogic Flying allows the individual to cultivate the ability to think a thought from pure consciousness and thus develop the ability to activate one’s inner resources. According to Maharishi: “Yogic Flying is
a phenomenon created by a specific thought projected from Transcendental Consciousness, the unified field of natural law, the field of all possibilities” (1996, p. 445). When this thought is actualized, the body lifts up, and moves forward in a series of short hops that is the signature of the first stage of Yogic Flying.

Brainwave studies utilizing EEG specifically show that during this first of the predicted stages of Yogic Flying—at the moment when the body lifts up and begins to hop—the brain is functioning in the most coherent, integrated and orderly fashion (Orme-Johnson, Clements, Haynes & Badaoui, 1976; Orme-Johnson & Gelderloos, 1987). (Please refer to Figure 1 on the following pages). When the body lifts up, the individual simultaneously experiences great exhilaration and deep inner silence. Research also indicates that EEG coherence in frontal brain areas during Yogic Flying is correlated with enhanced intelligence, creativity, moral reasoning, and emotional stability (Dillbeck, Orme-Johnson & Wallace, 1981; Orme-Johnson & Haynes, 1981).

While Yogic Flying offers many benefits for the individual, when it is practiced in a group, a field effect is generated that promotes a peaceful influence in the surrounding environment. In the following sections we will discuss this role of the Transcendental Meditation and TM-Sidhi programs to create invincibility in nations and peace in society as a whole.

**Creating Coherence on the Societal Level**

Maharishi’s Consciousness-Based approach views the individual and the society in any nation or culture as fundamentally interconnected. The individual is the basic constituent of the society and, therefore, the fortunes of the individual and the quality of life of each person contribute to the quality of life of the society as a whole. Each individual is a key player in promoting peace. Moreover, each individual is the recipient of the wellbeing that will ensue when peace is a reality. Therefore, it is essential that each individual choose to enliven peace rather than contribute to destructive tendencies in society.

Maharishi suggests that the collective value of a society creates a “wholeness,” greater than the sum of the parts, generated by the quality of consciousness, thought, and action of all the individuals that comprise the society (1995). Individual and societal consciousness is recip-
During the TM-Sidhi Yogic Flying technique, the body lifts up at the point of maximum coherence in brainwave activity.
rocal: the individual influences the larger value, and the larger value supports or hinders individual progress. According to Maharishi, when individuals are peaceful and coherent in their own consciousness, peace and coherence in the collective consciousness result:

Coherence means togetherness—that is, a situation in which differences cease to dominate and friendliness begins to reign. Any country within which harmony dominates becomes very powerful, because no energy and intelligence is wasted in resolving arguments and conflicts among its citizens. The government can structure steps of progress instead of worrying about whether it will survive and where the next shock will come from (1978a, p. 126).

Maharishi offers the practical possibility of coherence in the collective consciousness of every society through the same technology that develops coherence on the individual level, the Transcendental Meditation and TM-Sidhi programs. He predicted, however, that it would not require all individuals to practice the Transcendental Meditation technique to achieve the desired results (Maharishi, 1995). A formula based on principles in physics indicated that it would only require one percent of the population to practice the Transcendental Meditation technique in order to influence societal characteristics in the direction of greater progress and harmony. Maharishi commented about the coherence-creating properties of a small percentage of a population:

What is necessary is just a small area in the whole room to become lighted and the whole room becomes lighted. What is a bulb? A very small filament. How much is that in relation to the whole volume of the room? A very insignificant area. Yet it becomes lighted and the whole room becomes lighted. One simple single individual brain becoming a little bit more orderly—how much more orderly could one become in fifteen minutes, with all the chaos and disorderliness of the whole day?—but that little orderliness increasing in the mind of an individual is good enough to radiate its influence. One small filament becoming lighted is enough to light the whole room. Like that, one person, one slightly enlightened person, is good enough for the whole society (1976, p. 46).

The one percent effect was researched in cities throughout the United States in the 1970s (research described in the following sections) and it was found that both crime rate and auto accident rate decreased in
those cities compared to controls. When enough experts of the TM-Sidhi program had been trained, Maharishi further predicted that group practice of the TM-Sidhi program by as few as the square root of one percent of the population would generate an even more powerful influence of coherence and harmony throughout society than when individuals were practicing the Transcendental Meditation technique by themselves (Maharishi European Research University, 1979). Collective enlivenment of pure consciousness during group practice of the Transcendental Meditation and TM-Sidhi programs has been shown to neutralize tension and negative tendencies in communities and nations and support development of more positive trends in society. This phenomenon has now been verified in over 50 studies on the city, state, national, and international levels, utilizing such variables as crime rate, quality of life, the economy, governmental bipartisanship, and international relations to examine the role of Maharishi’s technology in creating a coherent society. The term “Maharishi Effect” has been used to name this transformation in society in honor of Maharishi Mahesh Yogi, who had predicted it and who established a practical set of techniques to create it.

Methods of Verifying Consciousness-Based Knowledge and Experience
The hypotheses for research on the Maharishi Effect have been informed by an ancient Vedic expression: \textit{Tat Sannidhau vairatyagah} translated as “In the vicinity of coherence (Yoga), hostile tendencies are eliminated” (Maharishi, 1986b, p. 29). The variables chosen for the research have been ones that could show a measurable change in societal trends, and would therefore represent operationalizations of the Vedic expression in terms of quantifiable results.

The Vedic expression noted above informs the research, but of even greater importance, highlights the ways that the results of practice of the Maharishi Technology of Consciousness have been validated, and presented to students. There are three paths of validation: the first is Vedic knowledge passed down from teacher to student in an oral tradition from the ancient Vedic Rishis (or Seers) of knowledge. Maharishi is the most recent of these teachers. At Maharishi University of Management, Vedic knowledge is included in each class ses-
sion, and informs study of discipline-related subject matter as well as consciousness-related discussion. The Vedic expression above serves as an example of this aspect of knowledge.

The second method of verification is through the direct experience of the practitioners. Students have the opportunity during courses specifically developed for this purpose to discuss their experiences during the Transcendental Meditation and TM-Sidhi programs with instructors trained to offer insight into the practice and results. This is how the student can bring together knowledge from the classroom and knowledge from their own direct experience to gain greater understanding of the qualities of the unified field of consciousness growing in their lives and informing society’s progress. They find, from their direct experience, that practice of the Transcendental Meditation technique reduces negative tendencies in their own lives, so the Vedic expression has value for them personally as well as conceptually. The third way is through verification by scientific research. In this example, the student learns about the studies that show greater balance and progress for themselves (intelligence, creativity, etc.); their health, mind-body coordination, etc.; their relationships (family and work interactions); and about applications for society (as will be described below).

These three methods of verification of the benefits of practice (Vedic knowledge, direct experience, and scientific research) provide a significant and profound conjunction of the streams of knowledge available to the student (and to the general population) by which to inform themselves of the realistic and practical progress in their development of consciousness and full potential. As well, through these three methods, they see the practical reality of developing a peaceful world.

**Research on the Maharishi Effect**

In the 1970s, researchers began exploring the hypothesis that more positive trends would be seen in those cities where one percent of a population practiced the Transcendental Meditation technique. They looked at data on crime rate in 11 cities where one percent of the population practiced the Transcendental Meditation technique, matched by size of population, geographic area, and size of college population, with 11 control cities. There was a 16% decrease in crime rate from 1972 to 1979 (Borland, & Landrith, 1977). This research was replicated in increas-
ingly large sample sizes in the early ‘80s (Dillbeck, Landrith, & Orme-Johnson, 1981). The most comprehensive of these studies involved a sample of 160 cities, analyzing crime rate from 1964 to 1978 using data from the “FBI Uniform Crime Index.” Controlling for ten variables that could be regarded as possible alternative causes for the changes in crime rate, the results using multiple regression and cross-lagged panel correlation, indicated a causal effect of Transcendental Meditation participation in reduction of crime rate over a six-year period (Dillbeck, Banus, Polanzi, & Landrith, 1988).

**Group Practice of the Transcendental Meditation and TM-Sidhi programs**

As has been discussed, any individual influences the society by the quality of his/her thought and action. Research on groups of individuals practicing the Transcendental Meditation and TM-Sidhi programs indicates that these groups create a powerful influence of coherence and harmony in the collective consciousness of society, more powerful than when one percent of the population is practicing the Transcendental Meditation technique in their homes.

As introduced above, Maharishi has indicated that only the square root of one percent of the population would need to practice the advanced program in a group for results to be observed in all areas of society. An example is seen at Maharishi University of Management where a coherence-creating group of practitioners of the Transcendental Meditation and TM-Sidhi programs has been established for approximately thirty years. In 1982, the threshold for the national Maharishi Effect was reached at Maharishi University of Management, with daily numbers of approximately 1,500 (Pearson, 1998). Numbers during the Reagan presidency fluctuated primarily between 1,100 and 2,000 with the addition of several short-term courses with higher numbers (Goodman, Orme-Johnson, Rainforth, & Goodman, 1997), and although there has been a marked variation in numbers throughout the years, the numbers have recently returned to an average of between 1,700 and 2,000 after 2006 onward when Maharishi inaugurated an “Invincible America” course (InvincibleAmerica.org, 2009).

Many of the students at Maharishi University of Management participate in this group, and thus contribute to peace in society as well as
development of their own potential individually. Based on the numbers of practitioners in the group at the University as the predictor variable, extensive research has been conducted on a wide range of data comprising the dependent variables. This research has included improvement in the economy (Cavanaugh, 1987); quality of life (Orme-Johnson, Gelderloos, & Dillbeck, 1988) reduced violent fatalities (Dillbeck, 1990); and decreased crime rate (Hagelin, Orme-Johnson, Rainforth, Cavanaugh, & Alexander, 1999; Hatchard, Deans, Cavanaugh, & Orme-Johnson, 1996). These results indicated the influence of the permanent coherence-creating group at Maharishi University of Management and in some instances, included numbers from several large assemblies conducted both in Fairfield and in Washington, D.C. For example, when a group of 4,000 assembled in Washington, D.C. in the summer of 1993 (including those that had traveled from the permanent group at Maharishi University of Management and others from around the world), studies were completed on a variety of variables, including improvement of approval ratings and media positivity toward the President (Goodman, Orme-Johnson, Rainforth, & Goodman, 1997), decreased crime rate (Hagelin, et al., 1999), and increased bipartisanship in Congress (Goodman, Orme-Johnson, & Goodman, 2004). These studies indicate that when a large group creates the Maharishi Effect in a nation, a more integrated and harmonious nation results. This is particularly evident in the study on the U.S. Congress, where increased bipartisanship in Congress reflected the more optimistic and cordial mood of the country.

The studies noted above and the studies mentioned in the following section were conducted as a result of both short-term conferences where groups of practitioners gathered specifically to practice the Maharishi Technology of Consciousness in the U.S.A. and Europe (with between 3,000 and 8,000 in the groups), and over a long period of time through daily group practice at Maharishi University of Management. The short-term conferences around the world and the permanent group in the U.S.A. afforded the opportunity for researchers to explore both impact assessment (for short-term) and transfer function (for long-term trends) using time series statistical analysis, a very rigorous methodology able to control for seasonal and other cyclical effects. As well, for
some of the major studies, researchers conducted prospective studies, lodging predictions of the outcomes with independent review boards.

Reducing Violence and Promoting National Peace through the Maharishi Effect

A substantial body of research has shown that the Maharishi Effect has a dramatic impact in alleviating violence and promoting peace on a national and global level. These studies include a World Peace Project in 1978 which was the first direct demonstration of the influence of collective practice of the Transcendental Meditation and TM-Sidhi programs on reducing national political violence. During the 10-week period from October 8 to December 23, 1978, a total of 1,400 experts in the TM-Sidhi program went in groups of 30 to 400 to the major trouble spot areas of the world. A predicted reduction in hostility in these areas was publicly announced in advance of the experiment. The data for this experiment came from the independently collected and coded Conflict and Peace Data Bank (COPDAB), which was at that time the largest daily data bank in the world scoring national and international conflict events (from 70 major news sources). During the World Peace Project the percentage of hostile actions between countries as well as between factions within the trouble spots decreased relative to the baseline period by 17%, while cooperative events increased by 13% (Orme-Johnson, Dillbeck, Bousquet & Alexander, 1991). The proportional reduction in hostile acts in trouble spot areas proved twice as great as for the rest of the world during this time. Calming the major trouble spot areas was also found to positively influence the entire world. Results indicated that the World Peace Project had a substantial effect of reducing hostile acts and verbal hostilities, and increasing cooperative events on a worldwide scale. The full article describing this research is included in the “Peace Within a Nation” section of this volume.

A second striking study, also included in this volume, the International Peace Project in the Middle East, occurred in Jerusalem, in July and August of 1983 and experimentally demonstrated an influence of peace in Lebanon (Orme-Johnson, Alexander, Davies, Chandler, & Larimore, 1988). Predictions were lodged prior to the experiment with independent review boards in both the United States and Israel, and
daily group sizes were sent to these boards on a monthly basis. Time series analysis indicated that when group size was large (approaching or above threshold), there was a marked reduction of armed conflict in Lebanon, including a 50% decrease in war intensity and an 83% decrease in war deaths as estimated by transfer function analysis. Also, as predicted, significant reductions in crime rate and auto accidents, and improvements on economic and other social indicators were observed first in Jerusalem, and then in Israel as a whole, as group size surpassed the respective thresholds for these smaller populations.

The studies discussed thus far were of short duration. What would happen if the Maharishi Effect could be maintained over a longer time period? This issue was addressed on a small scale in a six-year prospective study of a village of 10,000 people in the focal region of the Lebanon war (Nader, Alexander & Davies, 1991). As predicted, and in abrupt contrast both with its own history and worsening trends in neighboring control villages, there was a complete cessation of hostilities in the experimental village from the time the predicted threshold of those practicing the Transcendental Meditation program was reached. More detail on this study is seen in the original paper, available in this volume.

The Maharishi Effect and International Relations

As Maharishi emphasizes, peace is more than the absence of war; for its fullest expression peace requires eliminating violence in all forms, and optimizing national health and progress. It has also been shown that during periods when the square root of one percent of a nation’s population practice the TM-Sidhi program together, a wide range of negative behaviors are reduced and positive behaviors are promoted in the nation.

Ultimately, rising coherence in U.S. national consciousness was reflected in more positive relations with the former Soviet Union.

In nations which lack harmony and coherence within their internal structure, we see frustration among their leaders because they cannot make friends even with those countries that want to be friendly. Making friends with enemies is out of the question! When there is harmony within the country, even enemies want to become friends and the leaders receive only smiles and praise from everywhere. Relations are cor-
dial. There is an exchange of joy, love, and freedom, and the family of nations functions as a harmonious close family (Maharishi, 1978a, pp. 105–106).

Gelderloos, Cavanaugh, and Davies (1990) found that when the number of practitioners of the Transcendental Meditation and TM-Sidhi programs at the permanent group in Fairfield, Iowa, exceeded the threshold of the square root of one percent of the U.S. population, a lagged effect was found at 2 months for positive actions of the U.S. toward the U.S.S.R. When the group reached 1,700, U.S. actions showed increased positivity at a lag of 2 months. This and the following study are presented in full in the “International Relations” section of this volume.

In a second study, Gelderloos, Frid, Goddard, Xue, and Loliger (1988), found that Reagan's statements between April 1985 and September 1987 displayed an increased positive quality. This increase in positivity was seen one and three weeks later when the group size in Fairfield achieved numbers between 1,765 and 1,864; when the group size was over 1,864, an immediate effect was seen, and a further effect at three weeks. The Gelderloos studies indicate the positive influence of the TM-Sidhi program group on the interaction between the two “superpowers.” Maharishi (1986b) had indicated that one of the primary signs of peace on the world level would be “the dangerous rivalry of the superpowers has gracefully come to an end” (p. 25).

A third study (Goodman, Orme-Johnson, Rainforth, & Goodman, 1997) was conducted on U.S. interactions with all other countries as reported in the *New York Times* during the Reagan Administration. A “net cooperation” scale was created with the World Events Interaction Survey (WEIS) (Tomlinson, 1995) data as suggested by Goldstein (1992). The independent variable was the monthly average of the number of participants in group practice of the Transcendental Meditation and TM-Sidhi programs at Maharishi University of Management (previously Maharishi International University, 1971-1995) and an average of other large assemblies of participants in the U.S. and the Netherlands during the years of the study (participant numbers at those assemblies ranged from 3,000 to 8,000). The results showed a significant influence of positivity of the independent variable on the net cooperation scale. As well, analysis of the independent variable—
specified as three binary variables describing different levels of Transcendental Meditation and TM-Sidhi participant numbers—indicated that increases in numbers of participants were associated with increases in net cooperation of the U.S. with other countries. The time periods of this study and the studies on U.S.-Soviet relations were roughly similar, the data sets were derived from *New York Times* articles in both this study (WEIS data) and the U.S.-Soviet study (Frei & Ruloff: *Zurich Project on East-West Relations*), and the results of the binary variables were also quite similar. Thus this study replicated the findings of the U.S.-Soviet study that the Maharishi Effect has a strong influence on U.S. interactions with other countries in the direction of greater cooperation and harmony, as predicted by Maharishi:

> Everything is possible from this level of Nature. Anything can be created, anything can be transformed into any other thing, and any situation can be changed into any other situation. All this is just a matter of knowing how to function from this unified level of Natural Law (1986b, p. 15).

**The Global Maharishi Effect:**

**Creating Coherence in World Consciousness**

The research reported thus far demonstrates that the Maharishi Effect can create coherence in the nation, in its immediate vicinity, and between nations. The first global experiment to test Maharishi’s program to create world peace was conducted at Maharishi University of Management in Fairfield, Iowa, U.S.A., from December 17, 1983, to January 6, 1984. In advance of this experiment, it was publicly predicted that when the square root of one percent of the entire world’s population—7,000 people at the time—collectively practiced this technology from one place on earth, a powerful influence of peace and enrichment of quality of life would be produced throughout the whole world. During this period, over 7,000 experts in the Transcendental Meditation and TM-Sidhi programs assembled at the University, from over 50 countries, to give the world a sample “Taste of Utopia.” (A paper by Orme-Johnson, Cavanaugh, Alexander, Gelderloos, Dillbeck, Lanford, & Nader, 1991, specifically describing the research on the “Taste of Utopia” course is presented in this volume.)

During two subsequent international world peace assemblies, held in the Hague, Netherlands (December 28, 1984–January 6, 1985) and
Washington, D.C. (July 9–17, 1985), the size of the coherence-creating groups also approached the predicted threshold for generating a worldwide influence. The following summary reports on research results of the three assemblies.

Events reported in daily news sources (New York Times or London Times) covering ongoing political conflicts in 25 countries around the world were coded by two raters unaware of the date of the event, using a scale adapted from Azar (1980). Three daily time series analyses from 63 to 129 days long indicated a significant reduction in conflict events during each of the three assemblies compared to immediately prior and subsequent periods: 36% during Iowa, 24% during Holland, and 28% during the Washington, D.C. assemblies (Orme-Johnson, Dillbeck, & Alexander, 2003). In every case, qualitative content analysis revealed a dramatic shift toward peaceful resolution of hostilities during the assemblies. Time series analysis also found a 72% reduction in casualties and injuries due to terrorist incidents immediately after the beginning of these three periods, in comparison to the rest of 1983-1985. Further, a two-year daily time series analysis of the three combined assemblies indicated a striking improvement on the Capital International World Index of stock prices in 19 countries during the conferences, suggesting increased economic confidence worldwide (Cavanaugh, Orme-Johnson, & Gelderloos, 1991; Orme-Johnson, Cavanaugh, et al., 1991). An earlier study also showed improvements during the Taste of Utopia Assembly on a number of other variables, such as reduced crime, motor vehicle fatalities, and infectious diseases, for cities or countries for which data were available (Orme-Johnson, Dillbeck, & Alexander, 2003).

In another study, an especially rigorous, fine-grade analysis of the impact of seven different international assemblies on the war in Lebanon provided a critical test of the power of the Maharishi Effect to promote peace in a political conflict that had continued unabated for 9 years. The seven assemblies took place from June 1983, to August 1985, in Lebanon, Israel, Yugoslavia, the Netherlands, and the United States (and included the three assemblies described earlier). In each case, though the assemblies were located at varying distances from the war, the group size was sufficient to predict a coherent influence on the crisis. Conflict and cooperative events were coded by an independent,
highly expert Lebanese rater, who previously had helped construct the data file of the Lebanese Information and Research Center (LIRC) in Washington, D.C. This rater was unaware of the purpose of the study, and was unfamiliar with the theory and applied technologies of Maharishi Vedic Science.

Time series analysis indicated that during the 93 days when the coherence-creating groups exceeded the predicted threshold, there was an estimated 66% increase in the level of cooperation among antagonists in the Lebanon conflict; a 48% decrease in the level of conflict; a 71 percent reduction in war fatalities; and a 68% reduction in war injuries. On a Peace/War Index combining these variables, all seven assemblies separately showed significant positive effects. The joint probability that the positive influence produced by these assemblies was due to chance was far less than one in one million (in the social sciences, an effect that would occur by chance one in a hundred times is typically considered significant). Further, these improvements were immediate and could not be accounted for in terms of daily temperature, holidays, or other forms of seasonality explicitly controlled in the analyses. Interestingly, the most substantial improvement on the Peace/War Index occurred during the Taste of Utopia Assembly which had the largest group size but took place 6,000 miles away—providing strong evidence of a global field effect in world consciousness (Davies & Alexander, 2005, and Davies, 1992 and in this volume).

The results described in the studies summarized above provide compelling evidence that a global influence of peace and progress can be generated by a single large group practicing the Maharishi Transcendental Meditation and TM-Sidhi programs from anywhere on earth.

**The Mechanics of the Maharishi Effect**

There are several ways to describe the “action-at-a-distance” or field effects generated by coherence-creating groups such as the one in Fairfield, Iowa, at Maharishi University of Management. The mechanics can be expressed in both Vedic and quantum mechanical perspectives.
The Unified Field of Physics and of Consciousness

Quantum physicists hold that the force and matter fields in nature are fundamentally interconnected by, and are expressions of quantum fields.

In fact, Hagelin (1992), who is both a renowned theoretical quantum physicist and an internationally known proponent of the Maharishi Consciousness-Based approach to peace, explains that quantum mechanics leads to a theoretical understanding of the progressive unification of the four fundamental forces of nature—electro-magnetism, the weak force, the strong force, and gravity—via supersymmetry. Further, at the super-unification level (very fine time and distance levels of the Planck scale: $10^{-33}$ centimeters or $10^{-44}$ sec), the force fields are united with the fundamental matter fields to describe a grand unified field. The current theory that explains this is called “superstring theory.” According to Hagelin, this superunification mathematically describes all the fundamental forces and particles as the “various modes of vibration of a single, underlying unified field” (p. 50). At ordinary distance scales, the various aspects of nature appear fragmented and the fundamental unity of the quantum fields is not evident. However, at the finer time and distance scales, symmetry is restored, with the complete (or super) unification of the opposing force and matter fields (or laws of nature) as described above, and depicted in Figure 2 (Hagelin, 2007a). Hagelin explains that “The superfield is an indivisible wholeness . . .” (p. 10.2).

Ray (1993) also describes this phenomenon. He points out that the new science knows of no distinction between energy and matter; that instead, everything is made up of vibrations:

The world of the new science is made up of vibrations and energy waves. What appears to be solid matter is actually the mutual vibration of particles so small and relatively so far apart that they dwarf astronomers’ pronouncements of the distances between planets and galaxies. The revolutionary implication of Einstein’s simple equation, $E = mc^2$, is that there is no true distinction between energy and matter (p. 2).

One can also describe the unified field of human consciousness as an indivisible wholeness, the unity value beyond the field of differences and distinctions. It will be seen that the value of unshakeable peace is generated from this indivisible wholeness accessed through human consciousness.
How does the unified field of quantum physics correlate with human awareness? Hagelin (1992) has uncovered, through exploration of mathematical equations of quantum physics, that the attributes of the unified field discovered in quantum physics have a one-to-one correspondence with the attributes of consciousness which can be enlivened in the field of pure creative intelligence within human awareness.

The mathematical equations describing these attributes are known as the Lagrangian of the superstring which depicts the “symmetries, components and self-interaction” of the unified field. Hagelin (1992, pp. 68–71) describes thirty qualities that are derived from the mathematical equations of the Lagrangian of the superstring. Among these are all possibilities, simplicity, perfect balance, perfect orderliness, infinite creativity, and infinite dynamism. Hagelin also notes that “every stage in the sequential unfoldment of the laws of nature from the unified field has its corresponding Lagrangian, bringing to light new qualities of the unified field, which were present but unexpressed at the level of the superstring” (1992, p. 68). He explains that with the discovery of the unified field, “the total range of natural law is open to scientific knowledge and exploration” (p. 50).

These foundational laws of nature found in both matter and consciousness can be accessed by human awareness during practice of the TM-Sidhi program, including Yogic Flying. Hagelin states that “only at the level of quantum gravity—the scale of superunification—can the classical laws of gravity be transcended and commanded” (2007, p. 12.1). This point helps in the understanding of the mechanics of Yogic Flying. At the level of the unified field, consciousness and matter are unified. Gravity itself is transcended. Hagelin (1987) further suggests that Yogic Flying demonstrates the ability of individual consciousness to function from the unified field of nature’s intelligence, described by ancient Vedic Science and glimpsed by current unified quantum field theories. He states that only from the level at which all four forces are unified, would one have the natural command over the curvature of space-time geometry necessary for mastery of Yogic Flying.

Just as the force and matter fields can be unified, so consciousness itself experiences its own self-referral nature within the unified field of unbounded awareness. In the waking state of consciousness, experience usually involves a distinction between the knower (the perceiver),
CONSCIOUSNESS-BASED EDUCATION AND WORLD PEACE

PHYSICS

LEVEL 5
- ELECTRONICS
- TELECOMMUNICATIONS
- COMPUTER SCIENCE
- MECHANICAL AND STRUCTURAL ENGINEERING
- MATERIAL SCIENCE
- AEROSPACE TECHNOLOGY
- LASER TECHNOLOGY

CLASSICAL MECHANICS
- THERMODYNAMICS
- STATISTICAL PHYSICS
- FLUID DYNAMICS
- SOLID STATE PHYSICS
- ACOUSTICS
- OPTICS

NUCLEAR PHYSICS
- QUANTUM MECHANICS
- ATOMIC PHYSICS

10^{-14} cm
- ELECTRO-MAGNETISM
- STRONG FORCE
- ELECTRO-WEAK UNIFICATION
- GRAND UNIFICATION

10^{-16} cm
- STRONG FORCE
- GRAVITATION
- GRAND UNIFICATION

10^{-18} cm
- GRAVITATION
- QUARKS
- LEPITOS

10^{-32} cm
- QUARKS
- LEPTONS

10^{-36} cm
- NEUTRINOS
- CHARGED LEPTONS

10^{-36} cm Planck Scale

FORCE FIELDS
- SUPERSYMMETRY
- MATTER FIELDS

SUPER UNIFICATION

Unified Field
of all the Laws of Nature

TRANSCENDENTAL MEDITATION
allows the conscious mind to identify itself with the Unified Field in Pure Consciousness

Figure 2
the known (the object of perception), and the process of knowing. This is called object-referral consciousness because the knower perceives objects as separate from him or herself. In contrast, the unity value (Samhita) describes the experience of the togetherness of the knower (Rishi), the process of knowing (Devata), and the known (Chhandas) as self-referral consciousness, because the individual is perceiving the Self alone as wholeness within the unified field of pure consciousness, beyond thought, and beyond the objects of perception. This wholeness is indivisible at the unified level, and when enlivened in individual awareness and in the group dynamics of consciousness through the Transcendental Meditation and TM-Sidhi programs, creates a positive influence of harmony in society. Figure 2 provides a depiction of the concepts described in this section.

The Unified Field Chart for Physics

As one of the unique aspects of the education at Maharishi University of Management, the faculty have designed large charts which map a particular discipline, or topic within a discipline, at a glance. Figure 2 is a Unified Field Chart for Physics. Unified Field Charts connect the various aspects of a discipline together, show the common source of the discipline in the unified field of consciousness and matter and connect the discipline, in each part and as a whole, to the experience of the student. Thus students can perceive that all knowledge is available to them as aspects of their own nature: pure consciousness, the unified field of all the laws of nature.

When the faculty create each chart, they visually and conceptually connect all aspects of the chart in a coherent and logical manner so that every section is related to every other section. There are two ways to examine the chart: 1) from the more expressed levels at the top of the chart to the deeper levels at the unified field, or 2) from the perspective of the unified field giving rise to all the aspects of the discipline at more surface levels. If one looks at the Physics chart from the top or surface level, one sees the structures of matter described by physics at their most concrete and distinct (one area from another). As one moves down the chart through the various levels toward the unified field, one sees the fundamental constituents of the force fields and the matter fields
and the unification between them. At the level of superunification, one can see the connection of the force and matter fields.

On the right-hand side of the chart, one sees a depiction of the transcending process in human awareness, again moving from the surface level of consciousness, to the field of pure consciousness at the basis of thought. Within the unified field of consciousness is located the “three-in-one interaction of the knower, known, and process of knowing” from which all the more expressed levels of activity are said to emerge.

**The Role of Infinite Correlation in the Maharishi Effect**

As has been discussed, the Lagrangian of the superstring describes attributes of the unified field of consciousness and matter. One of the qualities is “infinite correlation.” Infinite correlation can explain the measurable influence of coherence in an entire society created by a single group, without behaviorally interacting with the larger population, considered to be an “action-at-a-distance” effect. Maharishi explains the mechanics of the group practice of the Transcendental Meditation and TM-Sidhi programs in terms of this infinite correlation. At the level of the unified field of consciousness, all the diverse tendencies and values of life are found to be united, just as quantum physics describes the superunification of the force and matter fields. The self-referral experience of the group practice of the Transcendental Meditation and TM-Sidhi programs brings the awareness of the individual to the unified level of reality, thus enlivening this level. This “enlivenment” propagates throughout the field, as everything is influencing everything else on this level. Maharishi describes the effect: “This level of absolute pure consciousness underlies and interconnects all possible information. It is a field of infinite correlation in which an impulse anywhere is an impulse everywhere” (1977, p. 150).

This is analogous to a pebble thrown in a pond, with ripples emanating from the point in which it was dropped. These ripples are like the waves of pure consciousness radiated by the group practice of the Transcendental Meditation and TM-Sidhi programs which create peaceful tendencies in society.

Maharishi points out that:

By enlivening the field of infinite correlation on the level of pure awareness, the orderliness and coherence developed in national conscious-
ness will spread beyond national boundaries to neutralize any negative intentions in foreign nations. Enemies cannot help becoming friends (Maharishi’s Program to Create World Peace: Global Inauguration, 1978b, p. 19).

Hagelin explains this phenomenon in terms of the unified field of physics:

The scale of superunification at the level of the unified field is associated with a fundamental phase transition in the structure of natural law from a diversified state to a completely unified state. In physics, the defining characteristic of a phase transition is that the ‘correlation length,’ which is a measure of the connectedness or correlation of different components of a system, becomes infinite. At the scale of super-unification, all aspects of natural law at every point in the universe become infinitely correlated with each other. This means that a delicate impulse at one point in the system can create a precipitous change throughout the entire universe. This long-range correlation explains how action on the level of the unified field can have an influence that spreads anywhere and everywhere throughout the universe. In this way, the phenomenon of coherence spreads, neutralizing negative tendencies in the whole creation (In Maharishi, 1987, p. 19).

The research on the Maharishi Effect has shown the outcomes of coherence on the local, national, and international levels created by groups practicing Maharishi’s technologies of consciousness. The practitioners of these technologies are not specifically thinking about creating peace during their practice. They are not traveling around negotiating peaceful settlements in war-torn areas. They could not, through individual endeavor, create a nationwide influence on so many distinct variables as crime, accident rate, the economy, reduction of terrorism, improvement in success and support for the government, as has been successfully achieved by the Maharishi Effect. Instead, by silently locating the field of all possibilities and infinite correlation through the Transcendental Meditation and TM-Sidhi programs, they access the harmonious qualities of the unified field of consciousness and enliven that field throughout society from its most profound and silent source.
Attunement with Natural Law

Another way of understanding the Maharishi Effect is in terms of natural law. Maharishi also refers to pure consciousness as “the home of all the laws of nature.” This is corroborated by the mathematical equations of the Lagrangian that describe the characteristics of nature within the unified field. (A chart and further explanation of these qualities located by both quantum physics and Vedic Science as attributes of the unified field are found in two papers in this volume: “Achieving World Peace through a New Science and Technology” by John S. Hagelin; and “Introduction to the Proceedings of the Conference on Approaches to Creating a Stable World Peace” by David Orme-Johnson.)

Maharishi explains:

The functioning of transcendental pure consciousness is the functioning of Natural Law in its most settled state. The conscious human mind, identifying itself with this level of Nature’s functioning, gains the ability to perform in the style with which Nature performs its activity at its most fundamental level. Completely identified in transcendental consciousness with the full potential of Natural Law, the human mind is a field of all possibilities (1986a, p. 31).

While it is clear how an individual can display a more lively attunement with the laws of nature supporting success in life, let us consider what characteristics can be developed in society when attunement or agreement is developed between natural law and national law. This can be discussed in terms of unity amidst diversity. In society, one of the most pervasive concerns is the need to coordinate all the diverse and sometimes apparently conflicting desires of the citizenry. This diversity can be attributed to that perception by individuals, fostered by Newtonian classical mechanics, that individuals are like isolated physical entities interacting in a mechanistic world, “in which the world consists of large, solid objects with empty space between them” (Ray, 1993, p. 2). A common symptom of society when experienced in this way is the conflictive nature of diversity, with many individuals and groups promoting their apparently opposing perspectives. As has been discussed, the quality of life of the society as a whole, or its collective consciousness, is considered by Maharishi to be the result of the quality of the consciousness of the individuals comprising
it. The divisive element in society dominates when individuals in the society are contentious or disruptive, leading to turbulence and inability to find common ground. In contrast, Maharishi describes a society that functions in a more coherent manner, where those qualities of the unified field of consciousness that influence individual action become more dominant on a societal level as well.

As has been discussed, at the level of the unified field of consciousness, the three values of experience—those of the knower, the known, and the process of knowing—are unified, and the result is the enrichment and growth of the quality of wholeness in the individual and, through the Maharishi Effect, greater unity is seen amidst diversity in society. T.S. Eliot poetically referred to this unification as “the still point of the turning world” (1935). According to Maharishi, it is the dynamic co-existence of this three-in-one value of consciousness that explains nature’s perfect administration of diversity.

It also is, according to Maharishi, the very nature of this coexistence between unity and diversity that allows consciousness to be alert and awake to possibilities: “Togetherness of these contradictory qualities within the structure of consciousness renders consciousness wakeful, alert and lively. Consciousness is the lively field of all possibilities” (Maharishi, 1994, p. 60). Maharishi (1995) therefore explains that perfection in administration and in society arises from connectedness with the source in the unified field or connectedness of diverse values within the unifying value of consciousness, the field of natural law.

An example from nature—the way a tree grows in harmony with its subsystems of fruit, blossoms, leaves, and trunk—gives insight as to how each diverse aspect of society can develop in an evolutionary direction when the individuals of a nation function in harmony with the unified field of consciousness/natural law. The unified field of natural law can be likened to the wholeness of the tree, and the various interests and concerns of groups and individuals in the nation are like the aspects of the tree. According to the Consciousness-Based approach, in order to be attuned with natural law, individuals can systematically experience the field of pure consciousness, the unified value within their own awareness directly through the Transcendental Meditation and TM-Sidhi programs. Group practice of the TM-Sidhi program aligns the society with natural law. Maharishi suggests that:
Individuals suffer in life because they violate the Laws of Nature. Intellectually it is impossible to discover all the innumerable Laws of Nature, but through Transcendental Meditation, the individual begins to act from the home of Natural Law. Therefore, he spontaneously no longer violates any of Nature’s laws. The result is that he becomes an orderly influence on society, which is, after all, only a collection of individuals. Society will be as its individual citizens are. Fulfilled and healthy individuals will create an ideal society (1978a, p. 226).

Invincibility: The Ideal Strategy of Defense
Maharishi uses a very bold word to describe an attribute of this ideal society—invincibility. He says that the state of harmony produced by the practitioners of the Transcendental Meditation and TM-Sidhi programs is so powerful, that the Maharishi Effect can disallow the very birth of an enemy. The phrase introduced previously, Tat Sannidhau vairatyagah (Yog-Sutra 2.35), and translated as “In the vicinity of coherence (Yoga), hostile tendencies are eliminated,” can also be translated as “In the vicinity of coherence (Yoga), conflicting tendencies unite to create a unified state of harmony” (Maharishi, 1996, p. 514). This is the ideal strategy of defense: Heyam duhkam anagatam (Yog-Sutra 2.16) translated as “Avert the danger before it arises” (Maharishi, 1996, p. 65).

How does enlivenment of natural law promote national invincibility? According to Maharishi, national invincibility means that no enemy can infiltrate or invade a nation. This is similar to the concept of resilience for the individual. Some individuals have an inner integration and strength, either by nature or by development over time, that allows them the ability to respond calmly and proactively to stressful situations, even during chaotic events. In the same way, if collective consciousness is coherent and integrated, then the nation will be invincible: no inner or outer negative influence will be able to disrupt it (1978a). In contrast, an incoherent collective consciousness cannot avoid the problems and suffering that destructive elements from inside or outside the country create.

Invincibility does not only mean freedom from fear of invasion and disturbances from beyond the nation’s frontiers; it also means coherence and togetherness among the various elements which make up the nation’s internal structure, as well as complete lack of fear from natural
calamities. Nature becomes balanced and as a result the seasons come on time, crops are plentiful, and no disasters such as floods and famine take place (Maharishi, 1978a, p. 139).

Maharishi affirms that peace is based on the strength of a nation. He emphasizes, however, that true strength is neither characterized by nor gained through the buildup of weapons. The amassing of arms actually declares that fear prevails in the nation and in its government. History has repeatedly shown that amassing arms has never secured a lasting peace. Instead, buildup of arms creates fear in one’s neighbors, and they in turn amass greater arms. In an atmosphere of mutual fear and distrust, stress builds up in collective consciousness and eventually bursts out in violence. Just as any spark can kindle a fire in dry grass, any unfortunate event can have catastrophic results when there is great stress in collective consciousness (1978a). Further, Maharishi notes that in an age of nuclear weapons and terrorism, no nation can realistically defend itself by any means—be it force of arms or political treaty. He asserts that the only valid approach to defense is one that creates victory before war by preventing an enemy from arising. Maharishi (1996) states that enemies arise and thrive on the basis of weakness in the nation, and that invincibility is the only solution to weakness.

**National Invincibility Requires That All Areas of National Life Be Strong**

According to Maharishi, invincibility is structured in the holistic strength of the nation. A nation in tune with natural law is characterized by fulfilled citizens living a resilient and successful life. Moreover, the nation is characterized by unity amidst diversity (Maharishi, 1995). That is, groups can maintain their own cultural and family perspectives, while contributing to the harmony of the nation as a whole. Just as the unified field supports and harmonizes everything in Nature, so the enlivenment of this field in collective consciousness through the group performance of the TM-Sidhi program has been shown to support and harmonize the functioning of the different areas and groups comprising national life. Moreover, Maharishi asserts that generating coherence in collective consciousness through the Maharishi Effect creates an invincible “armor” around the nation that in ancient Vedic culture was referred to as *Rashtriya Kavach* (1978a, p. 49).
This protecting, coherent influence is analogous to coherent effects in physical systems, such as the “Meissner effect,” in which the coherence of a superconductor cannot be lessened or penetrated by an external magnetic field. (Please see Figure 3.) There is no friction in the flow of electrons within the system and thus the superconductor perfectly repels any attempt to decrease its internal coherence. This property arises when a metal is cooled to just above absolute zero degrees temperature and the properties of perfect orderliness that theoretically are ascribed to absolute zero are found to exist in the superconductor. Analogously, the state of least excitation of consciousness in the individual has the property of coherence (as seen in EEG research: Travis, 2001). When individuals generate this coherence within a group at least the size of the square root of one percent of the population of the nation, the group create a “superconductor” for the society, so that the nation is impervious to outside attack. (1978a, pp. 43–50)

Figure 3. The Meissner Effect

This principle of invincibility through internal coherence seen in the Meissner effect is by no means unique to a superconductor; it is found throughout the physical and biological sciences. In every case, the natural ability of a system to resist disorder is based on coherent collective functioning.

INVINCIBLE DEFENSE
WHERE IS IT?

Let us examine the different levels of physics.

INVINCIBILITY
Not Here
INVINCIBILITY
Not Here
INVINCIBILITY
Not Here
INVINCIBILITY
Not Here

INVINCIBILITY
Only Here

Super Unification
Unified Field
of all the Laws of Nature
In the same way, the Invincible Defense Technology (practice of the Transcendental Meditation and TM-Sidhi programs in groups) utilizes this principle of the Meissner effect to create an invincible armor for the nation. By generating powerful coherence in national consciousness, this unified field-based approach to defense creates an impenetrable border that protects the nation against any potentially disruptive or harmful influence from the outside.

The beginning of this paper outlined some theoretical and research highlights on factors associated with peace and war. That section showed that attempting to create peace and national strength through buildup of arms or through treaty negotiation alone is ineffective to prevent the outbreak of war. This section will examine the nature of true invincibility and where it is located. Figure 4, known as the Invincible Defense Chart, contains a section of the Unified Field Chart for Physics with the additional commentary concerning the location of invincibility (Hagelin, 2009). Unified Field Charts portray the sequential unfoldment of knowledge in a discipline emerging from the unified field and show the common source of the discipline in the unified field of consciousness and matter (as described in a previous section).

The Unified Field Chart for Invincible Defense (Figure 4) is exemplary as an illustration of the principles of physics at sequentially finer time and distance scales, but also serves to show how true invincibility of a nation, and a truly lasting state of peace, arises from the unified field of consciousness and matter. It is clear that there has been no defense against the advanced nuclear capacity present in the world today. As a result, even nations with advanced deterrence technology are incapable of protecting their citizens. It is also abundantly clear that defense cannot be found at the level of conventional weaponry. Even at the most expressed level of the Unified Field Chart, telecommunications, computer science and aerospace technology are only as successful as the individuals who make decisions about their usage. For example, these telecommunications and aerospace technologies were certainly available in 2001 and were not able to deter the attack on the World Trade Center.

Progressively finer or more subtle time and distance scales are shown in the Invincible Defense Chart from the macroscopic layers at the surface, through molecular, atomic, nuclear, and even subatomic levels.
A CONSCIOUSNESS-BASED APPROACH TO WORLD PEACE

(Hagelin, 2007b). The weaponry created at each deeper level is “orders of magnitude” more powerful than those depicted at more surface levels of the chart. Nuclear power is a million times more powerful, for example, than chemical manipulation of matter and yet invincible deterrence is not found at any layer of matter. It is only when the force and matter fields are united, known as superunification, at $10^{-33}$ cm and $10^{-44}$ sec of the Planck scale, that the wholeness of the unified field of consciousness and matter is fully expressed. This level is far more powerful than the nuclear level, and thus has the capacity to generate invincible defense when accessed and enlivened by groups the size of the square root of one percent of the population of a nation practicing the Transcendental Meditation and TM-Sidhi programs (Hagelin, 1998, p. 142).

Hagelin describes the reality of developing a truly invincible nation:

[Maharishi’s] technologies of consciousness operate at a level of Natural Law that is even deeper than the nuclear level, where the characteristic energies are correspondingly greater . . . the experience of pure consciousness corresponds to the direct subjective experience of the unified field of all the Laws of Nature at the foundation of the physical universe. The influence of positivity and coherence generated by such group practice thus represents an actual physical influence of peace that is orders of magnitude more powerful than any previous defensive technology, and which can easily overwhelm any incoherence and negativity among rival nations produced on the ordinary mental level (1998, pp. 142–143).

Moreover, Maharishi explains that access to the unified field of consciousness on both the individual and global levels can produce only life-supporting and positive tendencies due to the fundamental unification of the force and matter fields, or in terms of Vedic Science, the self-referral nature of consciousness. Violence and destructive tendencies can only arise on the levels of diversity where life can be seen and experienced as different and opposing:

I want to emphasize that the Nature of the Unified Field is only evolutionary. The power of the unified field is only nourishing. Destruction is nonexistent in the Unified Field. This is a very important point. There is no danger of any destructive capability in the Unified Field. It is absolutely safe in the hands of those who know how to use it. Those knowers of the unified field, those who are practicing the TM-Sidhi program,
have the skill of using the self-interacting dynamics of consciousness. They promote liveliness of the unified field in their own consciousness, and in groups they enliven the dormant self-interacting dynamics of the unified field to create harmony and an evolutionary influence in world consciousness (Maharishi, 1986b, p. 6).

**Utilizing Maharishi’s Technologies of Consciousness to Create World Peace**

Maharishi points out that when a group of between 8,000 and 10,000 individuals practices the Transcendental Meditation and TM-Sidhi programs together, world invincibility and world peace will be the inevitable outcome (1995). As has been seen in the research presented in this paper and this volume, such a group of 8,000 individuals convened for three weeks in December 1983–January 1984. Global and local indicators were effected in the direction of greater positivity. Yet, with the disbursement of the group, these indicators returned to previous incoherent levels. Only a permanent group of this magnitude can guarantee freedom from aggressive attacks on the international level. To safeguard humankind, a group of this size on every continent would ensure a sustainable and permanent state of world peace.

Invincible world peace requires that all nations be simultaneously strengthened and harmonized. According to Maharishi, lack of invincibility in any one nation will render world peace fragile (1986b). A unique gift of Maharishi Vedic Science is that it offers a single means through which individual, national, and world consciousness can be simultaneously enriched and integrated: collective performance of the Transcendental Meditation and TM-Sidhi programs by the square root of one percent of the world’s population. In distinguishing his approach to peace Maharishi notes:

People are trying to create world peace from various different levels of approach. Our appreciation goes for every effort that is being made for world peace. Our approach to world peace is holistic and most basic. It is from that most basic level of Nature’s functioning where eternal silence itself is the lively basis of the eternal dynamics of the universe—the self-interacting dynamics of the Unified Field of Natural Law—where peace upholds dynamism. That is why world peace created from this level [through group practice of the TM-Sidhi program] will uphold unending progress for all mankind (1986b, p. 210).
Old and New Principles of World Peace

In the past, each academic discipline has brought out the knowledge of specific laws of nature for improving life, and individuals have acted according to each separate law. This was the classical scientific approach. Now, through Maharishi Vedic Science and Technology individuals are learning to act from the unified field of natural law, the pure field of self-referral consciousness. This is explained in terms of quantum mechanics and in terms of the self-interactive dynamics of the unbounded field of pure consciousness.

This is why the principles emerging now to create World Peace are so different from those which previously prevailed.

Old Principles

- Violent conflict is inevitable.
- Conflict arises over the scarcity of material resources.
- Humans are innately aggressive.
- Conflict is settled through win-lose or compromise outcomes.
- Conflicts are settled and order established externally on the basis of superior military and political power.
- Peace can be maintained through military deterrence, i.e., through fear of the destructive power of a rival.
- Greater military destructive power indicates greater strength and promotes security and peace.
- Peace depends on the ability to destroy enemies.
- Defense requires the readiness of the military to take life and to risk sacrificing one’s own life.
- Peace can only be maintained for the people through the activity of the government.

New Principles of World Peace
Arising to Create Heaven on Earth

- Violent conflict can be eliminated from the world by creating coherence in world consciousness.
Conflict is due to the accumulation of stress in society, which in turn is due to lack of development of the unlimited subjective resource of mankind, the field of pure consciousness.

Every human being has the natural ability, actualized in higher states of consciousness, to spontaneously behave in a way that fulfills his or her own desires while simultaneously supporting the interests of the whole society.

Conflict is avoided through mutual progress based on development of individual consciousness. Each party wins by achieving the fulfillment of its aspirations for unlimited progress and achievement.

Order and harmony are inherent in the Unified Field of Natural Law. Through the development of coherence in world consciousness, these qualities are expressed in international life, so that conflicts do not arise.

Peace requires freedom from fear, and invincibility for every nation.

Greater military destructive power indicates greater weakness or fear and undermines security and peace.

Peace depends upon preventing the birth of an enemy.

Defense requires the ability of the military to protect and enrich life by creating an influence of coherence in collective consciousness.

The government is governed by the collective consciousness of its citizens. Peace is maintained on the silent basis of coherent collective consciousness. (Maharishi, 1989, 29–30)

Summary of Principles for Creating World Peace

The knowledge of new principles for creating and maintaining peace in the world is the gift of Maharishi Vedic Science and Technology. Maharishi’s Program to Create World Peace (1986b, pp. 2–20), was summarized in Heaven on Earth through Maharishi Vedic Science and Technology: Theory and Practical Application from the Perspective of All Disciplines, as follows:

1. The field of pure intelligence in Nature is that most basic level of Nature’s functioning, where eternal silence itself is the lively basis of the
eternal dynamics of the universe—the self-interacting dynamics of the Unified Field of Natural Law—where peace upholds dynamism.

2. If one violates Natural Law, one will generate stress in one’s own life and the lives of others. This is the basic cause of all negativity, violence, terrorism, and national and international conflicts.

3. The whole population of the world is violating the Laws of Nature because education does not train the people to think and act spontaneously according to Natural Law. Sickness and suffering, problems, failures, and frustration in the life of all the people are signs of violation of Natural Law. As long as people in the world continue to violate the Laws of Nature, perfect health will be nonexistent, and peace will not be found in any nation.

4. Peace can only be permanent on the basis of unshakeable satisfaction. Satisfaction depends upon progress and evolution. Thus, the full development of life in higher states of consciousness is vital to establish and maintain national invincibility and world peace.

5. Invincibility is the key to world peace. Invincibility of a nation is characterized by an integrated, self-sufficient quality of collective consciousness, where all different trends of different groups in the country are supported by the evolutionary power of Natural Law and no group remains in a state of frustration or nonfulfillment.

6. Invincibility to every nation is the only ground for permanent peace in the world. Lack of invincibility in any one nation will render world peace fragile. Therefore, the approach to world peace must be holistic.

7. The only approach to peace that will be holistic is one that will simultaneously raise all nations to the level of invincibility, and which will bring peace to the individual along with world peace. Just as everything in the world is governed by Natural Law, similarly all aspects of life of the individual are governed by Natural Law. Natural Law is that one element which can be utilized to influence all nations and all individuals in the world simultaneously. Skillful use of Natural Law will establish peace on all levels—individual, national, and international.
8. Now, through Maharishi Vedic Science and Technology, which identifies human intelligence with infinite intelligence on the level of the Unified Field of Natural Law, it is possible to train the people to not violate Natural Law and to generate a very powerful influence of coherence and peace from one place on earth. This influence will radiate throughout the world and continue to neutralize stress in the whole world consciousness caused by the violation of Natural Law by the world’s population each day.

9. Governments have not succeeded in creating world peace because in principle they are not capable of doing so. Government is not an independent entity. It depends upon the collective consciousness of the nation. Every government, regardless of its system, is an innocent mirror of the national consciousness. In principle and in practice, a government can only react to the situation created by the collective consciousness.

10. There is no government in the world that knows how to handle the collective consciousness of a nation or of the whole world, due to the lack of knowledge of the total potential of Natural Law. The technology of handling collective consciousness is to create an influence of coherence through the group practice of the Transcendental Meditation and TM-Sidhi programs—the Maharishi Effect. Maharishi’s insight that the functioning of government is based on the collective consciousness promises to raise any nation to invincibility and any government to self-sufficiency. Maharishi Vedic Science and Technology thereby offers a permanent state of world peace.

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The Invincible Defense Chart is reprinted by permission of Dr. John Hagelin (2009).

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A CONSCIOUSNESS-BASED APPROACH TO WORLD PEACE


Part II

Creating Coherence in World Consciousness
Introduction to the Proceedings
of the Conference on Approaches
to Creating a Stable World Peace

David Orme-Johnson, Ph.D.
ABOUT THE AUTHOR

David W. Orme-Johnson, Ph.D., was Chairman of the Psychology Department, Director of the Doctoral Program in Psychology, and Director of the Institute of World Peace at Maharishi International University. Dr. Orme-Johnson received his Ph.D. from the University of Maryland in 1969 in experimental psychology. Dr. Orme-Johnson has pioneered research on the Transcendental Meditation and TM-Sidhi programs in several areas, including autonomic stability, EEG coherence, intelligence, field independence, medical care utilization, prison rehabilitation, quality of life, and conflict resolution. His papers have appeared in such journals as *American Psychologist*, *Psychosomatic Medicine*, *International Journal of Neuroscience*, *Personality and Individual Differences*, and *Journal of Conflict Resolution*. Dr. Orme-Johnson was coeditor of Volumes 1 and 5 of *Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers*. 
ABSTRACT

A conference on Approaches to Creating a Stable World Peace was held by the Institute of World Peace at Maharishi University of Management in the Spring of 1991. A common theme of the conference was that the basic structure and dynamics of society must change in order to achieve a stable world peace. The speakers described a variety of ways in which a stable world peace was being pursued. Several members of the University faculty presented the theory and research on Maharishi Vedic Science and Technology as a unique approach to creating world peace and its profound implications for all efforts in peace building. This paper introduces the proceedings of the conference and describes Maharishi Mahesh Yogi’s theory and the scientific research validating its effectiveness.

Introduction

Maharishi’s Philosophy of World Peace

Maharishi Mahesh Yogi’s approach to world peace is extremely optimistic because it asserts that peace is a more fundamental property of natural law than is war. As Maharishi (1986b) explains, “Peace is eternal in nature, because everything in nature is progressive. Everything in nature is progressive because it moves under the direct influence of the evolutionary power of natural law” (p. 3). Maharishi (1986a) states:

Natural Law is invincible. It is all-supportive and progressive. It is always evolutionary. Alliance with Natural Law is an offer to every head of state to fulfill his aspiration for world peace, which is not going to be achieved by becoming more and more powerful in arms, ammunition, and the electronic and nuclear technologies. Everyone knows that means of destruction will always be means of destruction. Support of Natural Law, alliance with Natural Law, will always be evolutionary, promoting progress and peace. (p. 90)

Such a statement may sound surprising in the context of our history of virtually continual warfare, including 8,000 broken peace treaties since 1000 B.C., and 150 major wars since the establishment of the United Nations in 1945 (cf. Small & Singer, 1982). In fact, the world’s
track record for peacekeeping has been so poor that rationales for conflict have become major features of the predominant biological and psychological world view. Rationales for the inevitability of conflict that pervade our thinking include such concepts as competition for limited goods, survival of the fittest, a biologically inherited aggressive nature, and territorial imperatives (Lorenz, 1967; Ardrey, 1971). Yet biologists are now recognizing that cooperation and mutualism are much more powerful and successful adaptive strategies. From the perspective of Maharishi Vedic Science, they reflect more powerful laws of nature than is the case with conflict (cf. Salk, 1992). As Dr. Morris pointed out, it is simply loss of memory of who we are, what our consciousness fundamentally is, that has led to the predominant expression of more superficial, divisive levels of natural law that have plagued human history (Morris, 1992).

Another apologia for conflict that has permeated modern psychology is the belief that the desires of the individual and requisites of society must inevitably be in continuous conflict (Freud, 1962). This idea, which has poisoned the minds and hearts of generations of intellectuals, is not fundamentally accurate. Psychologists have now documented many examples of the most successful, creative, and self-actualized men and women of many different cultures who quite naturally have held the good of humanity foremost in their hearts and have spontaneously integrated their personal desires with the needs of society (Maslow, 1976). These developments in biology and psychology challenge the view that war is inevitable, pose questions about our fundamental understanding of nature in general and human nature in particular, and spark a quest for means to create ideal human beings, psychologically mature adults for whom peace is as natural and spontaneous as breathing.

Maharishi’s philosophy of world peace locates the source of peace in the unified field of nature’s intelligence, which is present in every fiber of creation. It is open to direct experience by the human mind in the state of Transcendental Consciousness, the simplest form of awareness during the practice of the Transcendental Meditation and TM-Sidhi programs (Maharishi Mahesh Yogi, 1986b).

The Transcendental Meditation technique is an effortless procedure for allowing the excitations of the mind to settle gradually down until the least excited state of mind is reached. This is a state of inner wakefulness
with no object of thought or perception, just pure consciousness aware of its own unbounded nature. It is wholeness, aware of itself, devoid of differences, beyond the division of subject and object—Transcendental Consciousness. It is a field of all possibilities, where all creative potentials exist together, infinitely correlated yet unexpressed. It is a state of perfect order, the matrix from which all the laws of nature emerge, the source of creative intelligence. (Maharishi Mahesh Yogi, 1976, p. 123)

With regular experience of Transcendental Consciousness, the individual is said to gain support of the invincible, evolutionary power of natural law, enabling him or her to fulfill all desires in a completely life-supporting way. Maharishi (1986b) holds that such individuals radiate a holistic influence of invincibility, health, and progress in the collective consciousness of the nation and the world. Maharishi (1986a) states:

Consciousness coming back onto itself gains an integrated state, because consciousness in itself is completely integrated. This is pure consciousness, or Transcendental Consciousness. From this basic level of life emerge all fields of existence, all kinds of intelligence. This self-sufficient, self-referral state of consciousness is the basis of the phenomenon of coherence that radiates from such assemblies [of Transcendental Meditation and TM-Sidhi participants] and influences the whole world consciousness. (p. 25)

Maharishi’s theory predicts that when a group of 10,000 individuals collectively practices the Transcendental Meditation and TM-Sidhi programs, a holistic influence of coherence and peace will permeate world consciousness.² Consequently, governments, which are held to be the innocent mirrors of collective consciousness, will come under the influence of the infinite organizing power of natural law. Natural law will then govern the nation with the same efficiency and evolutionary purpose with which it governs Nature, spontaneously coordinating diverse tendencies and goals, and establishing permanent world peace.

One key principle in Maharishi’s Philosophy of World Peace is that the most fundamental level of natural law, the unified field, is a field of

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² A group of 10,000 is in excess of the square root of 1% of the world’s population, which comprises approximately 7,000 individuals, the predicted threshold necessary to create a phase transition in world consciousness. For a discussion of the derivation of the square root of 1% formula, please refer to Hagelin, 1987, and Orme-Johnson et al., 1988.
consciousness. “Consciousness is the basis of all life and the field of all possibilities” (Maharishi Mahesh Yogi, 1976, p. 138).

Many of the founders of modern physics share this insight. Sir James Jeans (1932), an eminent mathematician, astronomer, and contemporary of Einstein, wrote, “Today there is a wide measure of agreement, which on the physical side of science approaches almost unanimity, that the stream of knowledge is heading toward a nonmechanical reality; the universe begins to look more like a great thought than a great machine” (pp. 185–186). Erwin Schroedinger (1964/1983), who developed the most widely used mathematical tools of modern quantum theory, reasoned that since consciousness was only found in the singular, as an “I,” there must be only “one mind.” In his words, “the self-consciousness[es] of the individual members are numerically identical both with [one another] and with that Self which they may be said to form at a higher level” (p. 31; cf. Dossey, 1989). Similar expressions by other pioneers of modern physics can be found in the Hagelin and Orme-Johnson articles in this issue.

Dr. Hagelin (1987, 1989), who is a pioneer in the development of unified field theories, has provided the most extensive consideration of the deep connection between physics and consciousness. He has shown, for example, that the unified field has consciousness-defining properties such as self-referral, intelligence, and infinite dynamism, and that there exist close correspondences between the structure of recent unified field theories and the structure of the unified field of nature’s intelligence as brought to light by Maharishi Vedic Science. Dr. Hagelin has pointed out that historically the naming of the particles and fields has happened without reference to any overarching unifying theoretical structure. This is because knowledge of the whole, the unified field of natural law, was not available within the framework of modern physics. With the recent discovery of the unified field in quantum physics, and with the existence of a complete science and technology of the unified field in Maharishi Vedic Science and Technology, Dr. Hagelin (1989) has suggested a scheme for reformulating and renaming the various force and matter fields and their corresponding elementary particles from the perspective of the unified field theory as described in Maharishi Vedic Science and Technology.
At this conference, Dr. Hagelin presented a derivation of the qualities of the unified field from the Lagrangian of the superstring, a key formulation of the most successful unified field theory of modern physics. The Lagrangian represents the most compact mathematical expression of the detailed structure of the superstring’s symmetries, components, and self-interactions. It can be seen in Figure 1 that the qualities of the unified field derived from the Lagrangian are the qualities that would create peace if displayed in human life and society. They include Freedom, Fully Awake Within Itself, Bountiful, Infinite Silence, Infinite Dynamism, Pure Knowledge, Infinite Organizing Power, Evolutionary, Perfect Orderliness, Self-Sufficiency, Purifying, Infinite Creativity, Integrating, Harmonizing, Perfect Balance, Bliss, Nourishing, and Invincibility. All are peace-generating qualities.

How can these ideal qualities be enlivened in the individual and society in order to create peace? As was pointed out earlier, according to Maharishi’s Philosophy of World Peace, the Transcendental Meditation and TM-Sidhi programs provide direct experience of the unified field of nature’s intelligence in the state of Transcendental Consciousness, and this experience infuses the peace-generating qualities of the unified field into all aspects of the individual’s life. Maharishi (1986a) explains that the individuals in society are interconnected on many levels of natural law, and that at the most fundamental, unified level, they are infinitely correlated. Thus, the direct experience of the unified field by a group of even as few as the square root of 1% of the population enlivens its qualities in society as a whole.

The following section presents empirical evidence that the Transcendental Meditation and TM-Sidhi programs enliven the qualities of the unified field of natural law in all areas of life—physiological, psychological, sociological, and ecological.

Over 600 scientific studies have been conducted on the Transcendental Meditation and TM-Sidhi programs at over 200 universities and research institutions in 30 countries. This body of research includes publications in more than 100 peer-reviewed scientific journals. Table 1 displays an interpretation of some of the key research findings in terms of the qualities of the unified field. As examples, we will consider the
Figure 1. The qualities of the unified field derived from the Lagrangian of the superstring.
research on five peace-building qualities of the unified field of natural law: Invincibility, Harmony, Self-Sufficiency, Bountiful, and Bliss.  

Table 1
Scientific Research Validating the Qualities of the Unified Field Developing in the Individual and Society through the Maharishi Transcendental Meditation and TM-Sidhi Programs

As the conscious mind identifies more and more fully with the unified field of natural law, all the fundamental qualities of the unified field are enlivened in the awareness. The enlivenment of these fundamental qualities in individual consciousness and in the collective consciousness of the nation provides the practical foundation for a civilization administered by natural law, characterized by perfection in every profession and in every area of individual and collective life. The essential characteristics of the unified field are derived below from a detailed analysis of the Lagrangian of the superstring. The Lagrangian represents the most compact mathematical expression of the detailed structure of the unified field—its symmetries, components, and self-interaction. Because the unified field is the fountainhead of natural law, all qualities in the universe have their origin in the unified field. Presented here are a few key characteristics of the unified field and their derivation from the Lagrangian of an N = 1 locally supersymmetric point particle theory. There have now been 500 scientific studies conducted on the Maharishi Transcendental Meditation and TM-Sidhi programs at over 200 universities and research institutions in 30 countries. This body of research includes publications in more than 100 peer-reviewed scientific journals. The analysis below reflects but a few of the findings demonstrating the enlivenment of the qualities of the unified field in all areas of individual and collective life.

3 These five qualities of the unified field correspond to the five Fundamentals of Peace formulated by Maharishi earlier: Strength (Invincibility), Cordiality (Harmony), Self-Sufficiency, Affluence (Bountiful), and Bliss.

4 The numbers in parentheses refer to the research papers in Scientific Research on Maharishi’s Transcendental Meditation and TM-Sidhi Program: Collected Papers, Volumes 1–5, whose findings most clearly exemplify the enlivenment of each quality in the areas of physiology, psychology, sociology, and ecology through Maharishi Vedic Science and Technology.
Table 1
Aspects of Life in Which Qualities of the Unified Field Are Enlivened

**PHYSIOLOGICAL**

**All Possibilities:** Metabolic improvements, EEG synchrony and coherence, increased physiological efficiency and stability, improved health, motor, perceptual, and athletic performance (Vols. 1–5)


**Freedom:** Decreased baseline levels of physiological stress, more effective interaction with the environment (Vol. 1: 25–28; Vol. 4: 313; Vol. 5: 356)

**Unmanifest:** Decreased respiration rate, increased muscle relaxation, EEG indications of restful alertness (Vol. 1: 1–4, 7, 14, 15, 17, 18; Vol. 2: 117, 122; Vol. 3: 209, 211–213, 220; Vol. 5: 365, 369)

**Simplicity:** Increased sensitivity and stability of control of hormone levels, simpler response to and faster recovery from stress, reduction of blood pressure (Vol. 1: 25; Vol. 3: 233, 244; Vol. 5: 363, 364, 367, 380)

**Omnipotence:** Increased sensitivity, strength, and flexibility of the nervous system, younger biological age (Vol. 2: 242; Vol. 4: 301; Vol. 5: 376, 380)

**Total Potential of Natural Law:** Improved neuroendocrine, perceptual-motor, and neuromuscular performance (Vol. 1: 46, 51, 53, 103; Vol. 3: 227, 248, 251, 252; Vol. 4: 301; Vol. 5: 363, 364, 390)

**Discriminative:** EEG and brain potentials indicative of superior mental functioning (Vol. 2: 114, 115; Vol. 3: 214, 216, 217, 219, 251; Vol. 5: 370, 372, 374)

**Fully Awake within Itself:** Breath suspension, autonomic stability, and high EEG coherence during Transcendental Consciousness (Vol. 1: 7; Vol. 3: 197, 205, 213; Vol. 4: 293; Vol. 5: 358)

**Bountiful:** Improved health and vitality in all physiological systems (Vol. 3: 238, 243; Vol. 5: 378, 379)
**Infinite Silence:** Lower baseline levels of respiration rate, heart rate, blood pressure, plasma lactate, and other autonomic functions (Vol. 1: 32–34; Vol. 2: 124, 125; Vol. 3: 233, 235, 238, 244–246; Vol. 5: 356, 367, 380)

**Infinite Dynamism:** Faster reflexes, improved athletic performance, increased longevity (Vol. 1: 46, 53; Vol. 3: 248, 251; Vol. 4: 301; Vol. 5: 380, 390)

**Pure Knowledge:** EEG and perceptual motor indices of higher intelligence (Vol. 1: 20, 21; Vol. 3: 216, 217, 219; Vol. 4: 294; Vol. 5: 372, 390)

**Infinite Organizing Power:** Greater expression of creativity and intelligence by the nervous system (Vol. 3: 216; Vol. 4: 294; Vol. 5: 372, 390)

**Evolutionary:** Multiple longitudinal improvements in physiological function (Vol. 1: 38; Vol. 3: 233, 236, 246; Vol. 4: 294, 301; Vol. 5: 363, 380)

**Perfect Orderliness:** Increased orderliness of brain functioning, autonomic functioning, and neuroendocrine regulation, and fewer diseases (Vol. 1: 20, 102; Vol. 2: 115; Vol. 3: 217; Vol. 5: 356, 363, 378)

**Self-Sufficiency:** Decreased medical care utilization, decreased need for prescribed and nonprescribed drugs (Vol. 1: 82, 83; Vol. 2: 162, 163; Vol. 3: 239, 241, 277; Vol. 4: 313; Vol. 5: 378, 379)

**Purifying:** Faster physiological recovery from stress and diseases, including heart disease, hypertension, diabetes, asthma, and epilepsy (Vol. 1: 25, 32–35, 38; Vol. 2: 124, 125; Vol. 3: 202, 233, 235, 238; Vol. 5: 380)

**Infinite Creativity:** Creation of more perfect structures and functions of the body through experience of Transcendental Consciousness, the state of maximum physiological coherence (Vol. 1: 20; Vol. 3: 205, 213, 229; Vol. 5: 360, 368, 374, 378, 380, 390)


**Harmonizing:** Maintenance of restfulness and alertness, inner silence and dynamic activity (Vol. 1: 19, 20, 25; Vol. 3: 216–219, 223; Vol. 5: 356, 373)

**Perfect Balance:** Improved homeostasis—normalization of blood pressure, plasma glucose, hormone levels, etc. (Vol. 1: 32–34; Vol. 2: 124, 125; Vol. 3: 233, 235, 238, 240; Vol. 4: 299, 300; Vol. 5: 363, 364, 380)
Self-Referral: Refinement of local feedback mechanisms resulting in health and high performance (Vol. 1: 21; Vol. 3: 227–231; Vol. 5: 378, 380)
Unboundedness: The EEG of unbounded awareness (restful alertness) maintained during the cycle of waking, dreaming, and sleep (Vol. 1: 19, 20, 25; 102; Vol. 5: 356, 373)
Immortality: Reversal of biological age and increased longevity (Vol. 3: 242, 245–247; Vol. 5: 376, 380)
Omnipresence: DNA, the total potential of the physiology present in every cell, expressed more perfectly as indicated by holistic improvements in all areas of the physiology (Vols. 1–5)
Infinite Correlation: Increased Intercorrelation of all areas of the physiology—increased EEG synchrony and coherence, improved physiological efficiency and stability, improved general health, improved motor, perceptual, and athletic performance (Vols. 1–5)
Invincibility: Increased resistance to disease, increased resistance to stress, increased strength and flexibility of the nervous system (Vol. 4: 301, 313; Vol. 5: 368, 378)

PSYCHOLOGICAL
All Possibilities: Development of personality, increased self-actualization, self-supportiveness, and emotional stability (Vol. 1: 64, 67, 69, 70, 72, 74, 76, 78; Vol. 2: 144, 151, 153, 155; Vol. 3: 239; Vol. 5: 395)
Omniscience: Increased intelligence, foresight, ability to deal with abstract and complex situations, and broader comprehension and improved ability to focus attention (Vol. 1: 55, 62; Vol. 2: 132, 153; Vol. 3: 259, 261; Vol. 4: 307; Vol. 5: 384, 389, 392, 393)
Freedom: Increased spontaneity, less susceptibility to habitual behavior, increased independence (Vol. 1: 69, 70; Vol. 2: 139; Vol. 3: 277; Vol. 4: 308, 316)
Unmanifest: Experience of Transcendental Consciousness, increased inner calm and tranquility, greater ability to bring inner self into
healthy expression (Vol. 1: 2, 7, 8, 20, 21, 67; Vol. 3: 197, 213, 216, 218; Vol. 4: 316)

**Simplicity:** Increased naturalness, greater spontaneity, greater ability to bring the inner self to healthy expression (Vol. 1: 64, 65, 69, 70, 76, 77; Vol. 2: 141, 151, 153; Vol. 3: 277, 290; Vol. 4: 308, 316)

**Omnipotence:** Increased ability to think and act in the present (Vol. 1: 58, 69, 70, 76; Vol. 2: 134, 136, 151, 152, 153, 155)

**Total Potential of Natural Law:** Improved perception, psychomotor performance, orderliness of thinking and recall, development of feelings, and increased ego development (Vols. 1–5)

**Discriminative:** Increased discrimination, selective attention, intelligence, ability to assign priorities (Vol. 1: 55, 71; Vol. 2: 123, 164; Vol. 3: 256; Vol. 4: 300; Vol. 5: 390)

**Fully Awake within Itself:** Increased mental clarity and wakefulness, experiences of higher states of consciousness (Vol. 2: 147; Vol. 5: 395)

**Bountiful:** Enhanced inner well-being and positive values (Vol. 2: 147; Vol. 4: 300; Vol. 5: 310, 380, 394, 426)

**Infinite Silence:** Experience of Transcendental Consciousness, increased inner calm and tranquility (Vol. 1: 2, 7, 20, 21, 65, 73, 77, 99–102; Vol. 2: 150; Vol. 3: 197, 213, 216, 218, 258; Vol. 4: 308, 316)

**Infinite Dynamism:** Increased liveliness, vigor, persistence, bravery, and action-oriented nature (Vol. 1: 65, 73, 77; Vol. 2: 153; Vol. 3: 277, 290)

**Pure Knowledge:** Increased intelligence, mathematical intuition, and memory (Vol. 1: 53, 55, 58, 103; Vol. 2: 134, 136, 150; Vol. 3: 257, 261; Vol. 4: 307; Vol. 5: 387, 389, 390, 392, 393, 417)

**Infinite Organizing Power:** Increased directedness, innovation, and creativity (Vol. 1: 62, 63, 103; Vol. 2: 150; Vol. 3: 257, 260; Vol. 4: 294, 305; Vol. 5: 392, 395)


**Perfect Orderliness:** Increased efficiency of concept learning, improved academic performance (Vol. 1: 59–61; Vol. 3: 219; Vol. 4: 306; Vol. 5: 380, 385, 386, 387, 391)

**Self-Sufficiency:** Increased self-sufficiency, self-reliance, self-supportiveness, autonomy, independence, and ego strength (Vol. 1: 64, 65, 67,

Infinite Creativity: Enhanced creativity, resourcefulness, and innovation, greater open-mindedness, and greater flexibility of construction of reality (Vol. 1: 62, 63, 103; Vol. 2: 150, 152; Vol. 3: 257, 260; Vol. 4: 294, 305; Vol. 5: 392, 395)

Integrating: Increased integration, unity, and wholeness of personality; greater ability to think and act efficiently in the present (Vol. 1: 64, 67, 69, 70, 72, 74, 76, 78, 95; Vol. 2: 144, 151, 153, 155; Vol. 3: 239; Vol. 5: 395)

Harmonizing: Increased ability to see the opposites of life as meaningfully related, increased harmony of heart and mind (Vol. 1: 76; Vol. 2: 150, 152; Vol. 4: 315, 349)


Self-Referral: Increased field independence; greater inner locus of control (Vol. 1: 51, 52, 69, 94, 103; Vol. 3: 255, 257, 259; Vol. 4: 307; Vol. 5: 384, 389)


Nourishing: Increased ability to bring the inner self to healthy expression; greater commitment to personal growth (Vol. 1: 69, 70, 72; Vol. 2: 138, 141, 151, 153)

Immortality: Benefits for the elderly—improved perception, learning ability, and well-being (Vol. 5: 380, 393)

Omnipresence: Expansion of territory of influence through increased intelligence, creativity, memory, academic performance, compassion, happiness, and self-actualization (Vols. 1–5)
Infinite Correlation: Increased ability to connect past, present, and future meaningfully; spontaneous organization of memory; increased learning ability (Vol. 1: 56–58, 64, 67, 69, 70, 72, 74, 76, 78, 95; Vol. 2: 134, 136, 144, 151, 153, 155; Vol. 3: 239, 265; Vol. 4: 300; Vol. 5: 380, 386, 395)


Omniscience: Improved ability to appreciate others, greater sensitivity to the feelings of others, increased moral reasoning, greater ability to be objective and fair-minded (Vol. 1: 73; Vol. 3: 223, 271, 294; Vol. 4: 304, 316)

Freedom: Decreased vulnerability, increased tolerance, decreased tendency to domineer (Vol. 1: 62, 77; Vol. 2: 147, 150, 153, 164; Vol. 3: 266, 268; Vol. 4: 308, 316)

Unmanifest: Growth of inner fulfillment independent of outside stimulation, less tendency to worry about other people’s opinions; less interest in superficial social contacts (Vol. 2: 164; Vol. 3: 249, 268)

Simplicity: Increased trust; growth of a more tactful, forgiving, and agreeable nature; increased good naturedness, friendliness, and loyalty (Vol. 1: 67, 73, 76; Vol. 2: 138, 150, 153)

Omnipotence: Increased morale, facilitative leadership, outgoingness, and tendency to participate (Vol. 1: 73; Vol. 2: 150, 153; Vol. 5: 388)

Total Potential of Natural Law: Improved family life, educational outcomes, prison rehabilitation; effective drug and alcohol abuse rehabilitation (Vols. 1–5)

Discriminative: Greater selectivity in personal relationships, increased moral maturity (Vol. 1: 91; Vol. 3: 265, 268, 270; Vol. 4: 309; Vol. 5: 416)
**Fully Awake within Itself:** High level of moral atmosphere, increased social maturity, improved ability to appreciate others (Vol. 2: 138; Vol. 3: 261, 271; Vol. 4: 309; Vol. 5: 371)

**Bountiful:** Increased altruism; more sympathetic, helpful, caring nature (Vol. 1: 71, 73; Vol. 2: 138; Vol. 4: 316)

**Infinite Silence:** Greater respect for the views of others, increased intrinsic spirituality, growth of a more tactful, forgiving, agreeable nature (Vol. 1: 73; Vol. 2: 153, 164; Vol. 5: 395)

**Infinite Dynamism:** Greater organizational ability and productivity, greater ability to accomplish more with less effort (Vol. 1: 96, 97; Vol. 2: 161, 164; Vol. 5: 399)

**Pure Knowledge:** Enhanced academic atmosphere in a university setting, greater commitment to higher education (Vol. 4: 304)

**Infinite Organizing Power:** Increased leadership ability, persuasiveness, forcefulness, and effectiveness (Vol. 1: 65, 73, 77; Vol. 2: 153, 161; Vol. 3: 277)

**Evolutionary:** Increased capacity for warm interpersonal relations and social responsibility (Vol. 1: 69, 70, 73, 76, 77; Vol. 2: 138, 149, 151, 153, 158; Vol. 3: 268, 277, 290; Vol. 4: 316)

**Perfect Orderliness:** Greater organizational ability and productivity, increased order in all areas of society (Vol. 1: 79–98; Vol. 2: 157–166; Vol. 3: 276–288; Vol. 4: 313–337; Vol. 5: 398–411)

**Self-Sufficiency:** Less interest in superficial social contacts; greater marital satisfaction; increased self-sufficiency of children with learning problems (Vol. 2: 165, 169; Vol. 3: 268; Vol. 4: 315; Vol. 5: 400)


**Infinite Creativity:** Greater organizational ability; increased productivity; increased outgoingness and tendency to participate; improved work, personal, and family relationships (Vol. 1: 73, 96, 97; Vol. 2: 150, 153, 164; Vol. 5: 399, 400)

**Integrating:** Increased friendliness, ability to cooperate with others, and to express one’s feelings spontaneously (Vol. 1: 64, 65, 69, 70, 73, 76, 77; Vol. 2: 151, 153, 161, 164; Vol. 3: 277, 290; Vol. 4: 316)
Harmonizing: Greater family harmony and increased capacity for warm interpersonal relationships (Vol. 1: 69, 70, 76; Vol. 2: 149, 151, 153, 165; Vol. 3: 268, 277, 290; Vol. 4: 316)

Perfect Balance: Increased respectfulness for the views of others, appreciation of others, and tolerance of authority; greater sense of social responsibility (Vol. 1: 65, 77; Vol. 2: 138, 158, 164; Vol. 3: 271, 290)

Bliss: Greater happiness in family life; more positive appraisal of others; increased good humor (Vol. 1: 65, 77; Vol. 2: 165; Vol. 3: 277, 290; Vol. 4: 308; Vol. 5: 394)

Self-Referral: Greater empathy—the ability to see others in terms of oneself (Vol. 1: 65, 77; Vol. 2: 149; Vol. 3: 277, 290)

Unboundedness: Greater satisfaction with one’s relationship to God and religion, greater respect for traditional religious values, increased sense of social adequacy (Vol. 1: 71; Vol. 2: 138; Vol. 5: 371)

Nourishing: Growth of a more sympathetic, helpful, and caring nature (Vol. 1: 73, 76, 77; Vol. 2: 153; Vol. 3: 268, 277, 290; Vol. 4: 316)

Immortality: Younger biological age compared to population norms and controls (Vol. 3: 242, 245, 246)

Omnipresence: Increased influence in social relationships; effective programs for all areas of society—health, mental health, stress, education, business and industry, crime, rehabilitation, drug abuse (Vols. 1–5)

Infinite Correlation: Increased ability to see man as essentially good, improved ability to appreciate others, greater respect for the views of others, greater attentiveness to others, improved relations with supervisors and coworkers (Vol. 1: 76, 96, 97; Vol. 2: 153, 164, 165; Vol. 3: 266, 271; Vol. 5: 394)

ECOLOGICAL

All Possibilities: Maharishi Effect—All possible improvements in quality of life (Vol. 1: 98; Vol. 2: 166; Vol. 4: 318–320, 336, 337; Vol. 5: 409, 411)

Omniscience: Maharishi Effect—Solution to problems that are unsolvable by human intelligence including crime, global conflict and terrorism; more positive, evolutionary statements of heads of state worldwide (Vol. 4: 322, 335, 337; Vol. 5: 409, 410, 411)

Freedom: Maharishi Effect—Improved quality of life (decreased mortality, cigarette consumption, unemployment, etc). (Vol. 4: 321, 332; Vol. 5: 401, 407, 408)


Simplicity: Maharishi Effect—One simple solution to improving quality of life: Decreased rates of infant mortality, suicides, alcohol consumption, divorce, traffic fatalities, crime, etc. (Vol. 4: 332)

Omnipotence: Maharishi Effect—Powerful, worldwide influence of coherence: Increased harmony in international affairs, etc. (Vol. 4: 322; Vol. 5: 404–406, 409)

Total Potential of Natural Law: Maharishi Effect—Improved quality of life in cities and metropolitan areas, provinces and states, nations, and the whole world (Vols. 1–5)

Discriminative: Maharishi Effect—Selective increase in all positive trends and reduction of all negative trends (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Fully Awake within Itself: Maharishi Effect—Increased positivity of national mood, increased confidence, optimism, and economic prosperity (Vol. 4: 323, 329, 333, 336, 337; Vol. 5: 403–406, 411)


Infinite Silence: Maharishi Effect—Decreased turbulence and violence in society; increased harmony in international affairs, increased peace (Vol. 4: 322, 337; Vol. 5: 409, 410)
Infinite Dynamism: Maharishi Effect—Improved economy as measured by a monthly index of decreased inflation and unemployment (Vol. 5: 403–406)

Pure Knowledge: Maharishi Effect—More positive, evolutionary statements and actions by heads of state (Vol. 4: 337; Vol. 5: 409)

Infinite Organizing Power: Maharishi Effect—Decreased problems: reduced motor vehicle accidents, homicides, and suicides, etc. (Vol. 4: 337; Vol. 5: 407, 408)

Evolutionary: Maharishi Effect—Improved quality of life, including less crime and fewer work days lost in strikes (Vol. 4: 317–377; Vol. 5: 401–411)

Perfect Orderliness: Maharishi Effect—Decreases in all categories of crime, accidents, and diseases; decreased political violence and turbulence in society (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Self-Sufficiency: Maharishi Effect—Improved national economic health (reduced inflation and unemployment); decreased national problems (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Purifying: Maharishi Effect—Decreased crime, disease, accidents, fires, infant mortality, suicide, divorce, civil cases reaching trial, pollution, and war (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Infinite Creativity: Maharishi Effect—Increased creativity (increased patent applications, economic prosperity), progress toward peace, positive statements, and actions of heads of state (Vol. 4: 322, 323, 329, 333, 335–337; Vol. 5: 403–406, 409, 411)

Integrating: Maharishi Effect—Increased integration of international affairs, criminal justice, economics, traffic safety, health, education, and welfare (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401-411)

Harmonizing: Maharishi Effect—Increased harmony among conflicting factions in society (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Perfect Balance: Maharishi Effect—Increased balance of nature as indicated by decreased air pollution, homicide, suicide, fetal deaths, etc. (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Bliss: Maharishi Effect—Increased bliss in collective consciousness as indicated by fewer problems (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)
Self-Referral: Maharishi Effect—Growth of the ability to see others in terms of oneself as indicated by decreased crime (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Unboundedness: Maharishi Effect—Growth of coherence throughout the world from a single group practicing the Maharishi TM-Sidhi program as evidence of an unbounded field of consciousness (Vol. 4: 336, 337; Vol. 5: 411)

Nourishing: Maharishi Effect—Increased positive trends, decreased negative trends (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Immortality: Maharishi Effect—Decreased mortality rates (Vol. 4, 321, 332; Vol. 5: 401)

Omnipresence: Maharishi Effect—Improvements in every aspect of city, state, national, and international life (Vol. 1: 98; Vol. 2: 166; Vol. 4: 317–337; Vol. 5: 401–411)

Infinite Correlation: Maharishi Effect—Increased correlation among the members of the ecosphere as indicated by improved quality of national life: increased gross national product and number of degrees conferred, and decreased suicides, divorce, traffic fatalities, crime, etc. (Vol. 4: 332)


**Invincibility**

Maharishi’s (1986b, p. 2) Philosophy of World Peace strongly emphasizes invincibility.

The first five points of this philosophy state

1. Invincibility is the key to world peace;
2. Invincibility to every nation is the only ground for permanent peace in the world;
3. Lack of invincibility even in one country will render world peace fragile;
4. It must be emphasized that invincibility for every nation is the only effective means for permanent peace on earth. Lack of invincibility even in one nation will render world peace fragile. Therefore, we have to take a holistic approach; and
5. The only approach that will be holistic is one that will simultaneously raise all nations to the level of invincibility.
By *invincibility*, Maharishi means alliance with the all-powerful source of natural law, the unified field of nature’s intelligence, enlivened in the individual and society.

Dr. Hagelin’s derivation of *Invincibility* from the Lagrangian of the superstring (Figure 1) reads as follows: “A non-Abelian gauge field dynamically upholds its own invariance under local symmetry transformations” (1992). *Non-Abelian* means that the field has the self-referral or self-interacting property of consciousness; it dynamically upholds the invariance of the laws of nature under a local (space-time dependent) symmetry transformation. A gauge field displays the invincible power of natural law because it maintains the invariance of the laws of nature under all local symmetry transformations.

**Physiological invincibility:** In Table 1 we see that increased invincibility on the level of the physiology is indicated by “increased resistance to disease, increased resistance to stress, increased strength and flexibility of the nervous system.” (The references in Table 1 are to the papers in the five volumes of *Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers*; Orme-Johnson & Farrow, 1977; Chalmers, Clements, Schenkluhn, & Weinless, 1989a, 1989b, 1991; Wallace, Orme-Johnson, & Dillbeck, 1991). Increased resistance to disease is demonstrated by many studies. Figure 1 cites a five-year epidemiological study of health insurance statistics that shows a more than 50% reduction in sickness rates in 2,000 practitioners of the Maharishi Transcendental Meditation technique, with reduced medical care utilization in all major categories of disease (Orme-Johnson, 1987, paper 378).

Table 1 cites two studies showing increased resistance to stress. Brooks & Scarano (1986, paper 313) found that the Transcendental Meditation technique reduced symptoms of post-traumatic stress syndrome in Vietnam veterans. The second study investigated the effects of the Transcendental Meditation technique on Type A individuals, who

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5 An Annotated Bibliography of 538 papers appearing in *Collected Papers* Vols. 1–6 as well as copies of the original research papers are available from the Reprint Office, Maharishi University of Management, 1000 North Fourth St., Fairfield, IA, 52557-1118.[reprints@mum.edu]

6 We added the paper numbers from Vols. 1–5 of the *Collected Papers* to the text references for the research discussed in this section. The *Collected Papers* numbers correspond to the referencing system used in Figure 2. References where there is not a *Collected Papers* number denote papers that have appeared since Vol. 5 was compiled. These papers comprise Vol. 6.
tend to chronically feel time pressure and get angry easily, resulting in a high risk of heart disease. In this study, subjects were exposed to psychological stress, which usually elicits an abnormal reaction in Type A subjects. However, the study found normal neuroendocrine reactivity patterns in meditating Type A subjects, indicating that the Transcendental Meditation technique changed their style of physiological reactivity to a healthier pattern (Schneider, Mills, Schramm, & Wallace, 1987, paper 368). Strength of the nervous system is a concept found in Russian physiology and based on the work of Pavlov; it is indicated by the ability to react faster under conditions of stressfully high levels of stimulation, an ability that was found in subjects practicing the Maharishi Transcendental Meditation technique. The study also indicated increased sensitivity of the nervous system, which was shown by faster reactions at low levels of stimulation near the detection threshold (Schwartz, 1979, paper 301). Thus, physiological invincibility is indicated by the ability to remain healthy and function at a high level of reactivity under a wide range of conditions, just as a gauge field maintains the invariance of the laws of nature under any local conditions.

**Psychological invincibility:** Psychological invincibility is indicated by “increased foresight, vigor, persuasiveness, forcefulness, and influence.” These findings, indicated by personality research, reflect the stabilization of Transcendental Consciousness in the mind through regular practice of the Transcendental Meditation technique. Since Transcendental Consciousness is the unified field of nature’s intelligence, it is the source and cause of events. Thus, when awareness is established at this level, the sequential unfoldment of events can be better foreseen, which explains the increased foresight found in meditators. Furthermore, when the mind functions from the source of creation, which is its own essential nature, it is naturally more vigorous, persuasive, forceful, and influential. Hence, it is more invincible. Psychological invincibility thus arises from the ability to spontaneously maintain the essential symmetry of the mind, Transcendental Consciousness, under any conditions, just as a gauge field, no matter what local type of transformation, upholds the invariant structure of the Lagrangian.
Sociological invincibility: Sociological invincibility is indicated by “increased strength of family life and of all other areas in society,” as found in the 101 studies cited in Table 1. For example, greater marital satisfaction (Aron & Aron, 1982, paper 315) stabilizes the core family, making it less likely to disband under conditions of stress and challenge; the family also becomes more stable under change, like a gauge field. Decreased drug abuse in all categories, including alcohol and tobacco, strengthens society, enabling it to withstand destructive internal and external forces (see drug abuse reviews by Clements, Krenner, & Mölk, 1988, paper 421; and Gelderloos, Walton, Orme-Johnson, & Alexander, 1991). Strengthening of society from within is also indicated by research showing increased effectiveness of criminal rehabilitation, including decreased recidivism (Bleick & Abrams, 1987, paper 398; please refer to review by Dillbeck & Abrams, 1987, paper 420).

Ecological invincibility: Ecological invincibility is demonstrated by research on “the Maharishi Effect development of a problem-free, invincible society.” The Maharishi Effect is the phenomenon of increased coherence in society as a whole that is generated by 1% or more of a population practicing the Transcendental Meditation technique, or the square root of 1% practicing the Transcendental Meditation and TM-Sidhi programs collectively in one place (Hagelin, 1992; Orme-Johnson, 1992; Alexander, 1992; Davies, 1992; and Cavanaugh, 1992). For example, eight studies published in The Journal of Mind and Behavior have shown decreased crime and improved general quality of life (Dillbeck, Cavanaugh, Glenn, Orme-Johnson, & Mittlefehldt, 1987, paper 401; Dillbeck, Banus, Polanzi, & Landrith, 1988, paper 402). Another study published in Social Indicators Research found a decrease in the number of violent deaths in the categories of motor vehicle fatalities, homicide, and suicide in the U.S. (Dillbeck, 1990a, paper 407). Two papers published in the Journal of Conflict Resolution found a reduction in war fatalities and war intensity in Lebanon as well as general improvement in the quality of life in Israel as a result of group practice of the Transcendental Meditation and TM-Sidhi programs in Jerusalem (Orme-Johnson, et al., 1988, paper 333; Orme-Johnson, Alexander, & Davies, 1990). Thus, the internal coherence in the nation,
which is essential for invincibility, is increased by the Maharishi Transcendental Meditation and TM-Sidhi programs.

According to Maharishi’s Philosophy of World Peace, a nation that is internally strong because of its alliance with natural law will be invincible, yet it will radiate an influence of friendliness and harmony, without exhibiting any weaknesses that invite attack (Maharishi Mahesh Yogi, 1986b). Consequently, other nations will quite naturally and spontaneously respond to it with respect, cordiality, and an intention to cooperate for mutual benefit.

Maharishi (1986a) states:

The best means of defense is to radiate this enrichment, to radiate an influence of harmony to the neighbor. Feed the neighbor with increasing charm, harmony, and happiness. Let these beautiful, positive qualities be radiated from the national consciousness. A soothing, fresh air will always come from the borders of the country. Then all its neighbors will love the country. The way to independence and self-reliance, the way to be completely free from fear, is to amass positive values by enlivening in national consciousness the self-sufficiency that belongs to the Unified Field of Natural Law. Radiate that unified influence to the neighboring countries, and one’s own country will always be loved by all those that surround it. This is how to defend oneself. (p. 142)

Maharishi points out that invincibility arises when others view one as being like themselves. When collective consciousness is permeated with coherence, it becomes quite natural to view others in terms of oneself, because that is the deeper reality at a more unified level of life. From the perspective of the ultimate, unified level of existence, the other actually is nothing but the expression of one’s own self, and when this perspective predominates in the collective awareness of society, the Vedic ideal of world peace will be the prevailing sentiment of nations:

*Vasudhaiv kutumbakam*

*Manu Smriti 11.12.22.*

*The world is my family*

Thus Maharishi’s philosophy of world peace makes the surprising discovery that invincibility, which has the ring of power, is enlivened
on the level of peace. The result is that peace established through the Maharishi approach will be powerful, and power on earth will be peaceful (Maharishi Mahesh Yogi, 1986b, p. 20).

**Harmonizing**

One of the defining characteristics of peace is its harmonizing value, bringing opposite factions or tendencies into accord. Dr. Hagelin’s derivation of Harmony from the Lagrangian of the superstring (Figure 1) states: “Supersymmetry unifies completely opposite values—bose and fermi fields—within the context of a single superfield” (please refer to Hagelin’s article, p. 145, in this volume). Fermi fields give rise to those fundamental aspects of natural law that create structure by virtue of their property of not sharing the same state (the Pauli exclusion principle). Electrons are the most well-known example: because they cannot occupy the same quantum state, they build up the electron shells of the atom, giving rise to the different chemical properties that are at the basis of the diversity of the universe at the atomic level. Bose fields, such as photons, on the other hand, have the tendency to create coherence by all occupying the ground state (Bose condensation). The universe needs both fermions and bosons. Without fermions, the universe would collapse into nondifferentiation. Without bosons, it would fly apart in a paroxysm of mutual antagonism. Only at the level of the unified field are these two completely opposite field types united, thus giving rise to the entire universe.

From the perspective of Maharishi Vedic Science and Technology, the integration of all opposite values is possible, because everything ultimately originates from and is an expression of the one unified field of nature’s intelligence. Diversity arises from the different modes of self-interaction of the field, which create different point values in the unbroken field, like waves appearing as different entities on the surface of the ocean. At the unified level, the unbroken wholeness of the ocean of life underlying the waves unites all the diverse waves. At the depth of the ocean, all the previously diverse and completely opposite tendencies of the surface are harmoniously unified (Maharishi Mahesh Yogi, 1986a).
Physiological harmony: In Table 1, “harmonizing” on the physiological level is indicated by the “maintenance of restfulness and alertness, inner silence, and dynamic activity.” The first paper cited is by Banquet and Sailhan (1974, paper 19) of Harvard Medical School and Institute La Rochefoucauld, Paris, respectively. Their research showed EEG indications of inner wakefulness during sleep as evidence that Transcendental Consciousness, the experience of the unified field, the source of peace, is maintained even during sleep. Because Transcendental Consciousness is the junction point between and the source of the three ordinary states, waking, dreaming, and sleep, it alone can harmonize their activities (Maharishi Mahesh Yogi, 1972; Travis, 1990). When an individual experiences Transcendental Consciousness, mind and physiology assume the harmonizing quality of the unified field, and consequently behavior is more effective and in accord with the evolutionary purpose of natural law (Maharishi Mahesh Yogi, 1967; please refer to Alexander and Orme-Johnson articles in this volume).

In order for these peace-generating qualities to be stabilized in the physiology, the experience of Transcendental Consciousness must alternate with activity outside of meditation. Maharishi (1967) explains that alternating the Transcendental Meditation program with activity habituates the physiology to maintain Transcendental Consciousness at all times, even during deep sleep, giving rise to full integration of the qualities of peace in the individual (p. 314). Maharishi (1972) describes seven major states of consciousness, of which waking, dreaming, and sleep are but the first three. The higher states, Transcendental Consciousness (the fourth), Cosmic Consciousness (the fifth), God Consciousness (the sixth), and Unity Consciousness (the seventh), describe a sequence of increasing expression of the peace-generating qualities of the unified field in the physiology and personality in the course of the individual’s development to complete enlightenment in unity consciousness (please also refer to Alexander and Boyer, 1989). Maintenance of Transcendental Consciousness as an unbroken continuum of unbounded awareness harmonizes the cycle of waking, dreaming, and sleep, as indicated by the Banquet and Sailhan (1974) research. It provides evidence for the growth of the fifth state of consciousness, Cosmic Consciousness, the first stable state of enlightenment and the basis of a stable state of peace. Banquet’s and Sailhan’s research on the
EEG correlates of rising Cosmic Consciousness has been extended by Mason, Alexander, Travis, and Gackenbach (1990) at Maharishi University of Management.

Additional research cited in Table 1 shows further evidence of the harmonizing effect of the Transcendental Meditation technique on the physiology. EEG coherence, for example, serves as a precise measure of the degree of harmony between the bioelectric activity of different cortical areas. High levels of brainwave coherence are correlated with greater creativity, neurological efficiency, flexibility of concept learning, and moral reasoning (Dillbeck, Orme-Johnson, & Wallace, 1981, paper 219; Orme-Johnson & Haynes, 1981, paper 216; Nidich, Rynczarz, Abrams, Orme-Johnson, & Wallace, 1983, paper 223). EEG coherence increases during meditation, continues to be high after meditation, and, with repeated practice of the Transcendental Meditation technique, increases outside of meditation as well (e.g., Levine, 1977, paper 20; Dillbeck & Bronson, 1981, paper 217). These results indicate stabilization of the harmonizing effects of Transcendental Consciousness on the brain’s physiology in the growth to Cosmic Consciousness.

Other studies cited in Table 1 show harmonizing effects on the autonomic nervous system, which regulates the body’s deployment and restoration of energy resources. Practitioners of the Transcendental Meditation technique were found to possess greater autonomic stability and recover more quickly from stress than nonmeditating controls (Orme-Johnson, 1973, paper 25). Stability of the autonomic nervous system indicates harmonious functioning of all the various levels of control that regulate the system: spinal ganglia, brain stem, cerebral cortex, and endocrine system. A meta-analysis of 31 studies confirmed that practitioners of the Transcendental Meditation technique have greater autonomic stability as indicated by lower baseline levels of heart rate, respiration rate, spontaneous skin resistance responses, and plasma lactate (Dillbeck & Orme-Johnson, 1987, paper 356).

**Psychological harmony:** The harmonizing quality of the unified field is indicated on the level of psychology by research showing “increased ability to see the opposites of life as meaningfully related, increased harmony of heart and mind.” These are qualities of self-actualized persons and are measured by tests of self-actualization. A meta-analysis of
40 studies by Alexander, Rainforth, and Gelderloos (1991) found that the Transcendental Meditation technique increases self-actualization significantly more than do other meditation and relaxation techniques (please refer to Alexander’s article in this volume). The main reason for the effectiveness of the Transcendental Meditation technique in increasing self-actualization is that Transcendental Consciousness is the direct experience of the Self, the unified field of nature’s intelligence.

In his commentary on the Bhagavad-Gita, Maharishi (1967) describes Transcendental Consciousness as the state of unity in which all opposites coexist (pp. 50–52). Conflict, he explains, is the inevitable result of duality. Because the personality has a dual nature consisting of affective (heart) and cognitive (mind) processes, conflict and suffering are inevitable features of life. Psychological conflict can only be fully resolved and harmony prevail when life is firmly established in the unity of the Self (please also refer to Dillbeck, 1983, paper 349; Dillbeck, 1990b; Dillbeck & Alexander, 1989).

**Sociological harmony:** The harmonizing quality of the unified field is indicated in the realm of sociology by “greater family harmony and increased capacity for warm interpersonal relationships.” Family harmony is demonstrated by a study of meditating families which found an increased ability for the spontaneous expression of warmth and affection, an increased ability to be sympathetic, compassionate, and understanding, as well as an increased ability to be objective, fair-minded, and reasonable (Marcus, 1977, paper 316). Increased capacity for warm interpersonal relationships is another feature of self-actualization and is demonstrated by the meta-analysis cited above (Alexander et al., 1991).

**Ecological harmony:** The growth of the harmonizing quality in the ecology is indicated by the “Maharishi Effect—increased harmony among conflicting factions in society.” This is indicated by decreases in all categories of crime, including fewer violent crimes and homicides (e.g., Dillbeck et al., 1987, 1988, papers 401, 402; Dillbeck, 1990a, paper 407), decreased armed conflict among political antagonists (e.g., Orme-Johnson, et al., 1988, paper 333), and increased friendliness of
Self-Sufficiency

Self-sufficiency means the ability to create what one needs from within one’s own resources. It is fundamental to peace because only if one is fully self-sufficient will one not be tempted to take from others. Nature is ultimately self-sufficient because the unified field creates the entire diversity of the universe from within itself through its self-referral activity.

Dr. Hagelin’s description of the derivation of Self-Sufficiency from the Lagrangian of the superstring (Figure 1) reads as follows: “The structure and dynamics of the unified field is sufficient within itself to initiate spontaneous gauge and supersymmetry breaking radiatively, leading to the sequential unfoldment of the diversified structure of natural law illustrated in the chart” (Hagelin, 1992).

Unified field theories contain a large symmetry group which, due to the self-referral dynamic interaction of the quantum fields, spontaneously breaks in sequential stages to yield the symmetry group observed in nature. This displays the self-sufficiency of the laws of nature, whereby the unified field gives rise to all the diverse laws of nature through its own inherent dynamics without recourse to anything external.

Physiological self-sufficiency: Examples of research indicating the growth of physiological self-sufficiency are studies showing “decreased medical care utilization, decreased need for prescribed and nonprescribed drugs” (Table 1).

Psychological self-sufficiency: Psychological self-sufficiency is indicated by personality research showing “increased self-sufficiency, self-reliance, self-supportiveness, autonomy, independence, and ego strength.”

Sociological self-sufficiency: Sociological self-sufficiency is shown by “less interest in superficial social contacts; greater marital satisfaction; increased self-sufficiency of children with learning problems,” as examples of the research indicating this quality.
Ecological self-sufficiency: As with all other qualities of the unified field, ecological self-sufficiency is indicated by the “Maharishi Effect—improved national economic health (reduced inflation and unemployment); decreased national problems.” The studies on increased economic self-sufficiency were published in the *Proceedings of the American Statistical Association, Business and Economics Statistics Section* (e.g., Cavanaugh, 1987, paper 403; Cavanaugh & King, 1988, paper 404; Cavanaugh, 1992, King, & Ertuna, 1989, paper 405). Decreased national problems include decreases in an index of national crime, civil cases reaching trial, infectious diseases, infant mortality, suicides, cigarette consumption, alcohol consumption, divorce rate, and traffic fatalities, as well as increases in patent applications and gross national product (Orme-Johnson, Gelderloos, & Dillbeck, 1988, paper 332). Extensive problems such as these absorb the nation’s creative resources and engage the government in an unending struggle. Through the Maharishi Effect, individuals throughout society find the self-sufficient level of natural law enlivened in their lives, and, in the process of becoming more self-sufficient themselves, create a self-sufficient nation that is naturally at peace with itself and the world.

Bountiful

It has long been recognized that inequity between the “haves” and the “have nots”—the rich and the poor—is a major source of conflict and war. Although having and not having is often considered only in economic terms, money alone is not enough to provide complete fulfillment in life, as the economists Dr. Leibenthal and Dr. Cavanaugh pointed out at the conference. People certainly desire wealth, advantage, utility, reward, and gain, yet they also wish to see all their other desires fulfilled, aiming at happiness and the removal of suffering. Moreover, no individual will be happy until he or she has found, and engages in, his or her own natural duty or *dharma*—the profession or activity that helps to unfold the individual’s unique potential, which is most evolutionary for him or her and at the same time contributes maximum to society. Finally, human beings need spiritual fulfillment. The mind naturally seeks higher states of consciousness, enlightenment, libera-
tion, freedom. Maharishi (1967) points out that all the aims of life—wealth, professional achievement, happiness, and enlightenment—are simultaneously fulfilled when the unified level of natural law is enlivened in daily life, because it is the bountiful source of all creation.

Dr. Hagelin’s derivation of Bountiful from the Lagrangian of the superstring (Figure 1) reads as follows: “The energy eigenspectrum of the quantitized string field contains an infinite tower of massive string modes in addition to all the massless modes responsible for the observable universe.” This infinite tower of massive string modes reveals the infinitely bountiful structure of the laws of nature. Even though only a small fragment (corresponding to massless modes) are manifest in our low-energy universe, the infinitely bountiful structure of the laws of nature (all the massive and massless string modes) is essential to the consistent functioning of the laws of nature.

**Physiological bountifulness:** Through the practice of the Maharishi Transcendental Meditation and TM-Sidhi programs, the physiology becomes more bountiful as indicated by “improved health and vitality in all physiological systems” (Table 1).

**Psychological bountifulness:** Psychologically, increased bountifulness is suggested by “enhanced inner well-being and positive values,” reflecting the successful fulfillment of desires as well as stabilization of Transcendental Consciousness, which is the hallmark of developing higher states of consciousness (Maharishi Mahesh Yogi, 1967; Alexander & Boyer, 1989).

**Sociological bountifulness:** Bountifulness in social behavior is indicated by “increased altruism; more sympathetic, helpful, and caring nature,” which are the natural result of individuals engaging in their natural duty.

**Ecological bountifulness:** Through the Maharishi Effect, the unified field is enlivened in collective consciousness, increasing bountifulness in

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7 This discussion of fulfillment is derived from the four aims of life described in Maharishi Vedic Science, namely dharma, natural duty; artha, wealth; kama, desire; and moksha, liberation (Maharishi Mahesh Yogi, 1967, pp. 427–428).
the ecology. Ecological bountifulness is indicated simply as “improved quality of life” (Table 1). Quality of life indices used in this research include measures of economic prosperity, such as increased GNP, indicating greater wealth in the nation as a whole. These studies represent only a small fraction of a large body of research on the effects of the Transcendental Meditation and TM-Sidhi programs. All the existing 500 research studies could be interpreted as showing increased bountifulness in all areas of life (Orme-Johnson & Farrow, 1977; Chalmers, et. al., 1989a, 1989b, 1991; Wallace et al., 1991).

Bliss

In his Vedic Psychology, Maharishi (1967) brings to light that Transcendental Consciousness is a state of bliss, an experience of pleasure that far exceeds the pleasures afforded by any sensory experience. The deep rest experienced during the practice of the Transcendental Meditation technique brings about the release of stress and normalization of physiological functioning. As a result, the mind is increasingly saturated with bliss. Regular experience of Transcendental Consciousness thus simultaneously normalizes physiological functioning and habituates the physiology to function in a style that maintains bliss at all times. With growing contentment based on a state of bliss consciousness, the mind is no longer overshadowed by sensory events; bliss provides a stable frame of reference for the mind. It is no longer bound by any relative experience, however pleasurable or painful it may be. Interpretation of stimuli is no longer in terms of unsatisfied desires. People and things are no longer evaluated in terms of their potential to satisfy one’s desires (cf. Maslow, 1976). On the basis of the equanimity that bliss affords, the perception of the world is no longer distorted; behavior is motivated by the evolutionary needs of nature rather than by the unsatisfied desires of the individual. Thus, bliss anchors the mind in the absolute peace of Transcendental Consciousness, the basis for peace in society and the world (Maharishi Mahesh Yogi, 1967).

Dr. Hagelin finds Bliss in the Lagrangian of the superstring (Figure 1) as “expressed by the continuous effervescence of topological fluctuations at the Planck scale (‘spacetime foam’) spontaneously arising from the nonperturbative dynamics of quantum gravity” (Hagelin, 1992, p. 71). This explains the nature of space and time at a fundamental level.
(the Planck scale). The explanation brings to light that the source of spacetime has an infinitely lively, self-interacting “bubbly” structure.

**Physiological bliss:** Bliss increases in the physiology through the Transcendental Meditation and TM-Sidhi program as indicated by “biochemical changes associated with decreased stress and increased bliss” (Table 1). Several studies, for example, show that the stress hormone cortisol decreases during the Transcendental Meditation technique (e.g., Jevning, Wilson, & Davidson, 1978, paper 190) as does plasma lactate, which has been correlated with anxiety and distress (please refer to Dillbeck & Orme-Johnson, 1987, paper 356, for a meta-analysis). These reductions in the biochemical markers associated with stress indicate the release of stress as a condition for bliss to be experienced. Moreover, serotonin levels increase, reflecting normalization of physiological functioning. Higher levels of serotonin have been associated with happiness, well-being, and bliss (Bujatti & Riederer, 1976, paper 110; Walton, et al., 1995).

**Psychological bliss:** On the level of psychology, bliss is indicated by the “experience of bliss consciousness, happiness, and well-being.” These studies document the self-reported subjective experiences of Transcendental Consciousness as bliss consciousness.

**Sociological bliss:** As a result of bliss being established in individual minds, social behavior becomes characterized by “greater happiness in family life, more positive appraisal of others, increased good humor,” as shown by many research studies on the Transcendental Meditation and TM-Sidhi programs (Table 1).

**Ecological bliss:** On the level of the ecology, bliss is evident in the “increased bliss in collective consciousness as indicated by fewer problems” (Table 1).

**Conclusion**
Maharishi (1986a, 1986b) has brought to light that the problem of creating a stable world peace is very complex on the manifest level of physiology, thinking, behavior, and the environment because in order
to have peace, the different tendencies of the five billion people of the world have to be coordinated in such a way that their interests do not conflict with each another. If each person had only a thousand different thoughts per day, it would mean that five trillion thoughts would have to be coordinated every day in order to ensure peace. In principle, such a task could never be accomplished on the manifest level of the physiology, thinking, behavior, and environment. The problem is beyond the ability of the human intellect to fathom. However, Maharishi (1986a, 1986b) has pointed out that the solution is very simple and easy to accomplish by resorting to the unified level of natural law, because the unified field is already governing the entire universe of which human life is but a small fraction. This solution is easy because the unified field can be experienced in the simplest form of human awareness, Transcendental Consciousness. No effort is required to experience the unified field in this way, because the nature of Transcendental Consciousness is bliss, to which the mind is naturally and spontaneously attracted once it is given the proper direction through Maharishi’s technologies of consciousness. In order to bring the world to a state of peace, a sufficient number of us need only allow our minds to settle to a state of peace within ourselves—Transcendental Consciousness, the Self, the silent source of all human creativity and dynamism, the unified field of the intelligence of nature. Results of over 500 studies combined show that one simple operation of the mind transcending to its least-excited state through the Transcendental Meditation technique and operating from that level through the TM-Sidhi program creates holistic positive change in all areas of life, physiological, psychological, sociological, and ecological. All the peace-generating qualities of the unified field are simultaneously enlivened in all these areas. All the positive changes combined constitute the Maharishi Effect, because the rise of coherence in collective consciousness is embodied in the changes in the physiology, psychology, and social behavior of individuals.

We are very much aware that creating and maintaining peace is a collective enterprise, and we hope to help all those involved by establishing a firm foundation of coherence in collective consciousness that will support every approach to peace building. Our primary effort is to establish groups of 7,000–10,000 practitioners of the Transcendental Meditation and TM-Sidhi programs on every continent in order to
create coherence in world consciousness. We envision—on the basis of Maharishi’s profound theory and the extensive research on his programs—that the atmosphere of coherence created by such groups will facilitate all channels of diplomacy, Track One and Track Two. Negotiators will find less fear, both in themselves and in others, and will possess broader comprehension as well as increased awareness and sensitivity for other cultures. The central role of consciousness in biological evolution and in science in general will be acknowledged. Economic theory will broaden its perspective to embrace fulfillment on all levels of human aspiration, and view human society in terms of being in harmony with Nature. The deeper levels of social structure, those ancient, forgotten cultural roots that serve as guidelines to structure life in accord with natural law in different geographic and climactic regions of the world, will be rediscovered and reinterpreted in the light of a more profound understanding of natural law. Conflicting views and aspirations with regard to the new world order will be harmonized. Synergy will replace conflict. Collective memory will be less fear-driven, and society will tend to remember historical events that are more useful to peace and progress. On the ground of greater coherence in world consciousness, all the international and private organizations entrusted with the responsibility of resolving conflict and fostering cooperation among groups and nations will find success in their efforts, and the profession of conflict resolution will rise to a supreme level of skill and accomplishment. This is Maharishi’s offer to the peace builders in today’s world. We feel that this is a powerful technology that will help everyone, and we hope that everyone will help us implement it to create a stable world peace for the first time in human history.

References


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Peaceful Body, Peaceful Mind, Peaceful World

Charles N. Alexander, Ph.D.
ABOUT THE AUTHOR

Dr. Charles “Skip” Alexander, Ph.D., (1949-1998), showed theoretically that four higher states of consciousness described by Maharishi Vedic Psychology logically extend the developmental sequence delineated by twentieth century psychology. His empirical research found that the Transcendental Meditation technique provides the direct experience of Transcendental Consciousness (the first higher state, which is the silent basis of the mind) and that this practice accelerates development in children, “unfreezes” development in prison inmates, advances ego development in adults, increases productivity in businesses, decreases blood pressure, increases longevity, effectively treats substance abuse, and reduces prison recidivism. Skip and colleagues were the first to discover the EEG signature of Cosmic Consciousness (the second higher state), and he showed that developmental advances in individuals impact the larger society via a common field of collective consciousness, including decreasing armed conflicts and improving the quality of life. Dr. Alexander was Founding Chairman of the Department of Psychology at Maharishi University of Management.
ABSTRACT

From the perspective of Maharishi Vedic Science and Technology, individual peace is the unit of world peace: a peaceful world is possible only if it consists of individuals with peaceful minds and peaceful physiologies. Extensive scientific research provides strong evidence that Maharishi Transcendental Meditation and TM-Sidhi programs are effective in eliminating stress, anxiety and frustration, and in promoting growth toward a state of total peace and fulfillment in higher states of consciousness. Moreover, group practice of the Transcendental Meditation and TM-Sidhi programs has been shown to increase coherence in collective consciousness, thereby reducing tension and conflict nationally and internationally. The mechanics of this effect are explained in terms of individuals and groups of individuals identifying their awareness with the cosmic psyche—the unified field of natural law underlying individual and collective life, thereby enlivening the values of both unity and diversity in the collective consciousness of each nation. As a result, each nation’s cultural integrity is enhanced along with cooperation and peace among nations.

The world is as we are.
—Maharishi Mahesh Yogi

Introduction

Since first introducing the Transcendental Meditation program in 1958, Maharishi Mahesh Yogi (1986c) has always emphasized that individual peace is the basic unit of world peace. He uses the analogy that just as there cannot be a green forest without green trees, there cannot be a peaceful world without peaceful individuals. Even though there are many sincere individuals dedicated to the cause of peace, establishing peace requires more than simply adopting a psychological belief in peace. It can only be achieved through a transformation at the very deepest level of the human mind and through a corresponding change in the physiology. Maharishi explains that when the mind and body are deeply at peace, then thought, speech, and action will spontaneously radiate an influence of harmony into the environment.

Positive change in individuals practicing the Maharishi Transcendental Meditation and TM-Sidhi programs is held to be the basis of
positive changes observed when individuals practice these technologies in a group (please refer to Orme-Johnson’s first article, in this volume). Therefore, if reduced stress and more peaceful functioning [related to practice of these technologies] is being repeatedly observed, the same changes should be evident in individual consciousness as well.

All of the over 500 research studies reporting the effects of the Maharishi Transcendental Meditation technique are, in fact, research on the process of developing peace, whether on the individual or the collective level (please refer to Orme-Johnson & Farrow, 1977; Chalmers, Clements, Schenklunh, & Weinless, 1989a, 1989b, 1991; Wallace, Orme-Johnson, & Dillbeck, 1991). The extent of this research has allowed large-scale statistical meta-analyses to be conducted, and this paper reviews these studies in terms of the effects of the Transcendental Meditation technique on promoting peace in the individual (cf. Alexander).

**Peaceful Body**

A meta-analysis was published in *American Psychologist* comparing all studies on the physiological effects of the Transcendental Meditation technique and simply sitting with eyes closed (Dillbeck & Orme-Johnson, 1987). Compared to simply sitting with eyes closed, subjects practicing Transcendental Meditation showed significantly greater physiological relaxation on three indicators: increased basal skin resistance, decreased respiration rate, and a decrease in the stress-related hormone plasma lactate. Moreover, the effect sizes associated with the Transcendental Meditation technique on these variables compared to baseline periods were relatively large: .826, −.461, and −.617, respectively (measured in standard deviation units), indicating strong effects that are generally consistent across studies (please refer to Figure 1). This provides evidence that the Maharishi Transcendental Meditation technique produces a state of deep physiological rest or peace that cannot be produced by simply relaxing with eyes closed.

Although one can attempt to cope with stress through a variety of means, rest is generally recognized as the most natural way of relieving tension and stress. The Transcendental Meditation technique acts directly on the nervous system to create a deep state of physiological settledness. During the deepest moments of meditation, respiration
rate is reduced dramatically. There is virtually no breath, no movement—only a state of complete stillness and peace (e.g., Farrow & Hebert, 1982). Repeated experience of this state eventually produces a physiological “trait” of peace throughout the day. The same meta-analysis also found that those practicing the Transcendental Meditation technique had significantly lower baseline levels of spontaneous skin resistance responses, respiration rate, heart rate, and plasma lactate prior to meditation than did comparison subjects prior to rest. Other studies indicate that a biochemistry of peace appears to be produced during the practice of the Transcendental Meditation technique that is opposite to the biochemistry of anger, as shown by decreased plasma cortisol and enhanced serotonin turnover during and after the practice (Jevning, Wilson, & Davidson, 1978; Bujatti & Riederer, 1976; Walton, et al., 1995).

**Physiological Indicators of Deep Rest through the Transcendental Meditation Program**

![Graph showing physiological changes during meditation](image)

**Figure 1.** A meta-analysis of published research on physiological changes during the Transcendental Meditation technique—31 studies in all—found that during the practice, Transcendental Meditation practitioners showed a significant increase in basal skin resistance and a significant drop in respiration rates and plasma lactate levels compared to control subjects during eyes-closed rest. Meta-analysis is the preferred scientific procedure for drawing definitive conclusions from large bodies of research.
Peaceful Mind

The deep state of rest to mind and body during practice of the Transcendental Meditation technique also results in psychological trait changes indicative of enhanced peace. A recent meta-analysis, based on 146 independent outcomes, showed that the effect of the Transcendental Meditation technique on trait anxiety, or chronic stress, is significantly greater than the average effect produced by other forms of meditation and relaxation (Eppley, Abrams, & Shear, 1989). All meditation and relaxation techniques for which trait anxiety had been empirically studied were compared. Except for concentration techniques, which produced virtually no effect on reducing anxiety, the other techniques (including the placebos) had similar modest effect sizes, while the Transcendental Meditation technique produced a large statistical effect that was significantly greater than the other techniques. Similarly, subjects practicing the Transcendental Meditation technique have shown reduced hostility and anger compared to untreated and treated controls (Abrams & Siegel, 1978; Alexander, 1982).

Eppley, et al. (1989) investigated the effects on anxiety of such possible confounding variables as type of population, age, gender, experimental design, duration and hours of treatment, pretest anxiety, demand characteristics, experimenter attitude, type of publication, and attrition (please refer to Figure 2). Statistically controlling for these variables via regression analysis did not alter the overall conclusions. It was also found that the longer subjects practiced the Transcendental Meditation technique, the greater the reduction in anxiety compared to controls, even though there was almost no continuing contact with trainers. Thus, this sustained influence is unlikely to be due to expectation effects that are known to decrease over time. When only published random assignment studies with low attrition rates were included, the effect size for the Transcendental Meditation technique increased, whereas the effect size of other techniques actually decreased. Random assignment studies by authors with neutral or negative attitudes toward the Transcendental Meditation technique showed an even larger effect size for this technique. Thus, larger effects associated with practicing the Transcendental Meditation technique cannot be attributed simply to “pro-Transcendental Meditation allegiance” on the part of researchers.
Reduced Anxiety through Transcendental Meditation

Figure 2. A statistical meta-analysis of all available studies (146 independent outcomes) indicated that the effect of the Transcendental Meditation program on reducing trait anxiety was approximately twice as great as that of all other meditation and relaxation techniques, including muscle relaxation. Duration of study, dropout rate, and number of follow-up hours of instruction were statistically controlled, and samples were matched for type of population. Analysis also showed that the positive result for the Transcendental Meditation program could not be attributed to subject expectation, experimenter bias, or quality of research design.

Transcendental Consciousness: The State of Inner Peace
The Maharishi Transcendental Meditation technique produces a distinctive state of restful alertness, considered by researchers to be a fourth major state of consciousness (Maharishi Mahesh Yogi, 1972, Lesson 19; Wallace, 1986). Maharishi Vedic Science describes seven states of consciousness, of which the first three are waking, dreaming, and sleeping (Maharishi Mahesh Yogi, 1972, Lesson 23; Alexander & Boyer, 1989). The fourth state of consciousness, Transcendental Consciousness, transcends the cycle of waking, dreaming, and sleeping and is a state in which the nervous system attains a profound state of rest, while the mind is completely silent yet fully awake to itself. This state has been shown to be psychophysically distinct from the three ordinary states on over 20 parameters (Alexander, Cranson, Boyer, & Orme-Johnson, 1987).

In the ordinary waking state, the knower (or self) is experienced as localized in space and time and separated from the known by active processes of knowing (e.g., thought and perception). During the Tran-
scendental Meditation technique, awareness settles down, thought becomes quieter and quieter, until thought itself is transcended, and the knower is left fully awake within himself. All thought, perception, and feeling are transcended. Knower, known, and process of knowing converge in one undivided, silent wholeness of awareness—Transcendental Consciousness. No longer bound by thought, perception, or feelings, the awareness is simply awake to itself alone, to its own unified, unbounded existence. Maharishi (1967) states that this experience of an underlying transcendental, unbounded identity is also referred to as the Self (with a large “S”) to distinguish it from the experience of the ordinary limited, individual self (with a small “s”). Experience of the Self is the experience of the simple state of being. Rather than a state of “I am this or that” or “I come from this background or that background,” it is simply a state of “I am,” or “amness” or “Being.” This direct experience of the Self alone is termed by Maharishi (1986a) as self-referral.

Maharishi (1976) describes the self-referral experience of Transcendental Consciousness during the Transcendental Meditation program:

The Transcendental Meditation technique is an effortless procedure for allowing the excitations of the mind gradually to settle down until the least excited state of mind is reached. This is a state of inner wakefulness with no object of thought or perception, just pure consciousness aware of its own unbounded nature. It is wholeness, aware of itself, devoid of differences, beyond the division of subject and object—Transcendental Consciousness. (123)

Maharishi (1986a) explains that self-referral experience, or experiencing the state of Being, is the foundation of individual life and collective life. When we lose self-referral, we lose the knowledge and experience of who we are, either individually or collectively. All we typically know about ourselves is our thoughts and feelings, and those thoughts and feelings stand between the knower and himself. We never directly experience who we are until we transcend duality (“the division of subject and object”) and experience unity. One principle of Maharishi Vedic Science and Technology is that what we put our attention on grows stronger in our lives (Maharishi Mahesh Yogi, 1967). If we always put our
attention outward on the field of duality, on our thoughts and feelings and the objects around us, and never inward, on the field of unity—Transcendental Consciousness—we will never experience unity nor become capable of sharing the experience of unity with others.

In the field of duality, there are differences, and differences that are not supported by a unified basis are a cause for conflicts. There is a declaration in the Vedic literature: “All fear is born of duality” (Brihadaranyaka Upanishad, 1.42). As an elaboration on “fear” we could add arguments, disagreements, conflicts, and wars. The only way you can ultimately get around duality is to transcend it and experience the unity of Transcendental Consciousness. This is the hallmark of the fourth major state of consciousness—complete silence, complete alertness, nonduality, wholeness, inner peace.

There is strong research evidence for this unique state of restful alertness experienced during the Transcendental Meditation technique. Ordinarily the brain produces incoherent or disorderly brainwave activity. However, during the Transcendental Meditation technique, as the mind settles down to experience quieter levels of awareness, the different areas of the brain become coherent, as indicated by extensive electroencephalographic (EEG) research. This is shown by the brain waves becoming synchronous (correlated) across frequency band and cortical location. Brainwave coherence has been shown to be maximized during the subjective experience of Transcendental Consciousness during the Transcendental Meditation technique (Farrow & Hebert, 1982). A more coherent brain appears to affect behavior in many potent ways. Increased EEG coherence is highly correlated with heightened creativity, improved concept learning, IQ, moral reasoning, grade point average, and neural reflexes; and decreased neuroticism (Dillbeck, Orme-Johnson, & Wallace, 1981; Haynes, Hebert, Reber, & Orme-Johnson, 1977; Orme-Johnson & Haynes, 1981).

There is growing recognition that we use only a small proportion of the brain’s potential. The human brain is our greatest resource, but how can we expect to solve the world’s problems if we are only using a small proportion of our mental capacity? Maharishi (1976) explains that suffering should not be considered natural to life; it is a result of not using our full potential. When all the areas of the brain are functioning in a coherent and coordinated manner, then more of our mental
potential is realized. If we learn to enliven the highly coherent state of restful alertness, the fourth major state of consciousness, and neutralize the tension and stress that blocks the efficient functioning of the mind, we can start utilizing the untapped potential of the human brain. Maharishi (1986b) explains that peace can only be permanent on the basis of unshakeable satisfaction, which in turn depends upon continuous progress in life (p. 6). Only when we are experiencing continuous growth and evolution in our daily life do we feel happy and fulfilled. Our ability to progress is based upon how much of the brain we are utilizing. Therefore development of full mental potential through repeated experience of Transcendental Consciousness is critical to sustaining the progress necessary for achieving lasting peace.

**Cosmic Consciousness: A Permanent State of Peace**

Maharishi Vedic Psychology explains that waking, dreaming, and sleeping as typically experienced are highly restricted, constantly changing states that overshadow the underlying non-changing state of Being. In the absence of contact with the silent self-referral state of Being deep within the mind, the individual is like a rudderless ship being cast about in a sea of continuous change. Thus, when these constantly changing relative states dominate awareness, inner peace cannot be maintained. Through repeated experience of Transcendental Consciousness during the Transcendental Meditation technique, the self-referral state of Being gradually becomes permanently maintained along with the previous three states. This gives rise to a fifth state of consciousness which Maharishi (1967) has termed Cosmic Consciousness because it is all inclusive—it simultaneously includes Transcendental Consciousness along with waking, dreaming, and sleeping (cf. Alexander & Boyer, 1989).

By definition, Cosmic Consciousness is held to be a state in which there is no stress remaining in the nervous system. In this state, the nervous system is said to become so flexible and adaptive in the face of challenges, that no further stress can be incurred. In Cosmic Consciousness, one continues to be active on the surface, changing level of life, while maintaining a completely peaceful or restful state deep within the mind. Thus, in this state, for the first time, a permanent state of peace is achieved.
God Consciousness and Unity Consciousness: The Highest States of Peace and Fulfillment

In Maharishi’s (1972) description of higher states of consciousness, the sixth state of consciousness, God Consciousness, is defined by the unbounded, self-referral awareness of Cosmic Consciousness coexisting with the development of refined sensory perception during the three relative states of waking, dreaming, and sleeping. Perception and feeling reach their most sublime level, the finer and more glorious levels of creation are appreciated, and every impulse of thought and action is enriching to life (pp. 23-6–23-7). The sixth state is referred to as God Consciousness, because the individual is capable of perceiving and appreciating the full range and mechanics of creation and experiences waves of love and devotion for the creation and its creator. Thus, in this state one not only experiences inner peace, but also profoundly loving and peaceful relationships are cultivated with all others.

In the seventh and highest state of consciousness, which Maharishi (1972) calls Unity Consciousness, one experiences Being as the basis of and permeating all aspects of life: everything is perceived as nothing but expressions of Being. Even though the diversity of life is still appreciated, what dominates in Unity Consciousness is the experience that all aspects of life, from the most refined to the manifest levels, are nothing but the self-interacting dynamics of Being, pure consciousness, and the substance of our own Transcendental Consciousness. For this reason, one is capable of appreciating all objects of perception in terms of the Self (pp. 23-8–23-9). The Vedic literature describes this experience: “I am that (pure Transcendental Consciousness); thou art that, all this is that” (Brihadaranyaka Upanishad, 1.4.10).

Recall that the Upanishads also declared that all fear is born of duality. Although a state of inner nonduality or inner unity of the Self is permanently achieved in Cosmic Consciousness, in this first stable state of enlightenment, the inner self stood separate from the outer, constantly changing, and highly diversified world. Hence the outer world is still experienced as fragmented and completely different from the Self. Only in Unity Consciousness is the gap between inner and outer reality, between subjective and objective existence fully bridged. As proclaimed in the Bhagavad-Gita, in the highest state of enlightenment, one “sees the Self in all beings, and all beings in the Self” (Maharishi
Mahesh Yogi, 1967, p. 441). Thus all creation becomes as dear to one as the Self, and one experiences in the most profound sense, “The world is my family” (Maha Upanishad, 6.71). In this state, not only is fear unthinkable, one becomes maximally nourishing, harmonizing, and enriching toward all of creation.

**Self-Actualization: Measuring Growth in the Direction of Enlightenment and Inner Peace**

Possibly the closest concept in modern psychology to the development of higher states of consciousness or enlightenment is that of self-actualization (Maslow, 1968). According to Maslow, self-actualized people utilize their full or unique potential as individuals. He believed that inner mental resources are largely untapped, and that self-actualized people draw on these resources considerably more than ordinary people. The fundamental qualities of self-actualizers are said to include: high self-esteem; self-sufficiency or autonomy; creativity; inner vision; acceptance of self, others, and nature; and capacity for warm interpersonal relationships.

Maslow held, and research confirmed, that only a very small proportion of society—possibly less than 1%—achieves self-actualization (e.g., Cook-Greuter, 1990). Among self-actualizers, Maslow (1964) identified a smaller subset that sometimes had what he called spontaneous peak experiences, experiences that individuals characterized as moments of transcendental elation or inner joy. Even one such peak experience, he believed, could profoundly promote self-actualization and reverse negative trends in individual life (p. 75).

Maslow (1976) held that those very rare individuals who had peak experiences with some frequency developed an inner “serenity” or peace that set them apart from the rest of humanity, including the merely healthy “self-actualizers” (p. 271).

From the perspective of Maharishi Vedic Psychology, the most profound or fundamental peak experience would be complete transcendence of time, space, and multiplicity in the unbounded wholeness of Transcendental Consciousness. Whereas peak experiences, as defined by Maslow, occur only rarely and spontaneously in a few individuals, the Transcendental Meditation technique appears to be a means for systematically promoting complete transcendence in anyone (regard-
less of their developmental starting point) and gradually stabilizing a permanent state of enlightenment (please refer to Alexander, 1982). If the Transcendental Meditation program does facilitate systematic transcendence, then according to Maslow, it should dramatically enhance self-actualization and an accompanying sense of inner security and peace. In fact, a meta-analysis has confirmed that this is the case. This meta-analysis of 42 studies showed that the effect of the practice of the Maharishi Transcendental Meditation technique on self-actualization was markedly greater than that of other forms of meditation and relaxation (please refer to Figure 3). We also factor analyzed results for the Personal Orientation Inventory (the most widely used measure of self-actualization) and found three principal components: feeling development, integrative perspective on self and world, and resilient sense of self. We found that the Transcendental Meditation technique also had a much greater impact than other forms of meditation and relaxation on these specific factors of inner development (Alexander, Rainforth, and Gelderloos, 1991). Interestingly the largest effect of all was on the feeling development factor, which included a subscale measuring capacity for warm interpersonal relationships. This suggests that development of inner peace and fulfillment through the Transcendental Meditation technique provides the natural basis for more peaceful and harmonious relationships with others as well. The reported effects on self-actualization took place in three months, which is an unusually short period of time in which to see substantial change toward actualizing the self.

The phrase “Know thyself” has formed the basis of Western cultural and educational ideals, but it is apparent that the current educational system is not developing the full human personality. For researchers of stage-like changes toward self-actualization, Jane Loevinger’s (1976) measure of self-development is the most widely used and probably most highly regarded measure. Ego or self-development, the holistic development of personality, typically comes to a halt even before college. Maharishi Vedic Science and Technology-based education, as implemented by Maharishi University of Management, appears to be unique in its ability to foster advanced stages of ego or self-development. We have found that as a result of their educational experience, Maharishi University of Management alumni increase dramatically in ego development. Alumni at three comparison schools (similar in gender, ratio,
age, and college class) showed no change in ego development over the same period of time (Chandler, 1990). Maharishi University of Management graduates were found to be at a modal level of ego development, referred to by Loevinger as “autonomous,” which corresponds to Maslow’s concept of self-actualization. Thirty-eight percent of the Maharishi University of Management graduate sample scored at this level and the highest ego-interpreted level in contrast to only 1% of the graduates of the three control schools. A literature review revealed that Maharishi University of Management alumni had the highest percentage score at the self-actualization level of the over 40 samples surveyed. (The next highest was Harvard alumni with 10.5%.)

**Increased Self-Actualization through the Transcendental Meditation Program**

![Figure 3. Statistical meta-analysis of all available studies (42 independent outcomes) indicated that the effect of the Transcendental Meditation program on increasing self-actualization is markedly greater than that of other forms of meditation and relaxation. This analysis statistically controlled for length of treatment and quality of research design. Almost all studies in this meta-analysis measured self-actualization through the widely used Personal Orientation Inventory (POI). Transcendental Meditation subjects improved significantly on all 12 POI subscales compared to controls over an average three-month period.](image)

Elsewhere (Alexander et al., 1990; Alexander, Rainforth, & Gelderloos, 1991), we have explained how growth of the highest levels of
individual development (self-actualization according to Maslow; or autonomy and ego-integration according to Loevinger) is only transitional to development of the universal or transcendental Self in higher states of consciousness. Some contemporary psychologists have viewed the possibility of developing a universal, unbounded self with some trepidation, for fear that going beyond or transcending individuality would somehow result in the loss of one’s personality. However, this is simply a misunderstanding. Maharishi (1963) has emphasized that the transcendental basis of the individual is not in conflict with his or her individuality. In fact, unless a person has grounding in the transcendental origin of his or her own individuality, he or she cannot have a fully developed individuality.

**Peace in Individual and Collective Consciousness**

There is a profound reciprocal relationship between individual and collective consciousness. Maharishi (1976) has pointed out that individual consciousness is the unit of all levels of collective consciousness: community, city, state, nation, and world. If individuals are tense, angry, and frustrated, then stress builds up in the collective consciousness. The stress in collective consciousness then negatively influences other individuals, causing them to become more tense, angry, and frustrated, thereby creating still more stress in individual and collective life. In contrast, Maharishi (1976) explains that the positivity enlivened in individuals through their practice of the Transcendental Meditation technique, and to an even greater degree through collective practice of the TM-Sidhi program, is likewise expressed in collective consciousness, which in turn influences individuals in a profoundly positive way.

Thus, whatever effects the Transcendental Meditation technique produces for individual life, we might anticipate that these same effects should become reflected on a collective level through group practice of the advanced TM-Sidhi program. The above research on self-actualization and ego development showed that the Transcendental Meditation technique profoundly increases psychological autonomy or self-sufficiency. Autonomous people have been shown to have a distinctive awareness of and confidence in their own inner identity, integrity, and moral vision. They are highly stable and self-reliant, and not easily overshadowed by stress from their environment (Loevinger, 1976). On
the other hand, autonomous individuals are also said to be capable of great intimacy with others. This is because they know who they are and are not threatened by being different from others.

How might growth of autonomy on the individual level through practice of the Transcendental Meditation technique find corresponding expression on the collective level through group practice of the TM-Sidhi program? One might expect to find that when a sufficient number of individuals in society become more autonomous or self-sufficient, then society as a whole would become more self-sufficient and display greater cultural integrity. Development of inherent natural resources, appreciation of cultural traditions unique to the nation, and capacity to respect the traditions of other nations as well, should enable such an integrated culture to contribute naturally to cooperative relations with the whole family of nations.

This is exactly what Maharishi (1976) predicts in his Absolute Theory of Cultural Integrity (p. 142). He proposes that when coherence increases in collective consciousness, the nation will become economically more prosperous and self-reliant, and also more stable, integrated, and resilient in the face of potential sources of threat, either from within or external to the country. In fact, numerous studies show that when sufficiently large groups practice the TM-Sidhi program, there is growth of prosperity on a national level (Cavanaugh, 1987; Cavanaugh & King, 1988; please refer to Cavanaugh’s article in this volume); and reduced conflict and accelerated progress toward peace in countries subject to civil or regional unrest (Orme-Johnson, Alexander, Davies, Chandler, & Larimore, 1988; Davies & Alexander, 1989; please refer to Davies’s article in this volume).

Maharishi (1967) uses an analogy to illustrate this point: all you need to do to take care of the whole tree is to water the root. In this analogy, the root of the tree for our individual self is Transcendental Consciousness, which can be described as the universal self, the cosmic psyche, or Being. Watering the root is bringing our individuality to the level of universality, accomplished most easily through the practice of the Maharishi Transcendental Meditation technique. Ordinarily, our attention is not on this level but is restricted to the more superficial, cyclical states of waking, dreaming, and sleeping, and therefore the root of the tree (our individuality) is not being watered. Unless our attention
goes to that deeper, transcendental level, we will remain object-referral and stranded in the field of duality. When we become established in Being, we have truly come into ourselves, and our individuality is better expressed. Just as all aspects of the tree are nourished and enlivened by the watering of the root, all aspects of the individual become stronger by directly contacting the source of our individuality. This is evidenced not only in growth of self-actualization through practice of the Transcendental Meditation technique, but by the over 500 studies documenting the effects of this technique on all aspects of daily life on the individual and collective levels.

Just as “watering the root” of individual life through transcendence actualizes the individual self as well as the universal Self, “watering the root” of society through creating coherence in collective consciousness nurtures the integrity of each culture while promoting unity among nations. To extend our previous analogy, in a garden where the gardener is not watering the roots, everything looks similarly withered and pale. However, if the garden is watered, as the plants become individually nourished, they begin to bloom in their differences. This is what makes a garden enjoyable—the experience of a unified collection of diverse colors, shapes, and sizes. Similarly, if the roots of various cultures of the world are not nourished, the cultures increasingly lose their cultural integrity and distinctiveness. However, when the roots of culture are nourished from the transcendental level through large groups practicing the Maharishi Transcendental Meditation and TM-Sidhi programs, then every culture blossoms in its distinctiveness and integrity as the family of nations grows in unity and harmony.

The great desire for freedom that is currently being expressed in cultures around the world is, in a sense, the desire to go to one’s roots. With the nourishing of collective consciousness that has already taken place due to the coherence-creating groups around the world, people in various parts of the world are spontaneously desiring to regain more and more their unique cultural identities and traditions. They want the roots of their societies to be deeply grounded in the unique laws of nature indigenous to their country or region.

Maharishi (1978) distinguishes between the individual level of the laws of nature and the universal level of the laws of nature. The universal level is the unified field of natural law, which is present every-
where throughout creation, at every level of creation in an unexpressed or unmanifest state. The diversified or individual level comprises all the laws that spring from that in the process known in physics as spontaneous symmetry breaking, and are found expressed differently in different places. This can be understood not only in terms of physics, but also in sociocultural terms. In Maharishi’s explanation, differences between cultures reflect unique climactic and geographical conditions that created the original identity of that culture. Thus, cultural differences are due to the different expressions of natural law in that area. Cultural values differ because the expression of the laws of nature differs. With the rise of coherence in the collective consciousness, the universal level of natural law is enlivened, which in turn enlivens the expression of natural law in different cultures, thereby simultaneously strengthening cultural diversity amidst international unity.

**Conclusion**

Scientific research indicates that the Maharishi Transcendental Meditation and TM-Sidhi programs are distinctively effective in developing a peaceful body and mind—the basis of peaceful behavior. When a sufficiently large group practices these programs and enlivens the underlying source of peace, the unified field of natural law, in national consciousness, the behavior of the whole nation is seen to become spontaneously life-supporting and harmonious. Thus, when groups of individuals identify their awareness with Transcendental Consciousness or Being—the basis of individual and collective life—the groups eliminate stress and promote peace. With the use of large, permanent coherence-creating groups in each country, it therefore becomes possible for the first time in history to create not only a peaceful mind and body but a truly peaceful world.
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peaceful body, peaceful mind, peaceful world


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Achieving World Peace
Through a New Science and Technology

John S. Hagelin, Ph.D.
ABOUT THE AUTHOR

John Hagelin received his Ph.D. in physics from Harvard University in 1981 and is currently Professor of Physics, Director of the Institute of Science, Technology and Public Policy, and Honorary Chair of the Board of Trustees at Maharishi University of Management. He is a world-renowned quantum physicist, educator, author, and public policy expert.

Dr. Hagelin has conducted pioneering research at CERN (the European Center for Particle Physics) and SLAC (the Stanford Linear Accelerator Center) and is responsible for the development of a highly successful grand unified field theory based on the superstring. Author of more than 70 papers published in journals such as Physics Letters, Nuclear Physics, and The Physical Review, his scientific contributions in the fields of electroweak unification, grand unification, supersymmetry and cosmology include some of the most cited references in the physical sciences. In addition, Dr. Hagelin has spent much of the past quarter century leading a scientific investigation into the foundations of human consciousness. In his book, Manual for a Perfect Government, Dr. Hagelin shows how, through educational programs that develop human consciousness, and through policies and programs that effectively harness the laws of nature, it is possible to solve acute social problems and enhance governmental effectiveness.

In recognition of his achievements, Dr. Hagelin was named winner of the prestigious Kilby Award, which recognizes scientists who have made “major contributions to society through their applied research in the fields of science and technology.” The award recognized Dr. Hagelin as “a scientist in the tradition of Einstein, Jeans, Bohr and Eddington.”


**ABSTRACT**

We consider the implications of the latest advances in scientific knowledge for the areas of conflict resolution and world peace. We examine scientific evidence for a new technology of world peace based on the unified field of natural law and its practical utilization through extended field effects of consciousness. We assess the practicality of this new technology using direct experimental intervention studies in critical test regions, including the Middle East. We conclude that this technology of world peace offers a cost-effective, scientifically validated means of achieving and sustaining a stable state of peace in the international arena.

**Introduction**

In recent years, research into the probable causes of war has led to a shift from the understanding that conflict originates in the inadequacies of various forms of government and/or the lack of preparedness for war\(^1\) to seeing lack of fulfillment of individuals and resulting stress levels in society as the basic cause.\(^2\) From this modern perspective, one can understand why the traditional political and military approaches, which ignore the underlying cause of war, have failed throughout history to achieve world peace. Fortunately, in the past few years, an entirely new approach based on the discovery\(^3\) of the unified field has given rise to a practical and cost-effective technology\(^4,5\) for alleviating collective stress, and for achieving and sustaining a stable state of world peace.

In this article, we explain how the discovery of the unified field provides the theoretical basis for a new technology of world peace known as the Maharishi Technology of the Unified Field.\(^4,5\) We show how, through this new technology, an individual can access the unified field and apply this most fundamental and powerful level of nature’s dynamics to benefit individual life\(^6–11\) and the life of society.\(^12–16\) The application to world peace occurs through group practice of the Maharishi Technology of the Unified Field by a small proportion of a population, which alleviates stress in the collective consciousness and promotes harmony and coherence throughout society as a whole.\(^12–16\) We examine published empirical studies documenting the effectiveness of this group practice in reducing violence and negativity, including war deaths and war injuries in areas of intense international conflict.\(^13–16\) This combined
research establishes that a permanent group of 7,000 experts practicing the Maharishi Technology of the Unified Field provides a practical means to create a permanent state of world peace.

**Discovery of the Unified Field**

The progress of society is based upon scientific knowledge. The scientific understanding of the laws of nature governing behavior at every level of the physical universe provides the theoretical foundation for the practical utilization of these laws through the various branches of applied science and technology. For example, scientific knowledge of the laws of nature governing biochemical and physiological processes provides the theoretical basis for all the applied methods, approaches, and technologies in the field of medicine. Similarly, knowledge of electromagnetism and the principles of information theory provide the theoretical foundation for modern telecommunications and computer technology.

Until recently, scientific understanding of the laws of nature has been incomplete. In particular, the underlying basis of natural law in the unified field has been unavailable, giving rise to a fragmented and partial view of the laws of nature governing the universe. Partial and fragmented understanding of the laws of nature has given rise to technologies that, on the one hand, have brought a degree of progress and comfort to society but, not being holistic, have resulted in numerous physiological, psychological, sociological, and ecological side effects. Nuclear technologies, for example, based on the scientific understanding of the laws of nature governing nuclear structure and transformations, have given rise to an alternative energy source that can be economically cost effective, but have also given rise to highly toxic, ecologically dangerous radioactive wastes and a generation of weapons that has threatened mankind with extinction.

Now, the continued progress of society demands the practical utilization of a level of nature’s functioning that is at once more powerful and more holistic—a technology based on the total potential of natural law available in the unified field. During the past two decades, progress in theoretical physics has led to a progressively more unified understanding of the laws of nature, culminating in the recent discovery of completely unified field theories. This discovery began in
1967 with the introduction by Professors Weinberg and Salam of the unified theory of the weak and electromagnetic forces, uniting two of the four fundamental forces governing all physical processes (please refer to Figure 1). The profound success of this unified “electroweak” theory confirmed that at deeper levels of nature’s dynamics—at more fundamental (i.e., smaller) spacetime scales—the laws of nature present a simpler, more unified structure in which superficially diverse laws of nature become unified.

In the early 1970s, it was shown that this same unifying principle could be extended to include the strong nuclear force, leading to “grand unified theories” of the strong-weak, and electromagnetic forces. In 1974, the concept of supersymmetry was introduced—a profound mathematical symmetry principle capable of unifying particles of different “spin”—providing the mathematical basis for completely unified field theories. During the past several years, the application of this principle has led to the development of completely unified theories of all the fundamental forces and particles of nature based on the heterotic string.

Figure 1. The progressive unification of the four fundamental forces of nature (left-hand side) along with the systematic technology to access and apply the Unified Field for the benefit of human life (right-hand side).
The heterotic string or “superstring” describes all the fundamental forces and particles as the various modes of vibration of a single, underlying unified field. The superstring thereby provides a completely unified understanding of the fundamental forces and particles of nature, in addition to the first quantum-mechanically consistent theory of the gravitational force.

Now, with the discovery of the unified field, the total range of Natural Law is open to scientific knowledge and exploration. Since the progress of society is based on scientific knowledge, the discovery of the unified field—the most fundamental and powerful level of nature’s dynamics—can be expected to have the most far-reaching implications for human life and civilization. Moreover, because the discovery of the unified field constitutes scientific knowledge of the total potential of Natural Law, in contrast to the more superficial, partial, and fragmented levels of scientific knowledge, its application can be expected to produce holistic benefits—i.e., to create balance and to neutralize the destructive side effects of previous levels of scientific knowledge. For this to be practically realized, however, a technology of the unified field is clearly necessary.

Fortunately, such a technology exists, and has been the subject of intensive scientific research. During the past 20 years, its effectiveness has been verified by hundreds of published studies appearing in leading scientific journals throughout the world. The applications of this technology in the fields of health, education, rehabilitation, economics, and world peace have already demonstrated its capacity to create a quality of life and civilization which is far beyond that which was possible based on previous levels of scientific knowledge.

The Unified Field and Consciousness

It was clear even from the pioneering work in the area of unified field theories by Einstein and contemporaries that the application of this most fundamental and powerful level of Natural Law would necessarily be through a technology of consciousness. This is partly because the domain of superunification—the Planck scale of $10^{-33}$ cm—is beyond the range of any particle accelerator or conceivable objective technology. Indeed, the objective approach of modern science, which is founded upon the separation between the observer and the observed, is essen-
tially unsuited to investigate the fundamentally indivisible structure of Natural Law at its unified foundation. However, although the unified field is beyond the range of any objective technology, it is not beyond the range of human intelligence, as today’s highly successful unified field theories have demonstrated. In fact, it is now well known that through proper training, human awareness can gain direct access to the unified field in the most fundamental state of human consciousness—the state of “pure consciousness,” which lies at the foundation of conscious experience.

During the past 20 years, extensive scientific research, along with the direct personal experience of millions of individuals practicing a simple, subjective technology called the Maharishi Technology of the Unified Field, has shown that human intelligence, like nature’s intelligence, has at its basis a unified field of intelligence (please refer to Figure 1). In this most fundamental state of awareness, known as Transcendental Consciousness or pure consciousness, the knower, the known, and the process of knowing are united in a single, self-interacting structure of experience. The defining characteristics of this unified field of consciousness—e.g., self-referral or self-interaction, pure intelligence, and infinite dynamism—are identical to the essential characteristics of the unified field of modern physics derived from the Lagrangian of the superstring. (Please refer to the Appendix at the end of this article, entitled “Qualities of the Unified Field.”) The most natural conclusion is that the most fundamental level of human intelligence (pure consciousness) and the most fundamental level of nature’s intelligence (the unified field) are not independent, but one and the same, providing a profound unification of objective and subjective realms of existence at the level of the unified field.

This fundamental identity between the unified field of physics and the unified field of pure consciousness at the basis of the mind is confirmed through detailed analysis of their quantitative structure and dynamics. The vibrational spectrum of the excitations of the unified field, i.e., its resonant modes or “energy eigenstates” which comprise all the various particles and forces in the universe, are identical in structure to the fundamental modes of consciousness open to direct experience through the Maharishi Technology of the Unified Field (for details, please refer to ref. 23). In other words, not only do these two fields
possess identical qualities and characteristics, but they share the same quantitative spectrum of excitations. This quantitative correspondence strongly supports the proposed identity between pure consciousness and the unified field. This fundamental identity is open to direct experiential confirmation through the Maharishi Technology of the Unified Field, in which all the subjective and objective aspects of existence are experienced to emerge from the field of pure consciousness, establishing pure consciousness as the unified fountainhead of natural law.23

The Maharishi Technology of the Unified Field
The Maharishi Technology of the Unified Field is a systematic technology which opens human awareness to the direct experience of consciousness in its pure, self-referral state, in which the conscious mind is identified with the unified field of all the laws of nature (please refer to Figure 1).4,5 It systematically expands human comprehension to experience and explore more abstract and fundamental levels of intelligence of the mind, corresponding to more fundamental and universal levels of nature’s intelligence,22 culminating in the experience of a level of intelligence that is completely universal and unified in its nature—the experience of the unified field itself. Research has shown that this experience of pure consciousness constitutes a fourth major state of consciousness,24,25 physiologically distinct from waking, dreaming, and deep sleep. It is characterized by high EEG coherence,26 indicating profound integration and orderliness of brain functioning, together with other unique physiological and biochemical changes.27 Over 500 scientific studies6–16 conducted at more than 200 universities and research institutes in 30 countries (updated figures as of October 1992) throughout the world have extensively documented the profound physiological,8 psychological,6 and sociological11–16 benefits resulting from this fundamental experience, including increased intelligence6 and creativity,7 improved physical and mental health,8 and increased self-actualization.28 The completely holistic nature of these benefits further supports the hypothesis that this subjective technology operates at the most fundamental and holistic level of nature—the level of the unified field.23
Life in Accord with Natural Law

The unified field is the total potential of natural law. In its self-interacting dynamics are contained the mechanics of “symmetry breaking” through which it becomes expressed as the apparently diverse values of natural law displayed throughout the universe.23 During the practice of the Maharishi Technology of the Unified Field, an individual experiences directly the mechanics by which thought arises from the unified field, the field of pure intelligence or pure consciousness at the basis of the mind.25 Repeated experience results in an innate familiarity with the laws of nature that govern the transformation of the unified field into its superficially diverse values.5,23

Innumerable Laws of Nature uphold human life in its natural pursuit of health, happiness, and progress. These laws determine the consequences of our thoughts and actions and thereby either support the fulfillment of our desires or lead us to corrective action. When, through repeated experience of pure consciousness, an individual’s awareness becomes consciously identified with the unified field, the total potential of natural law, then he enjoys life spontaneously in accord with all the laws of nature.5 This is to say that the person’s thought and action spontaneously are suitable to the environmental context. They meet with no problems, conflict, or resistance, and create no suffering for the individual or for society. Taking maximal advantage of the laws of nature, such thoughts and actions are naturally supported by all the laws of nature governing physiological, psychological, and sociological processes.5,6–16 They do not set in motion any processes that, even in part, conflict with the intent of the thought and action. This state of human life supported by natural law is possible only when the total potential of natural law, the unified field, is fully enlivened in human awareness. No other level of natural law, and no other level of human awareness, is sufficiently holistic that it could comprehend all the Laws of nature that affect human life.

To live a life in accordance with natural law has been the goal of moral philosophers29 and thoughtful medical scientists30 throughout history. These scholars have attempted to develop codes of behavior based on intellectual knowledge of the laws of nature. An intellectual approach, however, can at best be incomplete because the totality of all the laws of nature is too vast and complex to be understood intellectu-
ally. It is nevertheless possible for human awareness to comprehend by direct experience the unified field, the completely holistic level of natural law from which nature spontaneously conducts all activity in the universe.\(^4\)\(^-\)\(^5\), \(^22\)\(^-\)\(^25\) By repeated experience, \(^25\) the mind becomes identified with this field, and thereby develops an innate familiarity with the total potential of natural law upholding life and evolution on all levels of the physical universe. Thought and action become automatically aligned with the evolutionary power of natural law, \(^5\) and thereby enjoy the same natural effectiveness and efficiency with which nature governs the universe—with absolute efficiency and economy in accordance with the universal principle of least action.\(^23\)

**Freedom from Stress**

In his seminal book, *Life Supported by Natural Law*, \(^5\) Maharishi Mahesh Yogi explains that the violation of natural law through improper thought and action causes stress in the individual nervous system. That is, action which is unsuitable or goes against the natural functioning of the mind and physiology produces strain and stress in that particular area of the physiology or nervous system. Stress is defined as a structural or chemical abnormality in the physiology which obstructs the proper functioning of the nervous system in that specific area. This description is corroborated by medical evidence concerning the nature of stress and its effect upon the nervous system.\(^30\)

The continued violation of natural law results in accumulated stress, which causes problems for the individual mind, body, and behavior. Stress that is not alleviated by the body’s resting cycle or by the body’s natural homeostatic and self-repair mechanisms builds up in the nervous system, and ultimately manifests as disease or some other form of physiological or psychological disturbance. (Over 80% of diseases are now known to be stress-related.\(^31\).) Accumulated stress causes tension, frustration, ill health and unhappiness and, furthermore, according to Maharishi,\(^25\) is the underlying cause of destructive, violent and other antisocial behavior. Unhappiness, imbalance, and frustration in turn promote further violations of natural law, creating more stress, and a dangerous cycle is created. A technology to alleviate stress and to bring life spontaneously into accord with natural law is therefore essential to
safeguard against the consequences of stress for the individual’s health and happiness.

Society is essentially a collection of individuals. On a societal level, the accumulation of stress through the violation of natural law by all the individual citizens of society leads to the same type of collective ill health and antisocial behavior that results from stress on the individual level. In *Life Supported by Natural Law*, Maharishi identifies violation of natural law and the resulting accumulated stress levels in society as the basic cause of collective ill health (and associated spiralling healthcare costs) and collective frustration, leading to crime, drug abuse, violence and other antisocial behavior.

According to Maharishi, the continued buildup of stress in collective consciousness ultimately manifests as war and other collective calamities. This is very much in accord with current thinking in the field of political science, where lack of fulfillment and collective stress levels in society are increasingly seen as the principal cause of war. From our previous discussion it follows that practice of the Maharishi Technology of the Unified Field by individual citizens of a nation, by bringing life into accord with natural law and preventing the buildup of collective stress, would remove the underlying cause of war. Unfortunately, as an immediate practical program, it may be somewhat unrealistic to expect that an entire population could be trained in the Maharishi Technology of the Unified Field and would practice the technology regularly. Fortunately, however, research has found that the practice of the Maharishi Technology of the Unified Field by the whole population is not necessary in order to achieve significant results.

Repeated studies have shown that the square root of 1% of a population practicing the Maharishi Technology of the Unified Field as a group is sufficient to produce a significant and demonstrable drop in crime rate, accidents, and other indicators of collective stress, and even to reduce violence and war in areas of intense international conflict. These far-reaching effects produced by a small proportion of the population are the result of “field effects of consciousness” generated by group practice of the Maharishi Technology of the Unified Field.
Field Effects of Consciousness

If consciousness in its deepest aspect is fundamentally a field, as our previous analysis along with the experience of millions of individuals practicing the Maharishi Technology of the Unified Field has shown, then phenomena of consciousness must necessarily include processes that are inherently field-like, or unlocalized, in nature. At present, the most striking and important application of this new scientific framework for the understanding of consciousness is the Maharishi Effect, which refers to extended field effects of consciousness produced by the collective practice of the Maharishi Technology of the Unified Field. Over thirty consecutive studies provide conclusive evidence that group practice of an advanced aspect of the Maharishi Technology of the Unified Field, called the TM-Sidhi program, by as few as the square root of 1% of a population reduces violence, crime, and other manifestations of societal stress. These studies use statistical analysis of standard sociological measures to assess the influence of groups of experts collectively practicing the TM-Sidhi program on a surrounding population. Because of the importance of these empirical results for our practical assessment of this new approach and technology for world peace, a brief summary and interpretation of the research is included here.

Historical Development

In 1960, Maharishi predicted that 1% of a population practicing the Transcendental Meditation technique would produce measurable improvements in the quality of life for the whole population. The first study designed to test this prediction analyzed crime rate change in 22 U.S. cities (population > 25,000) from 1972 to 1973. Crime rates decreased in the 11 cities with 1% of the population practicing the Transcendental Meditation technique, while crime rates in the matched control cities continued to rise. A more extensive study analyzed crime rate trends in 48 U.S. cities (population > 10,000) over the 11-year period from 1967 to 1977. This included all independent cities in this population range with 1% of the population instructed in the Transcendental Meditation program. Crime rates decreased significantly in the 24 “1%” cities compared with their own previous trends and compared with 24 matched control cities over the same period. Subsequent replications have analyzed crime rate trends in 160 cities and 80 metropoli-
tan areas in the U.S. using increasingly powerful design and analysis techniques, and have further demonstrated Maharishi’s prediction that participation in the Transcendental Meditation program would lead to a reduction in crime rate trends.

With the introduction of the more advanced TM-Sidhi program in 1976, Maharishi anticipated a more powerful influence of coherence in the collective consciousness of society. He predicted that group practice of the TM-Sidhi program by as few as the square root of 1% of a population\(^*\) would have a demonstrable effect on standard sociological measures. The relatively small number of participants practicing the TM-Sidhi program predicted to generate this effect of societal coherence has made it possible for many direct experimental studies to be performed in which the necessary number of participants come together on courses in various locations for periods of time ranging from one week to several months. Most of these studies, including research at the metropolitan, state, national, and international scales, have used time series analysis to reliably estimate experimental effects independent of cycles and trends in the data. This type of research design, called an experimental intervention study, constitutes a unique and rigorous approach for the social sciences.

**Time Series Analysis**

The effects of the Transcendental Meditation and TM-Sidhi programs on quality-of-life indices are usually assessed with time series analysis using the autoregressive integrated moving average (ARIMA) approach of Box and Jenkins.\(^{39}\) (A time series is a sequence of equally-spaced measures on some variable, e.g., monthly crime rate.) This methodology has become the standard for rigorously estimating the effects of an outside intervention on a time series or for empirically determining the form of causal relationship between two continuous time series.\(^{40}\) Time series “intervention analysis” is used to assess effects of hypothesized influences during specific time periods (e.g., when the number of TM-Sidhi participants exceeds a certain critical threshold). Time series “transfer function analysis” is used to model the input-output

\(^{1}\) This prediction is based on a field-theoretic model which assumes a coherent superposition of amplitudes, such that the intensity of the effect generated is proportional to the square of the number of participants.
relationship between a continuous independent exogenous variable (e.g., the daily number of TM-Sidhi participants) and the dependent or endogenous variable (a social indicator such as crime rate).

With both methods, the time series approach controls for any serial dependence of observations, trends, or seasonal cycles in the data over time by including these influences in a “noise model” of the series. That is, as part of the time series analysis a mathematical model of the time-dependent regularities in the endogenous series is constructed, and this model will account for, and therefore control for, patterns in the endogenous time series that can be predicted from its own past history. The noise model thus serves essentially as a “null hypothesis” for effects of the exogenous variable.

Any intervention effects or transfer function effects on the endogenous variable indicate effects of the independent variable that cannot be predicted either from the previous history of the series or from any unmeasured continuous variables that may be partially determining the endogenous variable. These time series methods have proven to be ideal for assessing the effects of the group practice of the TM-Sidhi program upon sociological indicators.

Recent Intervention Studies

Within the past few years, there have been an increasing number of experimental studies using time series intervention and transfer func-

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28 The noise model \( N_t \) has the form \( N_t = \left[ \theta(B)/\phi(B) \right] a_t \), where \( \phi(B) \) and \( \theta(B) \) specify autoregressive and moving average parameters, respectively, at various time lags, and where \( a_t \) is a series of independent and normally distributed random disturbances. The term \( (B) \) indicates a backshift operator that is used to model lagged influences in a time series. The noise model effectively removes the serial dependence of the data by modeling it, and the residuals to the noise model form independent data points.

Transfer function analysis models the endogenous time series \( Y_t \) as \( Y_t = C + V(B)X_t + N_t \), where \( X_t \) is the continuous exogenous series, \( V(B) \) is the transfer function connecting the two series, \( C \) is a possible constant, and \( N_t \) is the stochastic noise model that specifies the combined nonrandom (time-dependent) influences other than the exogenous series.

Intervention analysis employs an identical model, except that the exogenous variable is a binary intervention series \( I_t \), specifying the time periods during which an intervention occurred.

The transfer function or intervention effect \( V(B) \) is approximated by \( \Omega(B)/\delta(B) \), where \( \Omega(B) \) contains parameters indicating the time delay of influence of the exogenous variable and the magnitude of its effect at various time lags, and where \( \delta(B) \) contains parameters specifying the rate at which this influence decays (for an abrupt temporary effect) or grows (for a gradual permanent effect). The time series methodology can thus be used to model both linear and nonlinear influences of one series on another.
tion analysis to assess the effects of the group practice of the TM-Sidhi program at the metropolitan, state, national, and international scales.

At the metropolitan and state levels, time series intervention studies found reduced crime in Metro Manila, Philippines, in New Delhi, India, and in Puerto Rico during periods in which large groups had assembled for conferences involving twice daily practice of the TM-Sidhi program. Time series transfer function analysis similarly found a reduction in violent crime in Washington, D.C., in weeks following an increase in the size of a permanent group of TM-Sidhi participants. Other intervention studies in Metro Manila and in Rhode Island found improvements in holistic indices of the quality of life composed of available monthly social indicators during periods of assemblies of large groups of TM-Sidhi participants.

The most well-documented analyses at the national level have been in the U.S., where a permanent large group of participants in the TM-Sidhi program has been established at Maharishi University of Management. Since 1982, the size of this group has periodically exceeded the square root of 1% of the U.S. population. An analysis of annual changes in a quality-of-life index comprising 11 major variables showed a significant improvement correlated with the size of the group of TM-Sidhi participants. More detailed analyses of the U.S. quality of life using time series intervention and transfer function analysis during 1979–1985 found reduced weekly fatalities due to violence (homicides, suicides, and motor vehicle accidents) on weeks immediately after the size of the Maharishi University of Management TM-Sidhi group exceeded the square root of 1% of the U.S. population. This analysis showed that two-thirds of the observed decrease in U.S. violent fatalities from 1979 to 1985 could be directly attributed to the group practice of the TM-Sidhi program. Reduced violent deaths were also found in Canada when the size of the Maharishi University of Management group exceeded the square root of 1% of the combined populations of the U.S. and Canada. In addition, time series intervention analysis of monthly U.S. and Canadian economic trends (a “misery” index combining inflation and unemployment) showed improved economic conditions in months immediately after the number of participants exceeded the required number (1,600) for the population of the U.S. and Canada.
There have been three assemblies in which the number of TM-Sidhi participants approached or exceeded the square root of 1% of the world’s population—about 7,000 individuals. During each of these assemblies, there was a significant reduction of international conflict, as indicated by time series intervention analysis of news events. The time series of news events was created from content analysis (rating of news items) of major newspapers by raters who were unaware of the dates of the news items being rated. Time series analysis also indicated a significant reduction in fatalities and injuries due to terrorism during and immediately after the period of these assemblies; data on terrorism was collected by an independent agency.

**Reduction of Violence in the Middle East through the Maharishi Effect**

One especially critical experimental test of the hypothesis that the group practice of the TM-Sidhi program by the square root of 1% of a population would positively affect sociological measures was conducted in Israel in August and September of 1983. Based on the results of previous experiments, the research hypotheses and the specific measures to be used in the study were lodged in advance of the experiment with an independent review board of scientists in the U.S. and Israel.

It was predicted that group practice of the TM-Sidhi program in Jerusalem would reduce stress in the collective consciousness of Israel and Lebanon. Box-Jenkins ARIMA intervention, cross correlation, and transfer function analyses were used to study the effects of changes in the size of the group on several variables and composite indices reflecting the quality of life in Jerusalem and Israel, and also the war in Lebanon.
Maharishi Effect: Reduced Conflict in Lebanon and Improved Quality of Life in Israel

Figure 2. This figure illustrates the covariation between the number of TM-Sidhi participants (dashes) and a composite index of quality of life in a study conducted in Israel during August and September of 1983. The composite index was the arithmetic average of standardized scores for crime rate, traffic accidents, fires, stock market, national mood, and the number of war deaths as a measure of war intensity in Lebanon. The sociological parameters employed in this study were lodged in advance of the experiment with an independent review board of scientists in the United States and Israel. (Figure courtesy of D. W. Orme-Johnson.)

Figure 2 shows a striking covariation between the size of the group of TM–Sidhi participants (dotted line) and a composite index of quality of life that was the arithmetic average of standardized scores for crime rate, traffic accidents, fires, stock market, national mood, and the number of war deaths as a measure of war intensity in Lebanon.

Increases in the size of the group had a statistically significant effect on the individual variables and on the composite quality-of-life index. Cross correlations and transfer functions indicated that the group had a leading relationship to change on the quality-of-life indicators, supporting a causal interpretation. There was a 45% reduction in war intensity and a 76% reduction in war deaths during periods of high
numbers of TM-Sidhi participants. Time series analysis demonstrated that the effect could not be attributed to seasonality (such as weekend effects or holidays) or to changes in temperature.

**Maharishi Effect: Progress toward Peace in Lebanon**

![Graph showing war intensity in Lebanon](image)

**Figure 3.** During the six-month period from November 13, 1983 to May 18, 1984, a measure of war intensity in Lebanon was most positive during three assemblies in which the number of TM-Sidhi participants exceeded the predicted thresholds required for an influence on the war. Time series analysis indicates significantly greater progress toward peaceful resolution of the conflict during these assemblies than would have been predicted from the prior history of the Lebanon war ($p < .00005$). The particularly large effect coincident with the Lebanon assembly held in the immediate vicinity of the conflict suggests the importance of proximity in the generation of societal coherence. (Figure courtesy of C. N. Alexander.)

The hypothesis that the influence occurs on a fundamental and holistic level of nature is supported by the fact that the arithmetic average of the different measures produced the clearest results and by the observation that the different sociological measures tended to change independently of each other when the group size was small, but all changed coherently in a positive direction as the group size was increased.

A subsequent study (Figure 3) assessed the impact on the Lebanon war of three successive assemblies in which large groups practiced
the TM-Sidhi program during a six-month period from November 13, 1983 to May 18, 1984. The assemblies were held in the United States, Lebanon, and Yugoslavia, and were approximately two weeks long.

The authors used a time series intervention analysis of the Lebanon war to compare levels of conflict during the days on which the assemblies occurred compared to the baseline period which consisted of all other days during the six-month period of the study. The level of the conflict was measured by three indices: daily levels of a Peace/War Index of events reported in major Lebanon newspapers, daily reported war deaths, and daily injuries due to the war. The scoring was performed by representatives of the different factions involved in the conflict, and inter-rater reliability was high.

As predicted in advance, the Peace/War Index showed that prevailing negative conditions were abruptly reversed, and greater progress toward peaceful resolution of the Lebanon conflict was observed than would have been expected based on the prior six-month history of the war ($p < .00005$). War deaths fell by 55%, from a mean of 6.5 per day during the baseline period to a mean of 2.9 per day during the three assemblies ($p < .0005$). War injuries fell by 38%, from a mean of 20.6 per day during the baseline period to a mean of 12.7 per day during the assemblies.

The study of the Lebanon conflict was subsequently expanded to include a daily time series intervention analysis of a 27-month period during which there were seven assemblies of TM-Sidhi participants of sufficient size to influence the Lebanon conflict according to the square root of 1% formula. These assemblies, which ranged from a small group in the central area of fighting within Lebanon, to larger groups in Israel, Yugoslavia and the Netherlands, to three groups of up to 7,800 in the U.S., are the only ones in the last decade of sufficient size in relation to their proximity to Lebanon to exceed the threshold for a predicted impact there. For each assembly lasting between one and eight weeks, improvements in quality of life (including reduction of political violence and progress toward peace) were predicted publicly and in advance for the surrounding population equal to $\sim 100 \text{n}^2$, where n is the number collectively practicing the TM-Sidhi program. For a total of 93 days, or 11.33% of the period of the study, this population
included all or most of Lebanon, or at least the primary region of conflict within Lebanon.

The 821-day database, which included daily levels of cooperation and conflict and the number of reported war fatalities and injuries, was generated using independently developed 16-point scales of cooperation and conflict. Events were coded by an experienced Lebanese coder, blind to the experimental hypotheses and unaware of the assemblies and the technology employed, from eight international news sources, including The New York Times, and news broadcasts from radio stations in and near Lebanon representing all major parties to the conflict, as reported by the Foreign Broadcast Information Service.

Box-Jenkins intervention analyses indicated (Figure 4) that in contrast to nonexperimental days, during the 93 days when assemblies were sufficiently large for a predicted impact in Lebanon, there was an estimated:

1. 66% mean increase in level of cooperation among antagonists ($t = 4.96, p = 4 \times 10^{-7}$);
2. 48% reduction in level of conflict ($t = -5.81, p = 3 \times 10^{-9}$);
3. 71% reduction in war fatalities ($t = -6.45, p = 1 \times 10^{-10}$); and
4. 68% reduction in war injuries ($t = -4.91, p = 5 \times 10^{-7}$).

A. Improved Cooperation                  B. Reduced Conflict

The value of $t$ coincides approximately with the number of standard deviations when the number of degrees of freedom is ~ 30 as in the case of the present study.
Figure 4. Mean daily level of cooperation (A), levels of conflict (B), number of war fatalities (C), and number of war injuries (D) in the Lebanon War during the nonexperimental and each of seven experimental periods from June 1983 to August 1985. Time series intervention analysis indicates: (A) significant improvements in the level of cooperation during five of the experimental periods, and during all seven combined ($p = 4 \times 10^{-7}$); (B) significant reductions in the level of conflict during six of the experimental periods, and during all seven combined ($p = 3 \times 10^{-9}$); (C) significant reductions in the number of war fatalities during six of the experimental periods, and during all seven combined ($p = 1 \times 10^{-10}$); (D) significant reductions in the number of war injuries during four of the experimental periods, and during all seven combined ($p = 5 \times 10^{-7}$). (Figures courtesy of J. Davies.)
A composite Peace/War Index combining these variables indicated (Figure 5) that the seven assemblies each had independently significant positive effects on the war ($t = 9.03, p = 9 \times 10^{-20}$). The study employs an interrupted time series design with multiple replications, which offers a “very powerful” basis for addressing the issue of causality. Changes
in temperature or holidays did not account for any of the improvements during each assembly. The mean temperature on experimental days (which were spread across all four seasons) was slightly higher than on other days, yet despite an overall tendency for higher levels of violence to occur on hotter days, violence still diminished sharply on experimental days. The possible impact of religious and national holidays was separately assessed, and in the one case where these had a significant impact on the war (cooperation was higher on Muslim holidays), this was also included as part of the null model when assessing the impact of the assemblies.

The possibility that improvements were due to the assemblies being initiated in response to worsening conditions in the war, and thus being held when the conflict was improving anyway (through regression toward the mean), may be discounted for several reasons. First, all assemblies except that in Lebanon were announced several weeks or months in advance, and dates set without reference to the situation in Lebanon, which was no more a concern than other trouble spots within the range of impact of each assembly. Second, the statistical independence of the occurrence of the assemblies from patterns of behavior in the war (dependent series) in the weeks and days immediately preceding and following the assemblies was explicitly tested and confirmed. Finally, it is clear from the results that the observed impact on each variable represents improvement substantially away from the mean, not regression toward it. For the same reasons, the improvements could not be due to convening assemblies at the first sign of improvement in the war. Also, positive changes were found to occur with zero time-delay, from the first day of each experimental period: that is, the periods began before the improved events could be reported in the press, and ended before renewed violence could be reported.

The design of the experiment also precluded explanation in terms of coincidence, post hoc selection of data, or measurement artifact. Coincidence may be ruled out on the basis of extremely low probability values (9 x 10^{-20} on the Peace/War Index), and the high level of consistency across all indices and replications (assemblies). Post hoc selection of assemblies, variables or data sources was precluded through announcement to the media (and in some cases to independent review boards) of dates and predicted effects prior to each assembly (again excepting
that held in Lebanon). Any possibility of measurement artifact or bias was severely limited through use of independently developed scales, multiple news sources representing all parties, and a highly experienced coder, familiar with the political and cultural context of the war, but blind as to the nature of the hypotheses, the independent variable, and the theory and technology on which the hypotheses were based.

Explanation of observed improvements as a consequence of publicity or other behavioral interactions between assembly organizers or participants and the people fighting in Lebanon can also be excluded. Only in the Lebanon assembly was there any possibility of direct personal interaction, and that was minimized in that participants and organizers remained isolated in their facility in a small village except for such activities as purchase of food and travel when first joining or leaving the assembly. In no case did the media in Lebanon carry any prior or concurrent news items concerning any of the assemblies, nor was there any attempt during any assembly to create any expectation of change, or otherwise influence the behavior of parties to the conflict other than through practice of the Transcendental Meditation and TM-Sidhi programs (which involves an inward focus of attention, to maximize coherence and normalize stress principally for the purpose of personal development).

These findings strongly support the hypothesis that societal coherence can be enhanced, and even protracted violence alleviated, across any population size as a spontaneous and nonintrusive field effect generated by the group practice of the TM-Sidhi program.

**Physical Interpretation**

In addition to their obvious practical importance for eliminating war and raising the quality of life in society, these research findings clearly have profound implications concerning our understanding of consciousness and its relation to the physical world. Indeed, they appear to invalidate completely the prevailing psychological and sociological paradigm, in which consciousness is viewed as a purely superficial and localized phenomenon—i.e., the macroscopic outcome of complex biochemical and electro-physiological processes in the brain. Instead, the Maharishi Effect research suggests that consciousness, in addition to
its obvious localized content, has a deeper, unlocalized, field-theoretic basis, in agreement with our previous discussion and analysis.

In such circumstances, it is vital that leading physicists, psychologists and other scholars carefully assess the impact of these findings on our understanding of the natural universe. One such analysis is presented in ref. 22, where it is shown that these results are consistent with the current framework of unified quantum field theories, but require an expanded physical framework for our understanding of consciousness. We will summarize the main elements of that analysis here.

Although it would be more accurate to say that the Maharishi Effect data constitute evidence for an “action at a distance” with respect to consciousness rather than a “field effect” per se, physics has historically come to associate action at a distance with field phenomena. The observed attenuation of the effect with distance (i.e., the fact that a relatively small group in Lebanon produced an effect comparable to a group of over 7,000 halfway around the globe) would support such a field-theoretic interpretation. The quadratic dependence of the intensity of the effect upon the size of the coherence-creating group is also characteristic of a field phenomenon in which the radiators are operating coherently. More specifically, the coherent superposition of amplitudes required to produce such an intense constructive interference suggests the behavior of a field.

However, there are certain features of the Maharishi Effect that are not easily understood on the basis of a conventional field. The main difficulty with a simple field-theoretic model is in understanding the observed data on the basis of any of the known fields. The only known candidates for such long-range interactions are electromagnetism and gravity. Any conventional gravitational interaction between individuals is presumably orders of magnitude too weak. Moreover, it is generally agreed that the electromagnetic interaction between individuals would also be too weak to give rise to any significant effects. This conclusion is probably reasonable despite new evidence that the physiology may be sensitive to environmental AC electric fields six to seven orders of magnitude lower than those experimentally observed.

4 This also holds true for possible spin-1 forces that interact with gravitational strength, such as a proposed “fifth force” or the gauge bosons associated with a hidden sector. (The latter would probably operate only at short distances anyway due to confinement effects.) The same is presumably true of other weakly-interacting bosons that have escaped detection in particle physics experiments.
magnitude weaker than had been previously considered possible.\textsuperscript{44} In fact, the brain appears to be particularly sensitive to EEG-modulated microwave radiation in the 0.5–10 gigahertz range, offering a potential mechanism for EEG communication and entrainment. It has been shown by Tourenne\textsuperscript{45} that certain cellular structures within the cortex that support the propagation of electromagnetic solitons could provide highly efficient radiators of microwave radiation, which would presumably be modulated in the EEG band.

While we therefore feel it is essential to pursue possible electromagnetic mechanisms for the Maharishi Effect, these mechanisms at present appear unable to account for the observed phenomenology. (Moreover, there was no evidence of attenuation in an instance where the coherence-creating group was electromagnetically shielded by a metallic enclosure.\textsuperscript{46})

If conventional mechanisms are unable to account for the observed data, then some unconventional mechanism involving new physics is clearly needed. Since there are no other long-range forces of electromagnetic or comparable strength, one is led to consider alternative theoretical frameworks that could serve to bridge the substantial distance barriers involved. One such framework is provided by the structure of spacetime geometry at the scale of superunification—the proposed domain of pure consciousness.

Although we do not currently possess the calculational tools needed to unfold the full dynamics of quantum gravity, there are strong indications that the local 3 + 1 dimensional structure of classical spacetime geometry observed at distances larger than the Planck scale may provide a totally inappropriate framework for physics at the scale of superunification. Indeed, today’s unified quantum field theories based on the superstring point to an entirely different spacetime structure which transcends 3 + 1 dimensions completely. In these theories, an abstract 1 + 1 dimensional spacetime structure of the string itself dynamically generates the emergent 3 + 1 dimensional classical spacetime, possibly through a sequence of intermediate stages (e.g., through a ten dimensional low-energy effective field theory). In this dynamics, the very existence of an emergent, local, causal spacetime structure depends intimately upon the assumption of a perturbative string vacuum.\textsuperscript{47} More generally, one expects nonperturbative string dynamics to
produce nonlocal effects—effects that defy interpretation within the assumed 3 + 1 dimensional, local structure of classical spacetime geometry. One would therefore expect that if the domain of consciousness is fundamentally the superunified scale, then phenomena of consciousness could include influences that are inherently nonlocal. Indeed, the Maharishi Effect data can be viewed as powerful evidence that individual consciousness can access the scale of superunification, consistent with the proposed identity between pure consciousness and the unified field.5*

A question often raised by physicists is how human consciousness could possibly interact with physics at such fundamental scales. This question stems from the recent but relatively widespread misunderstanding of what consciousness is, i.e., a purely superficial product of complex biochemical and electrophysiological processes in the brain. Such a viewpoint may seem compatible with the restricted range of experience available in waking consciousness (in which consciousness itself is not directly perceived), but it is clearly incompatible with experience in higher states of consciousness. For example, in the state of pure consciousness, consciousness experiences itself as an unbounded field and as the unified source of all the laws of nature: all forms and phenomena in the universe are experienced to emerge from there, and can be generated at will through the application of the TM-Sidhi program. According to Maharishi and our analysis above, the natural range of consciousness is from point to infinity: from the localized boundaries of sensory experience, through increasingly more expanded and universal levels of thought and feeling, to the unbounded field of pure, abstract, self-interacting consciousness. Maharishi explains that the range of one’s experience and conscious influence is limited only by one’s range of comprehension—i.e., localized or unbounded—and that the Maharishi Effect is simply a result of collective functioning at more fundamental and universal levels of consciousness. The empirical research presented above affords a striking confirmation of this pro-

5* There exists an entirely different class of nonlocal effects in physics that does not explicitly involve the dynamics of the superunified scale and which might be proposed as an alternative mechanism for the Maharishi Effect. This is the reduction of the wave function in quantum mechanics. It is argued in ref. 22 that this alternative framework leads to similar conclusions regarding consciousness and its relations to the physical world.
found new perspective—and of its immense practical importance for the individual and society.

One additional useful approach to understanding the widespread effects of collective practice of the Maharishi Technology of the Unified Field is through the enlivenment of the evolutionary qualities of the unified field in the collective consciousness of society. When, through the practice of the Maharishi Technology of the Unified Field, the conscious mind identifies with the unified field, the essential characteristics of the unified field become enlivened in the awareness. In other words, as individual consciousness awakens more and more fully to the reality of what it fundamentally is—the unified field of natural law—the essential qualities of the unified field are reflected more and more fully in the nature of the mind. This accounts for the scientifically documented\textsuperscript{6–10} upsurge of qualities like “harmonizing,” “nourishing,” “integrating,” “pure intelligence,” “infinite creativity,” “infinite dynamism,” “infinite silence,” and “invincibility” in the mind and physiology of individuals practicing the Maharishi Technology of the Unified Field. (Please refer to the Appendix at the end of this article, entitled “Qualities of the Unified Field.”)

Through group practice of the Maharishi Technology of the Unified Field by even a small proportion of the population, these same evolutionary qualities become enlivened in the collective consciousness of society. In other words, because the unified field is a field which underlies everything and is present everywhere, the enlivenment of its qualities is necessarily a field phenomenon, whose effects will be felt everywhere. The upsurge of all the evolutionary qualities of the unified field in collective consciousness during periods of group practice of the Maharishi Technology of the Unified Field has been scientifically confirmed by numerous studies,\textsuperscript{12–16,33–39} and provides a relatively simple means of understanding how collective practice generates positivity and coherence throughout society as a whole.

**Conclusion**

Despite the age-old desire for peace among nations, conflict and war have been a constant reality throughout human history. Even in the last 40 years since the United Nations was founded to “put an end to all wars,” over 150 wars have ravaged nations and claimed the lives of
millions of victims across the globe. The repeated failure of the United Nations and of man’s best efforts to ensure peace has simply been due to the lack of a suitable technology for peace. Political negotiations, pacts, and treaties do not address the root cause of war—lack of fulfillment of individuals and resulting stress levels in society—and thus cannot provide a reliable basis for permanent peace on earth.

In this article we have presented a new science and technology of world peace based on the unified field of natural law. This new technology acts at the most fundamental and powerful level of nature’s dynamics to eliminate collective stress, and to create an actual physical influence of peace in collective consciousness. This orderliness and coherence spreads throughout society through extended field effects of consciousness (the Maharishi Effect), resulting from the fact that consciousness, at its absolute basis, is identical to the unified field of natural law recently discovered by modern science. The physical influence of harmony and coherence produced by collective practice of the Maharishi Technology of the Unified Field removes negative, chaotic, and violent trends in society, and thereby strikes at the root cause of war. It thereby creates a stable, fertile ground on which the conventional political approaches for creating peace can begin to bear real and lasting fruits. The effectiveness of Maharishi’s technology for world peace has been more thoroughly and rigorously tested than any other technology or approach in the history of political and social science—and under the most severe conditions of intense international conflict. More than 30 separate studies appearing in refereed scientific journals conducted by independent researchers at leading institutes throughout the world have confirmed the efficacy and practicality of this new methodology. In light of this overwhelming body of evidence and of the simplicity and cost-effectiveness of the approach, it should be the clear responsibility of every government to create a group of experts practicing the Maharishi Technology of the Unified Field as a powerful means to prevent further war. Indeed, in consideration of the continued suffering and immense cost to humanity caused by war, it should soon become a punishable offense for any government to neglect this key responsibility, just as it is a punishable offense in any civilized country for a doctor to deny a patient the medicine that he needs. With a practical and proven technology of peace, war and conflict should disappear from
the face of the earth along with smallpox, polio, and other maladies for which modern cures exist.

Every responsible citizen, together with every political and academic leader, should use his or her influence and authority in society to create a coherence-creating group of 7,000 experts practicing the Maharishi Technology of the Unified Field in their nation as soon as possible to put an end, once and for all, to the age-old tradition of violence and conflict and to create a permanent foundation for peace on earth.

The spontaneous and direct practical application of the unified field to enrich all aspects of life contrasts with the previous application, through technology, of specific, isolated laws of nature based on the intellectual understanding of those laws. It was this scientific understanding of specific laws of nature and their technological application that laid the foundation for the industrial revolution, in which more and more rapid progress became possible through the use of increasingly sophisticated machines and technologies. Now, the continued progress of society demands the spontaneous utilization of the total potential of natural law to enrich all aspects of life in a completely balanced and holistic way. This spontaneous application of the total potential of natural law will lay the foundation for a post-industrial revolution to a unified field-based civilization—a civilization based on the complete knowledge and practical utilization of the unified field of natural law.

The application of this science and technology of the unified field to health, education, rehabilitation, economics, and world peace has already demonstrated its capacity to produce a quality of life and civilization which is far beyond that which was possible based on previous levels of scientific knowledge. By providing a practical and proven formula for raising life to be lived spontaneously in accord with natural law, the Maharishi Technology of the Unified Field will raise the quality of life in society to a level of dignity, harmony, and supreme fulfillment unparalleled in the annals of recorded history—a unified field-based ideal civilization in which everyone enjoys fulfilling progress, and life everywhere is supported by the invincible, evolutionary power of natural law.
Appendix: Qualities of the Unified Field

The essential characteristics of the unified field are derived below from a detailed analysis of the Lagrangian of the superstring. The Lagrangian represents the most compact mathematical expression of the detailed structure of the unified field—its symmetries, components, and self-interaction. In order to facilitate the derivation of the essential characteristics of the unified field, the Lagrangian is presented in several stages of its sequential unfoldment (please refer to Figure 6). This sequential unfoldment begins with the abstract Lagrangian of the superstring itself which, although valid at all time and distance scales, is especially relevant to physics at the superunified scale. This is followed by the Lagrangian of an N = 1 locally supersymmetric point particle theory, which is the low-energy effective field theory obtained from the massless modes of the string. This Lagrangian is presented in both its manifestly supersymmetric, superfield formulation as an integral over superspace variables and in its more elaborated component form. Finally, we present the Lagrangian of the standard SU(3)xSU(2)xU(1) theory of the strong, weak, and electromagnetic forces relevant to physics at ordinary scales. Every stage in the sequential unfoldment of the laws of nature from the unified field has its corresponding Lagrangian, bringing to light new qualities of the unified field which were present but unexpressed at the level of the superstring.

Derivation

- **All Possibilities:** All possible worldsheets and all possible field histories contribute to the superstring partition function Z, which embodies the complete dynamics of the quantized theory.

- **Omniscience:** The partition function simultaneously computes all possible world histories P and their associated actions ∫L(P) in determining the quantum-mechanical evolution of the system.

- **Freedom:** In the free-fermionic formulation, the unified field is comprised of free, noninteracting bosonic and fermionic degrees of freedom defined on the superstring.

- **Unmanifest:** The fundamental bosonic and fermionic string degrees of freedom remain unmanifest—they do not appear as particles in the physical spectrum.
Figure 6. The qualities of the unified field derived from the Lagrangian of the superstring.
• **Simplicity:** The entire, diversified structure of natural law emerges sequentially from the simple, unified dynamics of a relativistic quantum string.

• **Omnipotence:** The laws governing the dynamics of the unified field are absolute and invincible. The low-energy effective field theories governing physics at larger scales are merely partial reflections of, and approximations to, the total potential of natural law available at the level of the superstring.

• **Total Potential of Natural Law:** All the massive and massless string modes are fully enlivened as dynamical degrees of freedom at the Planck scale.

• **Discriminating:** The boundary conditions of the 4-D string construction discriminate among thousands of possible string vacua.

• **Fully Awake Within Itself:** The zero-point motion (quantum fluctuations) of the unified field reaches its ultimate level of dynamism at the Planck scale.

• **Bountiful:** The energy eigenspectrum of the quantized string field contains an infinite tower of massive string modes in addition to all the massless modes responsible for the observable universe.

• **Infinite Silence:** Expressed by the noninteracting nature of the fundamental string degrees of freedom.

• **Infinite Dynamism:** Expressed by the dynamical interaction of all the various fields appearing in the effective low-energy theories derived from the superstring.

• **Pure Knowledge:** The Lagrangian represents the most compact mathematical expression of the complete structure of the laws of nature at every level.

• **Infinite Organizing Power:** The Hamiltonian operator, derived from the Lagrangian by a Legendre transformation, dynamically generates all activity in the universe.

• **Evolutionary:** The Hamiltonian operator generates the time evolution of the universe.

• **Perfect Orderliness:** Reflected in the superconformal invariance, local supersymmetry, and gauge symmetries of the Lagrangian.

• **Self-Sufficiency:** The structure and dynamics of the unified field is sufficient within itself to initiate spontaneous gauge and supersym-
metry breaking radiatively, leading to the sequential unfoldment of the diversified structure of natural law illustrated in the chart.

- **Purifying:** Broken symmetries are successively restored at more fundamental spacetime scales, ensuring the consistency and renormalizability of the theory.

- **Infinite Creativity:** The fountainhead of natural law—from this unified source, all the particles and forces of nature emerge through a sequential process of spontaneous symmetry breaking.

- **Integrating:** The gravitino dynamically upholds local supersymmetry, which integrates the different spin components of the various supermultiplets, maintaining the unbroken wholeness of the superfields.

- **Harmonizing:** Supersymmetry unifies completely opposite values—bose and Fermi fields—within the context of a single superfield.

- **Perfect Balance:** Supersymmetry—the perfect balance of bosonic and fermionic degrees of freedom.

- **Bliss:** Expressed by the continuous effervescence of topological fluctuations at the Planck scale (“spacetime foam”) spontaneously arising from the nonperturbative dynamics of quantum gravity.

- **Self-Referral:** The non-Abelian property of self-interaction of the vector fields responsible for local gauge symmetry. This property of self-interaction is also found in all the other spin components, including the graviton, gravitino, chiral fermions, and scalar fields.

- **Unboundedness:** The Poincaré invariance of the Lagrangian density.

- **Nourishing:** A non-Abelian gauge field dynamically upholds the unified structure of all its individual components.

- **Immortality:** The time-translational invariance of the Lagrangian density.

- **Omnipresence:** The translational invariance of the Lagrangian density reveals that the total structure of the unified field is present everywhere, and is not restricted by any finite boundaries.

- **Infinite Correlation:** The seemingly fragmented structure of the Standard Model arises from and reflects the infinite correlation and balance of its unified origin in the superstring, giving rise to relations between couplings (e.g., mb/mτ and sin2θW), electric
charge quantization, and freedom from gauge and gravitational anomalies.

- **Invincibility**: A non-Abelian gauge field dynamically upholds its own invariance under local symmetry transformations.

**Conclusion**

All these beautiful, evolutionary qualities of the unified field blossom in individual and collective life through the Maharishi Technology of the Unified Field, which opens human awareness to the direct experience of consciousness in its self-referral state, pure consciousness, where consciousness is found identified with the unified field of all the laws of nature.

The enlivenment of all these qualities in world consciousness was profoundly demonstrated by the improved quality of world events when 7,000 experts in the Maharishi Technology of the Unified Field (approximately the square root of 1% of the world’s population) gathered at Maharishi International University (Maharishi University of Management) from December 17, 1983 to January 6, 1984. Over 35 scientific studies analyzing this and other, subsequent assemblies have rigorously verified the practical formula to create a unified field-based ideal civilization, a civilization based on complete knowledge and practical utilization of the unified field of natural law.

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Maharishi Vedic Science and Technology—

The Basis for Economic Development and World Peace

Ken Cavanaugh, Ph.D.
ABOUT THE AUTHOR

Kenneth L. Cavanaugh, Ph.D., is Professor of Applied Statistics at Maharishi University of Management as well as Senior Research Scientist at Maharishi University of Management’s Institute of Science, Technology and Public Policy. He received his B.A. with honors from Yale University, Master’s degrees from Stanford University and Princeton University, and Ph.D. from the University of Washington. Dr. Cavanaugh has authored or coauthored more than 30 published research papers on Maharishi’s technologies of consciousness and other topics in applied statistics. A major focus of his research has been the impact of the group practice of the Transcendental Meditation and TM-Sidhi programs on the quality of life in society.
ABSTRACT

In analyzing the relationship between economic development and peace, it is helpful to distinguish between two concepts of peace: negative peace, the absence of violent conflict, and positive peace, which refers to an enhanced quality of life in society through the promotion of economic development, social justice, and ecological balance. By removing the fundamental cause of violence within societies and between nations—neutralizing individual and collective stress in society—Maharishi Vedic Science and Technology offers practical and proven methodologies for directly promoting positive peace, because the destruction and disruption caused by violent conflict, as well as the diversion of national resources to armaments and war, are highly detrimental to the promotion of economic development and the improvement in the quality of life in society. Likewise, the technologies of Maharishi Vedic Science directly contribute to positive peace by promoting prosperity and economic development through enlivening the full creative potential of the people in society. The most precious resource of every nation is the creative intelligence of its people, which may be fully unfolded through Maharishi Vedic Science and Technology, thereby improving the quality of the nation’s “human capital,” enhancing national productivity, and contributing to economic growth and prosperity. Support for the proposition that the technologies of Maharishi Vedic Science simultaneously promote both negative and positive peace is provided by two scientific research studies that show a significant reduction in international conflict and the improvement of national economic performance.

In discussing the relationship between economic development and peace, how we measure economic development, and how to resolve economic imbalance between nations, I will be applying the perspective of Maharishi Vedic Science and Technology to illuminate these issues from the perspective of a different paradigm.

The Relationship between Economic Development and Peace

There is an obvious connection between economic development and peace. If we look at the incidence of violent conflict in the world, we see that of the more than 300 wars that have occurred in the world since 1945, virtually 99% have been fought in the lesser developed countries. That is not to say that developed, industrialized countries are not involved in those conflicts. Often they are in a very
major way, as we have seen in the Gulf conflict and the Vietnam War. Nevertheless, the developing world has been the site of most of the wars that have been fought in the world within the last 45 years.

It is a self-evident truth that the destruction and disruption caused by conflict, in particular civil conflict, in the developing world can be devastating to the prospects of promoting greater prosperity and improving the quality of life in society. We only have to think of situations such as Cambodia—the poorest country in the world—suffering under a long civil conflict and Afghanistan—also one of the poorest countries in the world—beset with conflict. We can look to Afghanistan, Sudan, and a number of other Third World countries that are involved in major conflicts at the present time. In most cases, these are countries experiencing a lack of both positive and negative peace.

**Positive and Negative Peace**

In peace studies, the term “peace” is differentiated as either negative peace or positive peace. Negative peace refers to the absence of violence or conflict, which is obviously an important goal of those who seek to be peacekeepers in the world. The absence of war and conflict is also an important condition for creating positive peace. Positive peace refers to developing the quality of life in society by promoting economic growth, a more just society, and ecological balance, thereby improving life in a holistic way. It is obvious that negative peace can contribute to positive peace. If we have absence of violence and conflict then the chance of creating a better quality of life is enhanced. One can say also that the relationship is reciprocal, that positive peace, or economic development, may contribute to negative peace.

However, if the resources of a nation are devoted to armament and war, those resources are diverted from promoting progress in society and in meeting human needs. This is a very great concern in developing countries where in some cases as much as 60% of the government budget is devoted to military preparations and armaments. This is a tremendous drain of resources, where energy and creativity are devoted to enhancing the power of destruction as opposed to enhancing economic development and structuring positive peace in society.

Second, we cannot measure development, or positive peace, in purely economic terms. We need to be concerned with wider dimensions in
analyzing economic growth. We need to be concerned with personal growth, a dimension which I think is paramount.

**An Enlightened Perspective on the Goal of Economics**

Maharishi, from the perspective of his Vedic Science and Technology, has suggested that the very purpose of economics is the promotion of the happiness, contentment, and fulfillment of the individual, and that unless this goal is reached, economic growth and development will be defeated in its purpose. We can see this very clearly looking at the examples of the lives of very wealthy individuals in society, many of whom, if they do not have a means of promoting their own personal growth and happiness, do not derive any fulfillment from their great wealth. This is also true of the wealthiest nations of the world, many of whom are beset by serious social problems. Even if we could raise the material standard of living in the poorer countries of the world to a level equivalent to those in the industrialized countries, it is not clear that this would promote what could be seen as the ultimate goal of economics: the promotion of happiness, contentment, and fulfillment in society—the unfoldment of full human potential.

From the perspective of Maharishi Vedic Science and Technology, this is the central goal of economics: to promote the unfoldment of the full potential of man. The technologies of consciousness from the Vedic tradition provide a means of directly contacting the field of contentment, fulfillment, and peace within, enlivening these qualities in individual awareness, and through individuals, in turn, enlivening these qualities throughout society, thereby promoting the growth of fulfillment throughout society and improving the quality of life.

This perspective has been lacking in economics. Economics has long had a very materialistic focus and has not questioned the purpose and value of material affluence without inner abundance. Without the growth of inner contentment and the development of full potential, even the greatest outer affluence will be ultimately empty and unfulfilling.

The problem of world peace from the perspective of economic development is how to promote both negative and positive peace by simultaneously decreasing violence and conflict in all parts of the world and promoting economic growth and development. Improving the quality of life holistically is the contribution that the Maharishi Transcenden-
tal Meditation and TM-Sidhi programs offer toward a solution to this problem.

**Inner Fulfillment and the “Maddening Pursuit of Wealth”**

Maharishi has spoken recently about what he feels is a great overemphasis on the search for material affluence in all parts of the world, both in developing and developed countries. He has referred to what he calls “a maddening pursuit of wealth,” in that the focus on economic betterment has become so intense that life is sacrificed for living, that all individual energy and creativity is focused on promoting personal affluence at the cost of promoting satisfaction and fulfillment and a more balanced growth in life.

In Maharishi’s analysis, this “maddening pursuit of wealth” is an indication of lack of inner fulfillment in life. This lack of inner fulfillment stimulates an almost frantic search for fulfillment through material objects, through augmenting one’s standard of living by accumulating as many material goods as possible. All of one’s energies become absorbed in the search for greater material satisfaction. But ultimately, material wealth does not give inner fulfillment and the more one pursues material wealth without gaining the fulfillment that is sought, the more stressful is the pursuit.

The solution is to reconnect human life with the source of inner fulfillment, which is the basis not only of peace within the individual, but which can be enlivened to produce peace throughout society. By enlivening the field of pure consciousness in individual and collective consciousness, we can promote peace and harmony while simultaneously promoting greater affluence and economic development in all parts of the world.

**The Development of Human Resources**

Now I would like to turn to the discussion of the issue of the growing absolute gap between developing and developed countries, even under fairly ideal conditions of growth. The key to lessening economic imbalance and thereby contributing to the reduction of tension in the world, is the enlivenment of the full potential of human resources. Since the 1960s, it has become almost a truism in economics to talk about the central role of human resources as the true wealth of nations. This per-
spective, which was stimulated by theoretical developments known as the growth of human capital theory in economics, led to an emphasis on education and on improving the quality of human resources as a means of raising productivity and promoting economic development, particularly in developing countries.

Formal education was expanded greatly in developing countries as a result of this emphasis on the role of human resources. Tremendous resources flowed into educational systems and, to a lesser degree, into the health sector. However, the allocation of large resources to education of human resources did not produce the desired results. This led to a reevaluation of the role of human resources and to a greater emphasis on the role of investment in physical capital, i.e. factories, equipment, etc. In other words, disappointment with the results of expanded educational investments led to a reemphasis on traditional approaches to promoting development.

From the perspective of Maharishi Vedic Science and Technology, focusing on improving human resources is not a fundamentally flawed strategy. However, the traditional approach to education is incomplete because it fails to incorporate effective technologies for enlivening the full potential of human resources. This is a very important part of our mission here at this University—to provide a “demonstration project” of an education which is complete and holistic and develops not only traditional intellectual knowledge of the disciplines, but also the full potential of the individual. Thus from the perspective of Maharishi Vedic Science and Technology, the solution to the problem of development of human capital is to extend our concept of human resources to include the ultimate resource, which is the field of pure consciousness deep within every individual, and to promote technologies that are effective in developing the full creative potential of the individual.

**Pure Consciousness—the Basis of All Forms of Capital**

In the late 1960s, Harry Johnson, a well-known economist at the University of Chicago, suggested that economic development could be viewed as a “generalized process of capital accumulation,” including both physical and human capital. Until the advent of human capital theory in the 1960s, the accumulation of physical capital, namely, investments in factories, roads, infrastructure, etc., was generally seen
as the key to promoting economic growth. With the human capital revolution, it was realized that investment in education and health, in improving the skills and quality of the workforce, could also be seen as productive investments that had economic value in addition to the intrinsic value of education in broadening the individual’s horizons and bringing greater fulfillment.

Johnson suggested that viewing economic development as a generalized process of capital accumulation provides a more unified perspective on the process of economic development. We can take this one step further and provide a fully unified approach to promoting peace, economic development, and improved quality of life by connecting all the various forms of capital to what can be considered as the most fundamental form of capital—the infinite resource which lies at the very basis of our thinking, feeling, and activity.

Figure 1 shows the traditional forms of capital discussed by economics. At the most fundamental level is “Knowledge Capital,” the stock of existing knowledge in society. Knowledge capital is embodied in human beings through education, and when it becomes lively in human minds it gives rise to improvement of the human capital, as we discussed previously. Investment in health is another way of augmenting human capital.

Capital is a term that economists use to describe that which is used in the production of goods and services, so it can take many forms. We have already discussed physical capital, namely, plants, factories, equipment, computers, etc. “Natural Capital” refers to the natural resources of the country, which can play an important role in a country’s development, although there is not, in fact, a consistent correlation between the rate of economic growth of a country and the extent of its natural resources. In addition to these other forms of capital we can also talk about “Social Overhead Capital,” which is the infrastructure, bridges, roads, ports, etc. that are necessary for commerce to proceed smoothly.
Pure Consciousness: The Ultimate Source of All Forms of Capital Used in Production of Goods and Services to Fulfill Human Needs and Desires

At the basis of all these forms of capital resources is human capital, which, in turn, is based on a more abstract value of knowledge. It is obvious, for example, how physical capital is based on human capital. A computer, for example, can be described as “congealed” knowledge or intelligence. The same with an automobile—there is much greater creativity and knowledge embodied in the automobile of today than 20 years ago. It is obvious, therefore, that physical capital is a concentrated expression of human intelligence and creativity.
Let us take the example of oil resources to illustrate the relationship of natural capital and human capital. The puddles of black liquid lying on the surface of the ground in oil rich countries were long viewed as a nuisance. For example, in Western Pennsylvania oil puddles interfered with agriculture when cattle ate grass contaminated by oil. It required human knowledge, intelligence, and creativity to find a use for that resource, to find a way to extract it, process it, and use it, which in turn has given rise to a worldwide petroleum industry.

From the perspective of Maharishi Vedic Science and Technology, at the basis of all forms of capital is the most fundamental form of capital, pure consciousness, or the unified field of natural law from the point of view of physics. This is an inexhaustible resource that is accessible to everyone, and when fully developed, raises the quality of the human capital of the country to the maximum possible degree. This enables creativity to be fully lively in that society and hence contributes to maximum progress on the material level.

**Research on Maharishi Vedic Science and Technology in the Domain of Economic Development**

This perspective from Maharishi Vedic Science and Technology offers a new paradigm, a unified perspective on how to promote positive peace by enlivening the infinite resource within us all. Some research has been done on the contribution of this technology to economic progress, and the studies that have been done so far are encouraging. Although they involve only developed countries, they generalize to all societies. The research has shown that through creating greater coherence in national consciousness it is possible to improve the economic functioning of that society. For example, during the 1970s and 1980s, North America was experiencing high inflation and unemployment as measured by an index of economic problems called the Misery Index, which is the sum of the inflation and unemployment rates. The Misery Index is important because these two dimensions are the two principal concerns of the economic policy of virtually every government. Public opinion surveys during the 1970s and early 1980s consistently showed that either inflation or unemployment or both were ranked as the most important problems facing the nation ahead of such things as the threat
of nuclear war and environmental concerns. So the Misery Index captures an important economic aspect of the quality of life.

**Maharishi Effect: Decreased Inflation/Unemployment through the Group Practice of the TM-Sidhi Program**

![Graph showing estimated long-run change in Misery Index](image)

Figure 2. This study found statistically significant reductions in Okun’s “Misery Index” (the sum of the inflation rate and unemployment rate) for both the U.S. and Canada in months following periods when the monthly average size of the coherence-creating group at Maharishi University of Management equaled or exceeded the predicted critical square root of 1% threshold for the U.S. of approximately 1,500 participants (Cavanaugh, 1987).

The studies found that a sufficiently large creating-coherence group had a positive impact on the economic quality of life in terms of reducing the Misery Index. When the size of the group reached 1500–1600 practitioners of the Transcendental Meditation and TM-Sidhi programs there was a very sharp decline in the Misery Index, and an even sharper decline when the group size was over 1700. These declines are significant as compared with levels of the index when the group numbered below 1500, which was approximately the square root of 1% of the U.S. population during this period (See Figure 2). Consequently, a similar effect was found in Canada. These time series results remained
significant when controlling for other economic variables that could explain movements in inflation and unemployment such as the monetary policy, business cycle fluctuations, and movements in oil and other crude materials prices.

Promoting World Peace through Improving the Relations of the Superpowers

Any discussion of economic development and peace needs to consider the relations between the superpowers, which are a crucial element in creating or maintaining a peaceful climate in the world. Research indicates a relationship between the size of the coherence-creating group here at Maharishi University of Management (previously, Maharishi International University, 1971–1995) and the state of U.S.-Soviet relations. Our study looked in particular at Soviet behavior toward the U.S. and found an upward shift in the positivity of Soviet foreign policy statements and actions toward the U.S. following the Taste of Utopia conference in 1983. In this period the size of the coherence-creating group at Maharishi University of Management rose to levels consistently exceeding 1600, approximately the square root of 1% for North America.

Now the question is whether these improvements in U.S.-Soviet relations are statistically significant. Controlling for the ongoing dynamic interaction between U.S. statements with regard to the Soviet Union and Soviet statements toward the U.S., it was found that when the U.S. reached the square root of 1% threshold, there was a dramatic and significant improvement in the harmony and positivity of U.S. actions toward the Soviet Union. We began to hear less talk about “the evil Soviet empire” that was prominent in the rhetoric early in the 1980s and to witness a move toward a more constructive dialogue and a search for solutions to common problems, as seen in the progress toward the intermediate nuclear forces treaty, progress in arms control negotiations, and other outstanding issues. When the group was even larger, exceeding 1700, there was an even more dramatic and positive effect on U.S. actions toward the Soviet Union. Likewise, there was a very significant improvement in Soviet actions toward the U.S.
Maharishi Effect: Improved East-West Relations through Group Practice of the TM-Sidhi Program

Figure 3. Time series analysis of monthly ratings of cooperation and conflict were obtained from the Zurich Project on East-West Relations from 1979-1986. During the months following periods when the size of the coherence-creating group at Maharishi University of Management exceeded the predicted threshold of approximately the square root of 1% of the U.S. population (1,500), there was a significant improvement in U.S. actions toward the U.S.S.R. When the group exceeded 1,700, Soviet actions toward the U.S. also significantly improved ($p < .00001$) (Gelderloos, Cavanaugh, & Davies, 1990; Gelderloos, Frid, Goddard, Xue, & Löliger, 1988).

These effects, taken together, were highly statistically significant, and large in magnitude. An effect size of about .35 standard deviations is considered to be a very large effect in social science research. The effect size in the improvement in Soviet statements toward the U.S. was about 1.5 standard deviations. The improvement in U.S. actions toward the Soviet Union was about .9 standard deviations.

One could argue that the improvement of U.S.-Soviet relations had to do with the coming to power of a new leadership in the Soviet Union in March of 1985, when President Gorbachev came to power. In our analysis we took that explicitly into account and were able to show that even when this factor is formally incorporated into statistical analysis, there continues to be a significant effect of the coherence-creating group on U.S.-Soviet relations.
Understanding the Effect of Coherence-Creating Groups

The key to understanding the creation of coherence in collective consciousness is that pure consciousness, as described by Maharishi Vedic Science and Technology, is the basis of both the subjective and objective aspects of life, of both the mind and the environment. When individuals transcend and enliven the field of pure consciousness through the practice of the Transcendental Meditation and TM-Sidhi programs, the effect is to enliven pure consciousness not only in individual awareness but throughout the entire environment. This is a non-localized effect because pure consciousness, the unified field of natural law, is omnipresent. It is the most fundamental field of life, and if we enliven that, any aspect of creation, both in human activity and in nature, will be enlivened, because we are enlivening the very basis of all activity. Maharishi uses an analogy to describe this effect. He explains that when individual awareness goes to that fundamental level of pure consciousness, it is like dropping a small pebble in a pond on a windless day. Maharishi (1975) explains:

If the attention reaches that level, what happens is like the small pebble falling on the silent bed of the water. A small pebble falls, creating impulses. Those impulses reach all the far places and all the water. Just like that, when the conscious mind of one single individual transcends, we can imagine the thrills being created on that silent level of consciousness, which is the omnipresent reality. This pulsating consciousness of the individual creates impulses of life all over, and because this is the very fundamental level of everyone, everyone’s thinking, everyone’s consciousness is influenced by that. It is very easy to understand.

Maharishi goes on to say that the awareness of the whole population is influenced tremendously by single individuals transcending. The whole trend of thinking in society becomes more positive, more in tune with nature, more in tune with the full potential of natural law. This effect is amplified when larger groups practice together, particularly with the more powerful TM-Sidhi program.

Thus, the key to promoting both positive and negative peace in society is take the awareness to that fundamental field of life, the unified field of natural law, and nourish all aspects of life just as one nourishes all the leaves and branches of the tree by watering the root.
This new paradigm offers fulfillment to the discipline of peace studies in its search for a science of peace which is capable of not only providing an understanding of the basis of peace, but also offers a practical program to bring to fruition all the various, worthwhile approaches to creating a more peaceful, just, prosperous, and happy world.

References:


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Maharishi Vedic Science and Technology:

The Only Means to Create World Peace

Bevan Morris, D.S.C.I.
CONSCIOUSNESS-BASED EDUCATION AND WORLD PEACE

ABOUT THE AUTHOR

Dr. Bevan Morris earned a B.A. with Honors and a Master’s degree from Cambridge University, England, in Natural Sciences, Psychology and Philosophy (1975-79). Dr. Morris was awarded a Doctorate in the Science of Creative Intelligence from MERU in 1979 based on earlier work as the Administrator of the TM-Sidhi Program and International Courses at Maharishi European Research University (MERU), Switzerland. Dr. Morris served as the President and Chairman of the Board of Trustees of Maharishi University of Management, and Chairman of the Board of Directors of Maharishi School of the Age of Enlightenment, Fairfield, Iowa, from 1980 to 2009 and now serves as Chairman Emeritus of the Board of Trustees and continues as President of the University. Since 2005, Dr. Morris has been the Prime Minister of the Global Country of World Peace—a country without borders founded in 2000 by Maharishi Mahesh Yogi to support all governments by bringing peace and invincibility to every nation.
ABSTRACT

The war in the Persian Gulf exemplifies the failure of government leaders throughout history to achieve peace either at the negotiation table or on the battlefield. It is a failure that will continue with the existing methods of creating peace. Government leaders have repeatedly ignored knowledge of a technology that has been available for over 50 years. The Vedic Science and Technology of Maharishi Mahesh Yogi includes the theoretical understanding and applied methodologies to create peaceful individuals—the basis of collective peace in society and in the world. Through the technologies of Maharishi Vedic Science, an individual is able to experience Transcendental Consciousness, which physicist John Hagelin has convincingly argued is the experience of the unified field of natural law described by quantum physics. The loss of the intimacy with this unified field of natural law, Maharishi explains, is the cause of all suffering in life. When individuals have no contact with the unified source of all the laws of nature in their own consciousness, they violate the laws of nature, which causes stress and strain in the individual. Accumulated stress in the environment created by millions of stressed individuals eventually erupts into war or other disasters. The principle that individuals can contact the unified field of natural law and create peace for themselves and others by experiencing Transcendental Consciousness has been verified by scientific research and has come to be known as the Maharishi Effect. What is necessary, and urgent, is the gathering—in India, Moscow, Holland, and the United States—of groups of 7,000 world peace professionals practicing the Maharishi Transcendental Meditation and TM–Sidhi programs together to create the Maharishi Effect. This will spread indomitable waves of peace and harmony in the environment and secure permanent peace in the family of nations.

[Written in 1992, this article reflects the urgency felt by all those concerned with world peace at a time when the international community was primarily focused on the hostilities in the Gulf. Dr. Morris is informing the world of the importance of Maharishi’s peace-creating groups practicing the Transcendental Meditation and TM–Sidhi program including Yogic Flying to counteract the explosive aggression in the Mideast.] —Editors.
Introduction

Throughout the months that led up to the war in the Middle East, Maharishi repeatedly presented to the governments of the world, through the media, meetings, and advertisements, the theme that there is in fact a method whereby the Gulf War could have been prevented. But his message was not received by the governments, and so a very disastrous war has been fought, the consequences of which are still continuing today, for the people of Iraq and Kuwait especially. Maharishi also delivered the message to all of humanity that such calamities as the war in the Middle East can come up at any time for any nation.

Maharishi points out that up to August 3, 1990, most of the countries that attacked Iraq and made it leave Kuwait had been the friends of Iraq. Within a period of basically one day, they went from being friends to being enemies. Such things have happened constantly throughout the history of the world. Nothing is clearer at this moment in history than the unpredictability of the future based on the existing methods of creating peace. Maharishi has been pointing out again of late that what has happened to Kuwait could happen to any nation at any time. No one predicted in July last year that such a thing would happen and likewise such a situation could easily happen again, unexpectedly, to any nation.

Maharishi’s Theme of World Peace

Maharishi’s message to the world throughout all these months has been that establishing a single group of 7,000 experts in the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, would be enough to relieve the stress in the collective consciousness of the Middle East, which is the underlying cause of the conflict there. This message is characteristic of all the years Maharishi has been teaching the Transcendental Meditation technique throughout the world, from the very first lectures he delivered in Trivandrum in Kerala, India, in 1955. Even from the early years he was speaking of this theme of world peace. Maharishi (1986c) brought out the theme of peace through individual peace, peace made possible through teaching individuals a methodology whereby they can experience a state of inner peace:
If one peaceless and miserable man of the world could be made peaceful and happy, it would mean something of value, positive and concrete, for the suffering humanity. If a formula could be brought to light, a formula for transforming peacelessness and miseries of life into peace and joy of a permanent nature, that would be a boon to society and for the whole of mankind. (pp. 198–199)

These words reflect the great concern Maharishi feels for all humanity. He is a man of very great compassion, and this has motivated all his actions toward peace all these years. War, and all the dreadful consequences of war, should be eliminated from the life of humanity—this has been the overriding purpose of Maharishi’s activity throughout the 35 and more years he has been teaching his Vedic Science and Technology throughout the world.

**Individual Peace—the Basis of Collective Peace**

Maharishi (1963), from the beginning, has brought to light a very simple and obvious principle: how could one ever expect any group to be peaceful unless the individuals that make up that group are peaceful? In a family, our own family for example, if even one individual is suffering from lack of peace in his or her life, then the family as a whole loses its peace. For the 5.5 billion citizens of the world, the same reasoning applies. If the individual people of the world do not feel peaceful within themselves, are not at peace, are not happy within themselves, how could the world be at peace? It is illogical and irrational to think that a world composed of unpeaceful individuals could be a world at peace any more than a forest in which the individual trees are dried up and brown could be a green and flourishing forest.

If we were charged with the responsibility of providing each of the 5.5 billion individuals in the world with the methodology to experience that inner peace which is the birthright of every human being, we would face a task of immense proportions—though I am sure this would be accomplished in due time. But in the short term this task cannot be completed rapidly enough to create a situation of immediate peace—a situation where we could consider the Gulf War to be the last major war in the history of the world.

That is why this principle of nature revealed by the ancient Vedic sages—the principle of creating coherence in collective consciousness,
identified by modern scientific research as the Maharishi Effect—is the
great and single hope of peace on earth. If we want the world to be
peaceful, certainly the people of the world must be peaceful. Either
we have to teach each of them individually the technologies of the
Maharishi Transcendental Meditation and TM-Sidhi programs, and
the advanced techniques of Transcendental Meditation, to bring inner
peace—or we have to find some way of spreading peace to all the peo-
ple in the world from just a few individuals who are in peace. This
second principle is what now gives us the chance to really create peace
on earth.

I am sure that during this conference the words of Maharishi Patan-
jali in the Yoga Sutras of Patanjali (1912/1978) have been quoted: “Tat
sannidbav Bairatyāgāh” (p. 164). [As Maharishi Mahesh Yogi trans-
lates:] “In the vicinity of those who are experiencing yog (union)—
Transcendental Consciousness, pure consciousness—hostile or violent
tendencies are eliminated.” In other words, if one individual is able to
experience a state of profound inner peace through the experience of
Transcendental Consciousness, this will also influence the environ-
ment. Coming back here to Maharishi University of Management
(previously, Maharishi International University) from far away, I expe-
rience again the reality of this influence in the environment during
those moments when people are in the Golden Domes practicing the
Maharishi Transcendental Meditation and TM-Sidhi programs. The
air, in my experience, is vibrant with peace, with the silence of that
inner experience of pure consciousness being enlivened by thousands
of people together.

This principle—that an individual can create peace for himself and
others by virtue of experiencing Transcendental Consciousness, yog
or union—is the principle that Maharishi (1986b) is offering as the
practical methodology for how to finally achieve peace at this time in
the history of humanity. This principle, which I am sure Dr. Hagelin
and others have discussed from a scientific perspective, has come to be
known as the Maharishi Effect, in honor of Maharishi, who predicted
it about 30 years ago and who revived these technologies of conscious-
ness to create peace. This principle of nature—that individual coher-
ent elements can spread an influence of coherence in the environment,
spread waves of peace and harmony in the environment around them—offers a solution to the perpetual problem of war.

The Three-in-One Structure of Pure Consciousness
The timeless Vedic wisdom that Maharishi has brought to light in this scientific age in his Vedic Science and Technology basically holds that the universe has arisen from a single, universal field of intelligence, which Dr. Hagelin would describe as a unified field of natural law. This unbounded, universal field, this infinite field of intelligence, is in fact consciousness. In reality, Maharishi (1986a) explains, consciousness does not come from matter, but matter comes from consciousness. The unbounded ocean of consciousness, interacting with itself, knowing itself, becomes a three-in-one reality—a knower, a process of knowing, and a known. This ocean of consciousness begins to conceptualize itself and play the role of these three values, known in the Vedic language as Rishi—the knower, Devatā—the process of knowing, and Chhandas—the object of knowledge.

Maharishi (1985a) explains that when this unbounded ocean of consciousness becomes a three-in-one field, it begins to vibrate within itself, and these vibrations of the field are the primordial sounds of nature, the Vedic sounds, and the laws of nature in their unmanifest, basic state. Thus this unbounded ocean, this unified field of all the laws of nature, is the source of all the laws of nature which give rise to all of the universe. This basic field of nature’s intelligence, being the source of the universe, is the source of our life as well. The miraculous quality of the human brain is that it can directly experience this field (pp. 64–66).

According to Maharishi Vedic Science and Technology (please refer to Maharishi Mahesh Yogi, 1980, p. 18), it is the loss of memory of this field that is the cause of all suffering, of all conflicts, and of all wars. Because human beings have lost their contact with, lost their memory and experience of the basic field of their own intelligence—this universal, basic field of nature’s intelligence, or nature’s government—they violate the laws of nature. Because they have no contact with the source of all the laws of nature in their own consciousness, they function in the fragmented values of natural law rather than in the holistic value of all the laws of nature together. Functioning in that way, people violate the laws of nature, which causes stress. Stress accumulates in the individual
and in the environment and this buildup of stress ultimately reaches such a pitch that war or other disasters break out in the world.

This is the Vedic analysis, brought to light by Maharishi (1986b), of the cause of war, of the cause of suffering—in fact of all human inadequacy, all human failure, and all human misery. It is simply that people have forgotten the basic field of life which is the source of their own life and the source of the universe. They have forgotten, therefore, how to function or operate from this underlying field of nature’s intelligence, and how, on that basis, to spontaneously live in harmony with natural law, so that they do not create suffering in themselves or in their environment, but rather are nourishing to themselves and to the environment. And they have forgotten how to enliven that fundamental field so that it spreads an influence of peace and harmony to others around them who may otherwise only experience the unhappiness and stress that eventually leads to war.

All the Vedic wisdom is expressed in one quintessential phrase in the Vedic literature (Maharishi Mahesh Yogi, 1985b). The Ṛchō Akshare verse of the first mandal, or chapter, of the Rk Veda is the response to Maharishi’s question, “What is the totality of all the Vedic wisdom?” The first mandal of Rk Veda answers with the expression: “The whole universe has arisen by virtue of this basic field of intelligence experiencing or knowing itself, interacting with itself, collapsing upon itself in its own transcendental nature, giving rise to all the impulses of creative intelligence in the universe, and in turn to the universe itself.” The second part of this chapter of Rk Veda answers the question, “Where does human suffering come from?” The question, as posed and answered by that second part of the chapter, is, “If you do not know this basic field of nature’s intelligence, what use are the laws of nature to you? But if you do know the basic field of nature’s intelligence, then you are established in evenness and wholeness of life in higher states of consciousness.”

**No Solution in a History of Failure**

This is the wisdom that Maharishi has revived, a wisdom that has parallels in ancient China, in ancient Greece, and in all ancient civilizations throughout the world. If there were in fact many different solutions to the problem of peace, then we should most certainly take advantage of all of them and bring an end to the greatest single cause of human suf-
ferring on this earth. But what is transparently clear is that there really has been, until now, no proven method of creating permanent peace on earth. We only need to look at the history of the last six months, indeed the history of the whole world, to see that no one has known any solution up to this point to the problem of war.

The two main solutions that have been tried are negotiations and might of military arms. Negotiations throughout human history have proved to be a failure. Since the United Nations was founded, more than 150 wars have taken place. Even with all the efforts of all the resolutions of the Security Council, Iraq did not withdraw from Kuwait, and war had to be fought. Even with these international bodies such as the United Nations having been established, war has not been brought to an end, and this has been characteristic of all treaty-making processes that have gone on throughout history.

The other main method that has been tried, and is still being tried by the United States in particular, is might of arms—the idea that the terror of the superiority of the opposition’s arms would prevent any nation from attacking another. This is also a clear and permanent failure. Facing not only the might of the United States, but of 27 other nations as well, Iraq did not withdraw from Kuwait. Throughout history, even the mightiest military powers have not been able to keep the peace. Even the Pax Romana was hundreds of years of continuous warfare with great divisions and civil warfare going on within the Roman Empire. The idea that might of arms, that creating fear in the opposition, will bring about a state of peace is both empirically not supported and logically unsound, because the fear that is created by the might of weapons is in itself a great cause of stress. Fear, one of the ultimate forms of stress, ultimately promotes war.

**World Peace—A Side Benefit of Rising to Higher States of Consciousness**

So these two great approaches to creating peace during the history of humanity have not proven to be successful; they have not proven themselves in any way. If we want to be empirical about it, if we want to be rational about it, we can basically dismiss these as viable approaches for creating peace on earth. And yet people continue to rely upon them
because until now they have not known of anything else that could be done.

Now it is very clear that something else is available. Something else is in existence which actually, on an empirical basis, does reduce conflict, does reduce war, wherever it is introduced. And at the same time it is of individual and personal benefit to the individuals who form the peace-making group. In fact, the peace created by members of Super Radiance groups—groups creating the Maharishi Effect—is a side benefit of their own evolution, of their own enjoyment of rising to higher states of human consciousness.

Maharishi has seen in the Gulf crisis and the subsequent war that the effort to rely upon governments to bring about the solution to world peace has not proven successful. And he sees a very clear reason for that: governments are reflections of the collective consciousness of the people in their nation. If the stress is very intense in the collective consciousness of a nation, as it may have been in Iraq, for example, or in Kuwait before the recent conflict, then the leadership of those countries will reflect that quality of stress. Their actions will be a mirror of the collective consciousness and its level of stress. Therefore, when we propose to the government something that may be extremely rational and useful, something completely unique without any competing alternative, the government, driven by a stressed collective consciousness, may find such a rational, acceptable, successful approach to be unacceptable. And this has been the experience during all these years of Maharishi’s teaching throughout the world.

The Development of Groups of 7,000 in the World

Maharishi has therefore emphasized that we should continue and finish the job that has been begun by the practitioners of the Transcendental Meditation technique in the world—to create a number of large communities for the creation of world peace. The objective is to have at least four: one in India, one in Holland, one in Moscow, and one here in Fairfield, Iowa.

I have been undertaking, along with other faculty members of our University, to create a university like Maharishi University of Management in the Soviet Union, in Moscow, for the purpose of offering this kind of education which is so successful in producing the development
of the students’ awareness and their success in life, their health, and other positive qualities. We are also undertaking to create this university for the purpose of establishing a world peace-creating group in Moscow of 7,000 people practicing the Maharishi Transcendental Meditation and TM-Sidhi programs.

This project of gathering 7,000 students of Maharishi Vedic University in Moscow for the purpose of creating world peace will also ease the painful transition through which the Soviet Union is now going as it transforms itself into a new federation of more independent republics with a new economic system and new freedoms for its people.

At Maharishi Ved Vigyan Vishwa Vidya Peeth—the World Vedic University of Maharishi in India, where all the research in Vedic wisdom has been going on under Maharishi’s supervision over many years—great efforts are being made to complete the task of increasing the size of the group there, which is already in excess of 5,000 students, to the required goal of 7,000 Yogic Flyers in one place. [Editor’s note: As of January 1992, this group successfully reached and exceeded the threshold of 7,000 Yogic Flyers.]

Here in Fairfield, where there have been for many years 2,500 experts in the TM-Sidhi program, including Yogic Flying, the objective is to add 5,000 more people by creating a great Maharishi Center for Perfect Health and World Peace. People can come on a rotating basis to create perfect health in their own lives and at the same time practice TM-Sidhi Yogic Flying together in two very large domes, so that 7,000 will also be present in the most powerful nation on earth, the United States of America.

From my perspective, governments will soon—with the rise of collective consciousness in the world that is happening every day—undertake the responsibility to establish and maintain these world peace-creating groups. Governments are devoid of an alternative for creating peace, and this is a program that truly works. But in the meantime, the objective of this University and the international organization is to create such groups.

The Sidha Samhitā, one of the texts of the Vedic literature, states very clearly that the TM-Sidhi technique for Yogic Flying has the effect of destroying stress, of destroying darkness, of destroying death in the world. These ancient principles of wisdom have been subjected to
very profound and rigorous scientific examination in this modern age, both from the level of experiment and from the level of examination, by Dr. John Hagelin, of the parallels on the level of physics. These ancient principles now offer to us a completely new era of human life.

Perhaps one of the great mistakes of modern times, beginning in the nineteenth century particularly, has been to reject the ancient wisdom of the world, to assume that the solution to all human problems was only to be found in the evolution of modern scientific thought. But in this modern scientific approach, one-sidedly objective and excluding the subjective aspect of life, we have not found a solution to many problems and have in fact created or exacerbated problems. Now is therefore, I believe, the moment when the timeless wisdom of the Vedic literature—textbooks of higher states of consciousness—integrated with the rigor of the modern scientific approach, can create a solution to the most intractable, most horrifying of all human problems. This would be the greatest contribution that knowledge could ever make to the joy and fulfillment of the human race. The solution to the problem of world peace that is now being offered is clearly, in my opinion, the greatest offering of knowledge, the greatest offering of technology that has yet been made, since it addresses the most perpetual and terrible of all human problems.

I would like to conclude by reading what Maharishi said earlier this year concerning the urgency of creating a 7,000 group here in America and in India. Maharishi (1991) said:

We cannot underestimate the urgency of such a place; we cannot afford to underestimate the urgency of such a thing. Somehow it is possible; there is nothing that cannot be done in America. It is because we did not do such a thing that we are in such a deplorable state in the world. We cannot underestimate the urgent requirement for 7,000. Be all together and devote ninety percent of your time to that—not because I am saying it, but because you know it is urgently required for the country and for the world. Even for ourselves and for our own rapid development, for our own perfect health, and for the thousands of people associated with us and our families, we must provide such a place. You have nothing on which you can depend; depend only on yourselves. . . . It is very necessary that the tradition of wars be turned back. We are the organization with the knowledge and the technology to turn it back to a more laudable state.
Maharishi gave this message to practitioners of the Transcendental Meditation program, who, by experiencing that silent level of their own awareness, bring their attention to the field of absolute peace within themselves, and thus create an enlivenment of that field which spreads peace to the environment and peace to the world.

Conclusion

I believe that the conclusion of this conference should be the resolution to take every imaginable practical step to create a group of 7,000 in the United States, and to keep encouraging the government of the United States and the governments of all nations to themselves undertake the creation of such groups. But, in the meantime, the resolution should be to undertake ourselves, with all the force and all the intelligence at our command, the creation of these world peace groups, groups of people who for the first time could be said to be professionals in the creation of world peace—world peace professionals.

I hope that this has been a very successful conference for all of you. I have been hearing many wonderful reports of the beautiful speeches that have been made here. I would like to thank all our guests who have come as speakers or participants, and hope that we can continue to work with you and create peace together in the months to come.

References


Part III

The Maharishi Effect
Assessing the Impact of Coherence-Creating Groups on the Lebanon War

John L. Davies, Ph.D.
ABOUT THE AUTHOR

John L. Davies, Ph.D., received his degree from Maharishi University of Management in 1988 and is Codirector of Partners in Conflict and Partners in Peace Building at the University of Maryland’s Center for International Development and Conflict Management (CIDCM). Dr. Davies is Senior Associate at CIDCM, Professorial Lecturer in Conflict Management at the School of Advanced International Studies (SAIS) at Johns Hopkins University in Washington D.C., and Co-Director of the Center for Living Peace in Warfordsburg PA. Books include Second Track and Citizens’ Diplomacy: Concepts and Techniques for Conflict Transformation (with Edy Kaufman, Rowman and Littlefield, 2003) and Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems (with Ted Robert Gurr, Rowman and Littlefield, 1998). He served with the U.S. Government’s State Failure and Political Instability Task Forces, tracking 28 high risk states to generate early warnings of genocides and mass killings. Applied research interests include integrating secular and spiritual best practices in peacemaking, conflict analysis and early warning, and peacemaking at international, intergroup, community and organizational levels, including mediation and leadership development. He has trained peacekeepers in Africa and Eastern Europe for the U.N. Department of Peacekeeping Operations, served as Senior Specialist with both the U.S. Department of State and Fulbright/CIES, and is a regular guest lecturer in peace studies at the National Defense University.
ABSTRACT

Maharishi Vedic Science and Technology includes an approach to creating peace by systematically reducing collective stress. High levels of tension and continued armed conflicts in the Middle East and other parts of the world, in spite of repeated military and political interventions, indicate a failure of the conventional realist paradigm in international relations to adequately address the subjective dynamics underlying such situations. Maharishi’s approach thus complements traditional approaches to peacemaking through identifying and utilizing these subjective dynamics to alleviate accumulated collective stress and systematically promote human development toward more coherent thinking and behavior. The efficacy of Maharishi’s technology was evaluated in two studies assessing the impact on war intensity in Lebanon of seven assemblies of coherence-creating groups in the Middle East, Europe, and North America between 1983 and 1985. During each assembly, the mean level of conflict and the mean number of war fatalities per day were found to drop, and the level of cooperation to increase significantly.

Introduction

This paper integrates three connected themes. First, it considers an approach to peace using techniques for systematically reducing collective stress (equated with enhancing coherence in collective consciousness) and the need to address, through such an approach, the subjective, motivational dynamics of peace and war. Second, it is concerned with empirical assessment: whereas qualitative, “post-modernist” methodologies may be necessary to bring out the real value of most approaches to peace, even the more rigorous quantitative methods may be used in assessing the effectiveness of an approach to peace as simple and as replicable across cultures and contexts as this one. The third theme, considered simultaneously, is the complementarity of different approaches to peace, and the need to move forward on many different paths in parallel.

The Neglected Subjective Dynamics of Conflict and War

The recent Gulf War has been celebrated as a classical military success. It is also proving to be a very limited success, bought at the cost
of enormous human suffering. So far, it has done little, if anything, to alleviate the long-term problems of arrested community development and resulting protracted, intercommunal conflicts within Iraq and Kuwait, or elsewhere throughout the Middle East. These conflicts involve the Kurds, the Shiites, the Palestinians, the Israelis, the Sunnis, and various other communities who perceive their ability to progress, or their collective identity and security, as under threat. These communities experience high levels of collective frustration and tension, their severe underdevelopment contrasting sharply with the affluence of neighboring European states, Israel, and the oil-rich states of the Gulf Cooperation Council. Consequently it is here that we continue to see perhaps the greatest threat to our hopes for a peaceful world.

“Threat” has been defined by David Singer (1958) and others as the product of two factors: the objective military capacity to wage war, multiplied by the subjective hostility which can motivate war. If we reduce either factor, we reduce the threat; reduce it to zero, and the threat is removed. In the absence of understanding how to deal with the subjective factor, the traditional debate among people who are concerned with peace building has dealt only with the objective factor: pitting the advocates of superior armament (aiming to minimize others’ capacity relative to our own) against advocates of mutual disarmament.

The superior armament approach, promoted as “peace through strength,” assumes that we can only presuppose the worst intent, as we cannot understand or control the subjective side, the motivations and feelings of others. The “realist” position has been that we therefore have to assume the worst intent and prepare for it, thereby deterring any attack against us. On the other hand, the advocates of “peace through cooperation” have focused on the need for mutual disarmament through negotiation and cooperative engagement. The argument is that even if we do not understand and cannot control subjective hostility, it is not a threat if we take away the means of destruction.

But there are fundamental problems with both approaches that arise from overlooking the subjective element. Creating superior armament and military power in one country—through increasing its armament and/or destroying the military and supporting nonmilitary assets of others, as in Iraq—exacerbates fear, insecurity, and mistrust in those others who now feel threatened. This in turn motivates arms races;
draining of scarce economic resources into military budgets; the spread of nuclear, chemical, and biological weapons; and terrorist activities or low intensity warfare, through which even military superpowers can in turn be threatened. Further, the lack of any role for weapons of mass destruction in responding to such situations [terrorism, low intensity warfare, etc.], and their consequent continued non-use, erodes whatever (subjective) general deterrent value they may have had. Through focusing only on objective issues, the balance of power in a region may be changed in the short term; but if the underlying subjective needs of the communities involved are not resolved, the fear and frustration which motivate conflict are only exacerbated in the longer term.

The problem with disarmament, on the other hand, is that people cannot agree on disarmament treaties when there is fear, distrust, and insecurity. If a treaty is made allowing even marginal reductions, there is no trust that the other side will abide by it. As a result, there can be little real progress toward disarmament when tensions are high. The modest gains of the recent START agreement and subsequent unilateral concessions were possible only following a drastic lessening of tension and hostility between the U.S. and the former Soviet Union. Disarmament naturally follows reduced hostility, rather than precipitating it: it is an outcome of, rather than an approach to, peace.

This overview suggests that the failure of the conventional “realist” or behaviorist paradigm in international relations to generate a viable solution to the problems of war and conflict is due to a failure to adequately address the subjective dynamics that motivate them. The failure is apparent in that we still have, as Dr. Orme-Johnson pointed out (Orme-Johnson, et al., 1988), around 60 wars or low intensity conflicts worldwide, and given the instability and underdevelopment continuing in the former Soviet Union and some of its former satellites, the prospect of more to come.

It is clear from our definition of threat that any approach to peace requires attention to both elements, the subjective as well as the objective. No approach can succeed—at least not on its own—that does not significantly reduce the high levels of tension, stress, and frustration that undermine social coherence and progress, and directly motivate and fuel violence and war. Stress not only motivates one to resort to violence, but also breeds mistrust, misperceptions, dysfunctional cogni-
tive and decision-making processes, and rigid, short-term perspectives, which provide a fertile ground for random violence and misjudgments that can precipitate unintended wars.

**Material Resources Versus Developmental Needs**

How do stress and tension accumulate over time? Maharishi’s perspective—and we hear similar views from a growing number of social scientists—is that stress accumulates from blocking of the inherent human need to develop, to progress. It is the frustration of the natural impulse of life to move in the direction of growth—whether on the individual or collective level—that creates stress.

The realists’ idea has been that violence and war are inevitable, because they come from unavoidable conflicts of interest over scarce material (objective) resources. All states or communities are trying to draw as much as they can of the finite resources of the planet, and what one gains is denied to others—i.e., there is an overall zero-sum outcome in any exchange. When interests conflict, then war or threat of war is one option for rational, utilitarian statesmen to employ in pursuing their advantage. The result is at best zero-sum—one party gets the resource, and the other loses it, or they agree to take a little bit each; or at worst, negative-sum—the resource is destroyed or damaged (as in the case of Kuwait’s oil).

More recently, however, theorists are beginning to understand that there is a crucial difference between competitive interests in material resources, and innate human developmental needs. The former may be negotiated, bargained over, denied, given up, traded, or suppressed indefinitely. The latter (ontological needs such as those for identity, security, and effective participation) cannot in the long term be denied, suppressed, or traded away any more than life itself. If the nature of life is to grow and develop, then to the extent that this process is blocked over time on the individual or collective level, stress and tension will accumulate, providing fertile ground for protracted conflict and violence.

If we attend to the subjective reality, the needs that are being frustrated, rather than to material resources, then we discover that there is always a strong possibility that positive-sum solutions can be found to conflict situations. Developmental needs are not tied to limited material
resources so much as to subjective human and social resources, which are not in limited supply. Recognition of the identity of another group, for example, does not deplete our resources. If one nation, or one group, thus has its sense of identity—or its sense of security, or its ability to be able to freely participate in the larger social environment—enhanced, then these achievements tend to inspire and promote the same values in other groups or nations. This is precisely what is happening now in the countries of Eastern Europe and elsewhere, in what has become a global trend toward recognizing that greater freedom and cooperation are necessary elements for societal development. This is a positive-sum solution to conflict: all sides benefit fundamentally in the long term.

Track Two diplomacy, as discussed by Ambassador John McDonald elsewhere, owes what successes it has had primarily to this emphasis on attending to subjective factors: forestalling the chronic accumulation of tension and frustration by focusing on developmental needs. Because Track One or official diplomacy tends to get bogged down in defending national interests and related policy commitments (bargaining or fighting over how to divide the material pie), it has too often been left to unofficial diplomacy to find mutually beneficial ways of enhancing human development—including economic, political, and social development—which, by supporting the natural direction of life and thus reducing stress, help create a meaningful and stable peace.

The need, then, is to be able to attend to the second element, to be able to address the subjective side of the equation. Most fundamentally, the need is for a means of systematically promoting human development and alleviating accumulated stress on the collective level, thus providing a coherent and dynamic ground from which cooperative and creative solutions can be found to the constant flux of problems with which each individual and society is dealing.

This is the focus of the subjective approach of Maharishi Vedic Science and Technology. A technology of consciousness has evolved within the Vedic tradition, precisely defined by Maharishi in scientific terms, which has been found to alleviate stress and directly enhance the development of more coherent, perceptive, and intelligent levels of human thinking and behavior. This in turn supports collective progress, minimizing the accumulation of frustration and hence the risk of resulting hostility. Through attending to this “deep structure” of the
peace process (Markides, 1992), it is possible to support the effectiveness of all the diverse approaches to peace (Track One or Two) which work primarily with the objective “surface structure” of society. There is a freeing of human resources to work for development and the solution of everyday problems, thus creating a positive-sum, dynamic, and stable peace.

Empirical Evaluation in the Context of the Lebanon War

Our interest in evaluating the efficacy of the technologies of Maharishi Vedic Science that address the subjective factor in world peace, and our concern at the high levels of tension and instability in the Middle East, led us to focus particularly on the potential of these technologies for alleviating violence in the Lebanon War. Since 1975 there has been almost constant civil war within Lebanon among several domestic communities that have been fractionated over religious, economic, and political issues that are only now (following the end of the Cold War) beginning to be resolved. Throughout the 1980s, as regional powers and superpowers were drawn into the conflict, and as issues shifted and became more complex, the war continued to resist the whole range of traditional approaches to resolution of conflict, both military and diplomatic. So this war provided us at that time with an extreme test of whether Maharishi’s approach to peace through creating collective coherence can work in the real world.

Our first study on the Lebanon War (Orme-Johnson, 1988) focused on the impact of a group practicing Maharishi’s technologies of consciousness—the Transcendental Meditation and TM-Sidhi programs—in Jerusalem, during the period of Israeli withdrawal from Lebanon in 1983. It was found that daily indices of quality of life in Israel, and of war intensity in Lebanon (including number of war deaths) tended to closely track the size of the “coherence-creating” group as it changed over the two-month period of the study, with increases in group size over threshold levels being followed immediately (on the same or the following day), as predicted, by positive change in both Israel and Lebanon.

The results of this study were compelling. The regularity and extent to which events in the Lebanon War responded to changes in group
size in Jerusalem were highly significant, both in statistical and human terms (war deaths, for example, being reduced by 76% below expected levels) (Orme-Johnson, Alexander, Davies, Chandler, & Larimore, 1988). No other strategy for peace has been found to have such a profound, immediate, and predictable impact in reducing violence on this scale.

The study was important in demonstrating the value of addressing directly the subjective dimension that drives conflict. Equally important, however, is that for the first time in the social sciences, this study (and a series of similar studies showing an immediate impact of coherence-creating groups on the behavior of populations spread over large areas) has provided strong evidence for the validity and relevance of the age-old concept of collective consciousness. This is the idea (prevalent throughout the history of Western as well as Eastern thought) that the members of a society are interconnected at a level of reality more fundamental than externally observable behavioral interactions, and that their thinking and behavior are directly influenced by the dynamics of that underlying field. Although this concept of collective consciousness has been out of favor among behaviorally-oriented social scientists due to lack of such evidence, in recent years physicists have pronounced that all bodies and particles are indeed interconnected, not just through their behavioral interactions, but more fundamentally as expressions of the quantum fields underlying them. These discoveries of quantum physics, and more particularly the recent insight that a unified quantum field underlies the whole range of objective and subjective existence, are entirely compatible with Maharishi’s description of the field nature of consciousness (Hagelin, 1992).

Replication of Israel Study
Given the obvious and far-reaching implications of such findings, and the precision which appears to be possible in predicting the nature and extent of the impact of a coherence-creating group of any given size, we were concerned to more thoroughly test the reliability of this mechanism for creating peace. To what extent does it work under different conditions? We were also concerned that any selectivity in assessing the impact of the groups be avoided. For both reasons, we felt it was important to look at all seven occasions (all were in the period from
1983 to 1985) when there had been coherence-creating groups big enough and close enough geographically for their predicted influence to include Lebanon (based on the proposed formula whereby the impact of a group of size \( n \) will be felt by a population of about \( 100n^2 \)).

Second, we were interested in testing whether these groups can be effective in creating coherence and alleviating violence on any scale of collective consciousness and behavior. Maharishi has talked of collective consciousness as relevant at all levels of social organization, from the family level, through the community, national, regional, and world levels, and indicated that the square root of 1% formula should hold for groups of any size (at least for \( n > 100 \)). We were therefore interested to see whether coherence-creating groups operating at each of these different scales, from community through world level, would be effective in creating coherence and reducing stress, as measured in levels of violence in Lebanon.

Another specific question which had been left untested in the Israel study was whether the postulated increase in collective coherence would be reflected not only in reduced violence, but also in enhanced cooperation among antagonistic parties in the cause of peace. This would also help to evaluate Maharishi’s proposition that collective stress or tension (as reflected in violence) is in fact the inverse of collective coherence (as reflected in cooperation and support for peacemaking efforts); the beneficial impact of the groups should be measurable using both positive and negative indices of quality of life in Lebanon.

The seven assemblies with sufficiently large coherence-creating groups to affect Lebanon included:

1. the Jerusalem assembly in the summer of 1983 (evaluated in the study discussed above); and a smaller assembly in Natanya, in northern Israel, immediately following the Jerusalem assembly;

2. the “Taste of Utopia” assembly held at Maharishi International University in Fairfield, Iowa, U.S.A. in December 1983—the first attempt to create coherence on a global scale, with a group of over 7,000;

3. a group brought together by the Lebanese themselves—Christian, Muslim, and Druse—in Broumana, a village in the mountains
outside Beirut, which at that time (March 1984) was right in the center of the fighting;

4. an international assembly in April 1984 in Yugoslavia;

5. a second assembly in Fairfield in July 1984;

6. an international assembly in the Netherlands in December 1984; and


To test the predicted impact of these assemblies, Box-Jenkins time series impact assessment analysis was employed, allowing us to control for all systematic influences on the war from other factors. All trends and periodicities in the fighting (e.g., weekly or seasonal cycles), and any impact of holidays or temperature change, were identified and controlled for.

The dates for each assembly (with the exception, for security reasons, of the group within Lebanon) were announced well in advance—typically dates were set about two months in advance, independently of events in Lebanon—and the specific changes predicted to flow from the assemblies were also publicly announced in advance to the media, and in several cases lodged with independent review boards of social scientists. These precautions were important firstly to guard against even the appearance of ex post facto selection of dependent variables; and secondly to preclude the possibility (or appearance) that assemblies could have been called in reaction to day-to-day changes in the Lebanon war, thus confusing the issue of whether the assemblies were a cause rather than a symptom of positive changes in the war. In addition, time series analysis was used to confirm that the assembly dates were in fact statistically independent from prior changes in the war. Thus, any systematic correlation between assemblies and changes in the war variables could only be attributable to the coherence-creating groups as the causal agent, rather than to war-related variables.

The event data used to assess day-to-day changes in intensity of conflict and cooperation in Lebanon were generated by an independent Lebanese expert trained at the University of Maryland who was blind to the hypotheses of the study. He employed a set of 16-point conflict-
cooperation scales developed by Karen Rasler (1981) specifically for the war in Lebanon, to weight scale values for all events on each day being summed to provide aggregate daily intensity scores. In addition, the total number of people killed, and number injured, in each day’s fighting was recorded, as reported in the same set of local and international news sources that were used for scaling. It was predicted that all four variables would improve significantly during each assembly.

The findings were unambiguous. During each of the assemblies (which varied in length from less than one week to up to two months within the overall study period of 2 ¼ years) the mean level of conflict dropped from 43.5 per day (weighted total using the Rasler scales) during the control period to 22.6 during the assemblies—almost to 50% of the control period level—after adjusting for all trends, cycles, etc., in the war data ($p = 3 \times 10^{-9}$). A value of 43 would correspond, for example, to one full-scale military battle, and four separate armed clashes or shelling exchanges in one day; 22 would correspond to two armed clashes and a kidnapping. Figure 1 shows the actual means (before adjusting for trends, etc.) for each assembly and the control period.

Similarly, the mean number of war fatalities per day dropped from 12.1 during the control period to 3.5 during the assemblies, again after controlling for trends, cycles, etc.—a reduction to less than 30% of the control period level ($p = 1 \times 10^{-10}$; please refer to Figure 2 for actual means). This finding is particularly significant, as casualties, being more concentrated in fewer, more intense events (such as car bombs, massacres, attempts to take positions by force) were only slightly correlated with overall conflict scores, and thus provide independent confirmation of the positive impact of the assemblies. A similar pattern was found for nonfatal injuries as for fatalities.

Level of cooperation among antagonistic groups, on the other hand, was higher during the assemblies than during the control period, up from an adjusted mean of 1.2 to 2.0, an increase of a full two-thirds ($p = 4 \times 10^{-7}$). The actual means during the assemblies were even higher (as shown in Figure 3), but even taking the more conservative adjusted means, this represents a shift from, for example, a single expression of goodwill on a given day, to an actual proposal for reform or for resolution of the conflict. However, given the unevenness in day-to-day levels of cooperation, it is also useful to look at what was actually hap-
pening during these periods, in a qualitative sense. What were the ongoing peace processes that were taking place, and what evidence was there that these were supported or enhanced by the coherence-creating groups?

Complementarity of Traditional and Novel Approaches to Peace

It was obvious from the data that throughout the 2 ¼ years observed there were almost constant efforts among at least some representatives of the parties to create peace. However, the brief periods when these ongoing efforts were able to bear fruit in terms of breakthrough agreements and sustained general support tended to occur predominantly during the seven assemblies. The higher level of cooperation achieved during any assembly, however, was typically able to be sustained only until (or shortly after) the group disbanded.

For example, the event summaries indicated that during the Taste of Utopia assembly the Lebanese government finally agreed to a security plan for all of Lebanon, and was able to obtain the support of all the main domestic parties to the conflict, as well as of the Syrian and Israeli governments. During the next assembly—the Lebanon assembly—Syria agreed to a gradual withdrawal of its forces from Lebanon. Also, the opposition leaders attended a reconciliation conference with the government and agreed to a comprehensive cease-fire, and to drop their long-held demand for the president to resign. During the Yugoslavian assembly a productive summit meeting was held with Syria, following which all the major parties in Lebanon agreed to form a national unity government. They agreed on its structure and related reforms, and allowed some deployment of Lebanese army disengagement forces. The new government was formed, but it was not until the second Fairfield assembly that substantial progress was finally made in actually implementing the security plan for Beirut.
Figure 1. Mean daily level of conflict in the Lebanon War during the non-experimental and each of seven experimental periods, June 1983 to August 1985. Time series impact assessment analysis indicates significant alleviation of conflict during six of the experimental periods and during all seven combined ($p = 3 \times 10^{-9}$).

Figure 2. Mean daily number of fatalities in the Lebanon War during the non-experimental and each of the seven experimental periods, June 1983 to August 1985. Time series impact assessment analysis indicates significant reductions during six of the experimental periods and during all seven combined ($p = 1 \times 10^{-10}$).
The finding that ongoing peace efforts seemed to bear fruit during the assemblies strongly indicates the complementarity of the different approaches to peace: traditional negotiations are more effective when collective stress is concurrently being alleviated. The same conclusion flows from the observation that the momentum from each breakthrough typically could not be sustained once the assembly ended. For example, after the Taste of Utopia assembly, parties began to place substantial preconditions on their acceptance of the security plan; a few days after the Lebanon assembly, the national reconciliation conference collapsed without a resolution to the conflict; and after the second Fairfield assembly, no further progress was made in the disengagement of forces in Beirut.
A composite quality-of-life or “peace/war” index was also constructed from the combination of these three largely independent indices. As illustrated in Figure 4, every assembly had a highly significant positive impact on the war, without exception ($p < .01$ for each assembly; $p = 9 \times 10^{-20}$ for all seven combined). This means that the probability that these results could have occurred by chance is something less than 1 in 10 million trillion—far beyond the 1 in 100 usually accepted as conclusive in the social sciences.*

Figure 4. Estimated daily level on a Peace/War Index for the Lebanon War for each of seven experimental periods between June 1983 and August 1985. Time series impact assessment analysis indicates significant improvement during each experimental period and for all seven combined ($p < 9 \times 10^{-20}$).

**Concluding Remarks**

These results indicate that the assemblies were consistently effective in reducing collective stress and violence, and also in improving collective coherence and peace building, across a wide range of conditions and for populations influenced on a local, regional, or even global scale. Given the absence of any plausible behavioral mechanism to account

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* For a more detailed presentation and analysis of these findings, readers are referred to the full report of this study (Davies & Alexander, 2005).
for the observed immediate impact of the groups across thousands of miles, the findings also confirm the reality and relevance of the age-old concept of collective consciousness, of society held together by, and rooted in, a more fundamental but abstract field of natural law such as described both in Maharishi Vedic Science and in quantum physics. The evidence indicates that this unified field is a reality that nourishes and supports the coherence not only of the individual organism, but also of the larger social environment, sustaining its collective integrity, security, and ability to progress.

References


The Maharishi Technology of the Unified Field
and Reduction of Armed Conflict:
A Comparative, Longitudinal Study of Lebanese Villages

T. M. Nader, M.D., Ph.D.
C. N. Alexander, Ph.D.
J. L. Davies, Ph.D.
ABOUT THE AUTHORS

Professor Tony Nader received his M.D. from American University in Beirut and his Ph.D. in brain and cognitive science from Massachusetts Institute of Technology (MIT), with postdoctoral work in neurology at Massachusetts General Hospital and Harvard Medical School. At MIT, his interest in natural health care led him to the Maharishi Consciousness-Based approach to health. He conducted research on how its herbal preparations benefit memory and behavior and prevent aging and disease, including cancer. For his discovery of the Veda and Vedic literature in human physiology, he was honored in Europe in 1998 with the unique prize of his own weight in gold. In 2000, when Maharishi founded the Global Country of World Peace, a country without borders, embracing the entire world, Professor Nader, with his deep knowledge of natural law and appreciation for the Vedic tradition, became its first ruler, with the title Maharaja Adhiraj Rajaraam.

Dr. Charles “Skip” Alexander, Ph.D., (1949-1998), showed theoretically that four higher states of consciousness described by Maharishi Vedic Psychology logically extend the developmental sequence delineated by twentieth century psychology. His empirical research found that the Transcendental Meditation technique provides the direct experience of Transcendental Consciousness (the first higher state, which is the silent basis of the mind) and that this practice accelerates development in children, “unfreezes” development in prison inmates, advances ego development in adults, increases productivity in businesses, decreases blood pressure, increases longevity, effectively treats substance abuse, and reduces prison recidivism. Dr. Alexander was Founding Chairman of the Department of Psychology at Maharishi University of Management.

John L. Davies, Ph.D., received his degree from Maharishi University of Management in 1988 and is Co-Director of Partners in Conflict and Partners in Peace Building at the University of Maryland’s Center for International Development and Conflict Management (CIDCM). Dr. Davies is Senior Associate at CIDCM, Professorial Lecturer in Conflict Management at the School of Advanced International Studies (SAIS) at Johns Hopkins University in Washington D.C., and Co-Director of the Center for Living Peace in Warfordsburg PA.
ABSTRACT

The practice of the Transcendental Meditation programme by one percent of the population of a Lebanese village, situated in a major conflict area of Lebanon, was found to result in an immediate and continued cessation of hostilities, and improvements in social, economic, and ecological conditions in the village. These improvements were in sharp contrast to the continuing violence in surrounding control villages.—Editors

Against the background of the Lebanese civil war, this study tests the predicted influence of the practice of the Maharishi Technology of the Unified Field—the Transcendental Meditation and TM-Sidhi programs—in preventing disruption of a community from external sources of violence and in promoting its internal progress, through creation of coherence in collective consciousness.

In a prospective social experiment, the Transcendental Meditation program was taught to one percent of a village (Baskinta) of 10,000 people caught in the focal region of the Lebanese conflict. Changes in the experimental village were compared to those in neighboring villages of similar size and agricultural economic base over a period of five-and-a-half years. Two of these control villages were, like Baskinta, predominantly Christian and under rightist control; two had mixed Christian (native) and Moslem (occupying forces) populations and were under leftist control.

As predicted, and in abrupt contrast to its previous history, there was a complete cessation of hostilities in Baskinta from the time one percent of its population had begun to practice the Transcendental Meditation program, as measured by incoming shells, property damage, and casualties (p < .005 for each measure). This cessation of violence in Baskinta was also in sharp contrast to the worsening trends in all the surrounding control villages, as indicated for example by the decrease in an index of conflict (where each point represents 25 incoming shells per season) in Baskinta from 3.9 to 0 compared to an increase in the index mean for the control villages from 1.9 to 4.0 (p < .00001). Improvement in social, economic, and ecological conditions in Baskinta after the one-percent level was reached was also indicated by reported improvements in crop yield, increased social and sporting activities, and accelerated municipal development.

The comparative longitudinal design of this naturalistic experiment allowed exclusion of alternative explanations for these changes either in terms of seasonal or broader regional changes or in terms of local demographic dif-
ferences or strategic factors. The villagers themselves were unaware of any special events which could account for such a change. Results are discussed in relation to the concept in Vedic Science of “rashtriya kavach” (a societal “pro-
tective armor” associated with coherent collective consciousness) and to further experiments indicating that the Maharishi Technology of the Unified Field is effective in improving quality of life and reducing turbulence and violence on a national and even an international scale.

Introduction

To date over 20 studies have reported a positive influence of the practice of the Maharishi Technology of the Unified Field—the Transcendental Meditation and TM-Sidhi programs as taught by Maharishi Mahesh Yogi—on city, state, national, and international levels (Chalmers et al., 1991). This technology of consciousness, which has been found to be effective in enhancing individual development, independent of beliefs or lifestyle (Alexander, 1982; Orme-Johnson 1988), also appears to have a broader value in enhancing positive social trends as well. With increasing numbers participating in this program, time-correlated reductions in negative social trends and improvements in quality of life in the larger society have been reported (Dillbeck et al., 1981; Chalmers, 1991).

As early as 1960, Maharishi predicted that when as little as one percent of a population was practicing the Transcendental Meditation program, a positive, coherent influence would be apparent not only in the individual meditators, but in the population and area as a whole. This prediction has been repeatedly confirmed by studies showing decreases in crime, auto accidents, and suicides (Dillbeck et al., 1981; Dillbeck, Landrith, 1991; Landrith and Dillbeck, 1991). This phenomenon was termed by social scientists the “Maharishi Effect” when it was first empirically demonstrated in 1974 (Borland and Landrith, 1977). A much smaller proportion, the square root of one percent, appears to be sufficient when the more advanced TM-Sidhi program is collectively practiced for similar improvements to be observed (Lanford, 1991; Burgmans et al., 1991; Davies and Alexander, 1991), as well as improvements in a broad range of economic, social, and ecological indices (Dillbeck, Foss, et al. 1991; Orme-Johnson, Alexander, 1991).

These results are consistent with the Vedic description of consciousness. Consciousness, in its fully self-referral state as the unified field of natural law, is said to be enlivened through regular practice of the
Maharishi Technology of the Unified Field to create a powerful influence of coherence and positivity in both individual and collective behavior (Dillbeck, 1983; Dillbeck and Orme-Johnson, 1990). The principles by which a relatively small subset of individuals may thus increase coherence in collective consciousness and behavior may also be understood with reference to the study of physical systems. The fundamental laws discovered by quantum field theory governing the interaction of two or more particles are also said to govern the macroscopic quantum behavior of “many-body systems.” Quantum theory treats the many-body system itself as a single quantum field. In general, a small fraction of the units of such systems participating in coherent behavior may give rise to a coherent state of functioning in the system as a whole. Examples of macroscopic coherence include superfluids, superconductors, and the ferromagnetic states of magnetic materials (Maharishi, 1996, p. 208).

Maharishi Vedic Science predicts that this influence of coherence in collective consciousness will be reflected also in a greater resilience or immunity of the society to disruption even from major external sources of disorder (war). This resilience is described by Vedic Science as affording society a “protective armor”—rashtriya kavach (Maharishi Mahesh Yogi, 1978). A simple analog for this phenomenon may be found in the Meissner Effect in quantum physics whereby the highly coherent state of a superconducting metal in effect disallows any external magnetic field from impinging on the internal integrity of the superconductor (Orme-Johnson, Alexander, 1991).

The Lebanese conflict provided an occasion to conduct a prospective and comparative experiment to test the coherence-producing influence of this technology in the context of continuing hostilities. Due to limited resources, it was not possible to teach the Transcendental Meditation technique to enough people for a predicted influence throughout Lebanon, or the entire region directly involved in the conflict. However, it was feasible to teach the Transcendental Meditation technique to one percent of the population of one of a group of villages surrounded by and involved in this ongoing armed conflict. One percent is the minimum level predicted on the basis of prior research for at least the village itself to be resistant to disruption from internal or external sources of disorder.
It is predicted that when one percent of such a village (with at least 10,000 population) begins to practice this technique:

1. The level of hostilities, as measured by the number of incoming shells, the number of casualties, and amount of property damage in the village, will decrease relative both to prior levels and to continuing levels in comparable neighboring villages.

2. The social, economic, and ecological conditions, as measured by crop yield and report of the villagers (confirmed where possible by reference to public records), will improve relative to prior levels and to continuing levels in comparable villages.

Method

Location and Background—For reasons of size (at least 10,000 but still within the resources of the two available teachers of the Transcendental Meditation technique in Lebanon), strategic location and comparability to neighboring villages suitable as controls (i.e., one of a group of similar villages caught in the focal region of the civil war), and accessibility to the teachers (near Beirut), Baskinta was selected as the site of the experiment. Baskinta is a village of about 10,000 people in central Lebanon, at the base (altitude 1,400 m) of Sannine Mountain, the summit of which (2,628 m) is a very strategic point dominating the region and hence together with the surrounding area was a focus of continuing battles between opposing leftist and rightist forces throughout the period of the study, 1978–1984 (Figure 1). The economy is agricultural, residents are Christian, and the village remained under rightist control during the study.

Two neighboring villages, Bikfaya and Rayfoun/Klaiat, both also agricultural, Christian, and under rightist control, are compared as control villages. Bikfaya has a population of about 8,000 and an altitude of 900 m. Rayfoun and Klaiat are actually two smaller villages very close together, with a combined population of about 9,000 and altitude 1,000 m (Figure 1). The two other nearby villages, Dhour-Shweir and Bologna, were under leftist control during the study and information was not so readily accessible to the experimenters; however, they are included as control villages where data is available. They are both agricultural, with mixed Christian (native) and Moslem (occupying forces) populations of about 7,000 each.
Figure 1. Location of experimental and control villages on central Lebanon

**Procedure**—The Transcendental Meditation program was introduced in Baskinta in May 1981 by two Lebanese teachers provided for the purpose of this study by the Middle East Foundation for the Science of Creative Intelligence in Beirut. Following public introductory talks on the technique, those who wished to learn were taught in groups of 2–8 people per course, following the highly standardized teaching procedures of the Foundation and its affiliates in other countries. Participants were encouraged to continue regular practice on their own for 20 minutes twice per day. They were taught the practice for their own benefit and were unaware that the instruction was also taking place in the context of a social experiment.

By the end of June 1982, one percent of the village population had learned the Transcendental Meditation technique. Five individuals had also learned the more advanced TM-Sidhi program which they practiced individually or as a group. At times, these advanced participants were joined, usually on weekends, by the Transcendental Meditation teachers and other TM-Sidhi practitioners from Beirut to create a
larger group of from 6 to 15 members in order to maximize the effect of their program. Thus for the purpose of this study, the experimental period was from July 1982 through March 1984 (the latest date for which data was available). The pre-experimental baseline period was from October 1978 to June 1982.

Dependent Variables—1. The number of incoming shells, number of casualties, and amount of property damage during each three-month season (e.g., spring includes the months April through June) are taken as measures of hostility level. The primary source of data was *Al Nahar*, the most widely distributed and generally considered the most objective newspaper in Lebanon. *Al Nahar* provides daily reports on the level of hostilities (as measured in this study) for the various communities and regions of Lebanon. Another widely read newspaper, *Al Amal*, was used for those days when information was not provided by *Al Nahar*. When possible, these sources were supplemented (particularly in the case of Baskinta) by additional information given in regular reports on a national radio station (Voice of Lebanon) and national television stations.

For all statistical comparisons, a ten-point scale was used for number of shells (one point per 25 incoming shells in each season, up to 200+) reflecting the degree of accuracy of available reports for the control villages. Property damage in each season was assessed as zero, minor, or major (major if at least two houses were destroyed or four extensively damaged). Numbers wounded and killed were consistently recorded only for Baskinta.

2. The primary indicator for economic/ecological welfare is crop yield, as assessed from a questionnaire given to a random selection of ten farmers in Baskinta in late summer of 1982, following the first crop after the one-percent level had been reached. Without being informed of the purpose of the questionnaire, farmers from each locality around the village were asked by boy scout volunteers to compare their crop with those of previous years, and then invited to give reasons for any change. Also, the executive members of the major local club for social and cultural activities in Baskinta were questioned, without being informed of the purpose of the study, as to events and changes of social and economic significance before and after June 1982, when the one-
percent level was reached. (Their reports were consistently confirmed by reference to public or local government sources.)

**Results**

1. **Hostilities**—All series of data measuring hostilities span 22 seasons (quarterly periods of three months). Analysis of the autocorrelation structure of these series revealed no significant autocorrelations ($p < .05$) on any of the measures for either the entire series (for seasonal lags 1–10) or the pre-experimental period alone. On the basis of this analysis and the nonparametric test of runs about the mean also performed for each series, the assumption of independence of observations could not be rejected and therefore for purposes of statistical analysis, data points were treated as independent.

The levels of shelling, casualties, and property damage in Baskinta from the fall of 1978 to winter of 1984 are presented in Table 1. In clear confirmation of the first hypothesis, no shells, no damage, and no casualties were sustained in Baskinta from the time when one percent of the population had begun to practice the Transcendental Meditation program.

The extreme nature of the reduction of fighting in Baskinta following the one–percent level being reached undercuts the assumptions (particularly that of equal variance in the baseline and experimental periods) required for the application of more powerful parametric (e.g., t-test) and nonparametric (e.g., the Mann-Whitney U test) procedures to analyze these data. However, even utilizing the less powerful median test (Welkowitz et al., 1976, pp. 276–281), all of the predicted results proved highly significant, especially as reflected in the very substantial effect sizes associated with each measure. In contrast to the baseline period for Baskinta, the reduction of the fighting to zero during the experimental, one–percent period was significant for each of the three separate measures—shelling, property damage, and casualties. Using

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1 Seasons during which there was no fighting throughout the region (due to winter snow or national cease-fires—see notes to Table 1) were excluded for the purpose of analysis of measures of change in level of hostilities in Baskinta.
Table 1  
Shells, Casualties, and Property Damage in Baskinta before and after 1% of Its Population Learned the Transcendental Meditation Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
<th>Shells</th>
<th>Wounded</th>
<th>Killed</th>
<th>Property Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>Fall</td>
<td>134</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1979</td>
<td>Winter</td>
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the median test, the same statistical outcome is obtained for each measure: \( x^2 = 7.78, p < .005, r(\phi) = .75.\)\(^2\) (An effect size of \( r = .37 \) or higher

\(^2\) Because directional predictions were made and \( x^2 = z^2 \) when \( df = 1 \), directional testing was employed.
is considered a large treatment effect in the behavioral sciences; see Cohen, 1977.)

a. Actual number of shells. In Table 2 the same data is expressed in terms of a ten-point scale.

b. Under Property Damage, 1 indicates damage and 2, major damage (i.e., more than two houses destroyed or four seriously damaged).

c. No fighting in the Sannine Mountain region apparently because of winter snow preventing troop movement (winter 1984 was unusually warm, with heavy fighting throughout most of Lebanon).

d. No fighting throughout Lebanon due to a national cease-fire agreement in the summer and fall of 1980. There was also a lull in fighting in the fall of 1982 following the Israeli invasion.

Also, during the last round of heavy shelling (in spring of 1982) just before the one-percent level was reached, there were no casualties or property damage in Baskinta: a unique situation for any of the villages over the period of the study, suggesting an effect even below the projected one-percent level.

Shelling and property damage in Baskinta in comparison to that in the two primary control villages is presented in Table 2. Consistent casualty figures were not available for the control villages. The drop in both shelling (ten-point scale) and property damage (three-point scale) in Baskinta from the time the one-percent meditating level was achieved, was highly significant by comparison with both Bikfaya (shells: $X^2 = 60.9, p < .00001, r(\varphi) = .86$; damage: $x^2 = 7.3, p < .005, r(\varphi) = .67$) and Rayfoun/Klaiat (shells: $X^2 = 37.3, p < .00001, r(\varphi) = .81$; damage: $x^2 = 6.3, p < .01, r(\varphi) = .61$).

Approximate levels of shelling, but not property damage or casualties, for Dhour-Shweir and Bologna were also obtainable and are compared with those in the other villages in Figure 2. The drop in shelling level in Baskinta was again significant by comparison with these villages ($x^2 = 22.8, p < .00001, r(\varphi) = .47$).

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3 Because frequency data are used in these analyses (totals during the baseline period contrasted with totals in the experimental period), it makes no difference whether or not seasons when there was no fighting in the region are included (see notes on Table 2).
Table 2. Shells and Property Damage in Baskinta and Control Villages before and after 1% of the Population of Baskinta Learned the Transcendental Meditation Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
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<th>Bikfaya</th>
<th>Rayfoun/Klaiat</th>
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1% Reached
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- a. Ten-point scale with 0 = no shelling, 1 = 1–25 shells, 2 = 26–50 shells, etc., up to 9 = over 200 shells.
- b. 1 indicates damage and 2 major damage (more than 2 houses destroyed or 4 seriously damaged).
- c. No fighting in the Sannine mountain region apparently because of winter snow preventing troop movement (winter 1984 was unusually warm with heavy fighting throughout Lebanon).
- d. No fighting throughout Lebanon due to a national cease-fire in the summer and fall of 1980. There was also a lull in fighting in the fall of 1982 following the Israeli invasion.
Figure 2. Intensity of Shelling per Season in Baskinta (Top) and Neighboring Lebanese Villages (Bottom) before and after 1% of the Population of Baskinta had learned the Transcendental Meditation program. (Note: Generally there was no fighting in winter apparently due to snow in the mountains, with the exception of heavy fighting in the unusually warm winter of 1984.)

The overall level of fighting in the region is actually higher after spring 1982 (when the one-percent level was reached in Baskinta) than before (mean shelling level per village per season shifts from 2.3 to 3.2). Hence, independently of the introduction of the Maharishi Tech-

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4 The winter seasons were excluded from this comparison (with the exception of the warm winter of 1984) because winter snow prevented armed conflict in the region. When winters are included in the analysis, the chi-square, probability level, and effect sizes remain exactly the same (see footnote 2), though mean values are slightly attenuated.
nology of the Unified Field in Baskinta, the expectation would be that fighting would increase rather than decrease in each village. However, as illustrated in summary form in Figure 3, the cessation of shelling in Baskinta (from a prior mean level of 3.9 per season) is in dramatic contrast to the increase in the other four villages (from a prior mean of 1.9 per village per season to a mean of 4.0 during the experimental period). The contrast between these opposite trends is very highly significant ($\chi^2 = 42.5, p < .00001, r(\phi) = .42$).

According to villagers (confirmed from news sources), the lack of hostilities during the winters (with the exception of heavy fighting throughout most of Lebanon in the unusually warm winter of 1984) was due to snow preventing movement of forces in the mountain areas; the lull in fighting during summer and fall of 1980 was due to a cease-fire observed throughout Lebanon; and a similar lull in the fall of 1982 corresponded to a widespread attenuation of the civil conflict following the Israeli invasion. However, the villagers could offer no explanation as to why Baskinta was not subject to shelling after late spring of 1982 (when the one-percent level was reached). Shells hitting the three rightist villages were said to generally originate in the two leftist villages and vice-versa. In fact the data shows a rough balance between the total shelling levels between the rightist and leftist villages (Figure 2). With the Israeli invasion drawing close to this area in late spring of 1982, Baskinta, Bikfaya, and Rayfoun/Klaiat all received direct warnings from leftist forces in Dhour-Shweir and Bologna that they would be heavily shelled in retaliation for any fire from the Israelis. When Israeli shelling on the leftist villages did increase in the summer (they did not ever occupy any of these five villages), heavy shelling, apparently retaliatory, did take place, affecting both Bikfaya and Rayfoun/Klaiat, but still no shelling occurred in Baskinta.
Fig. 3. Mean Levels of Shelling per Village per Season in Baskinta and Four Control Villages before and after 1% of the Population of Baskinta Learned the Transcendental Meditation Program.

2. Social, Economic, and Ecological Welfare—Of the ten Baskinta farmers questioned, eight assessed their crops as markedly better than in previous years, two as equally good. The reason for good crops was given by four as abundance of water, by another four as favorable winds and weather, and by two as “God loves us this year.” To illustrate, two farmers mentioned a hailstorm which hit the region at a time when trees and crops were very vulnerable to damage; however, in contrast to all surrounding regions, Baskinta was not hit. One also mentioned that damage to the water supply and fighting had prevented farmers in
Dhour-Shweir and Bologna from taking proper care of crops, which were therefore no better than usual for those communities. Otherwise, however, it was agreed that the weather and crops were generally good that year throughout the area covered by the villages, though data suitable for statistical comparison were not available.

The villagers (executive members of the club in Baskinta) independently questioned at the same time consistently reported that there had been a dramatic improvement since the spring of 1982 in the quality of social and economic life of the village, as reflected in a revival of social and sporting activities and gatherings, which had been depressed throughout the war. Examples given included the following: A football team was formed and land was granted and money was raised by the municipality, the high school, and individual villagers to create a football field and a tennis court, on both of which competitions were begun; the national government decided (apparently following a government minister visiting the village to attend the funeral of a friend and noticing the poor condition of the roads) to repair and asphalt roads in and around the village, and the work was undertaken for the first time in 15 years; also the national government decided to install an automatic telephone system in the village and commenced work to implement the decision. (The village had been requesting this installation since the manual exchange had been completely shut down four years previously.) According to the Baskinta villagers, no improvements of this nature were being experienced in any of the control villages, where social conditions were said to be continuing to deteriorate. Again, however, no data suitable for statistical comparison were available.

Discussion
The results of this study strikingly confirm the hypothesis that even for a community surrounded by ongoing armed conflict, one percent of a population practicing the Transcendental Meditation program will give rise to an increase in coherence in collective consciousness resulting in reduction or cessation of the impact of external hostilities (shelling, casualties, and property damage), as well as to improved social, economic, and ecological conditions.
Where data could be quantified for statistical analysis, the contrast before and after one percent began meditating and between the experimental and control villages is extremely high, with effect sizes up to 0.86; and the impression of dramatic improvement is consistently reinforced by the accounts of villagers blind as to the purpose of the experiment.

The longitudinal comparative design of the study allows the elimination of various alternative explanations for these improvements other than the predicted influence from practice of the Maharishi Technology of the Unified Field. Firstly, the cessation of hostilities in Baskinta clearly cannot be predicted by or explained in terms of its own previous history or that of the region. Analysis of the time series over this period revealed no significant autocorrelations or trends toward a decline in hostilities either for Baskinta or for any of the control villages.

Secondly, though not explicable in terms of prior history, it could be that some new external influence affecting the level of fighting in the entire region had arisen at this time. However no such influence causing an abrupt general decline in hostilities in the region is apparent. In fact, the overall levels of shelling in all rightist and leftist villages was higher during the experimental period (from July 1982) than in the pre-experimental baseline period (Figures 2 and 3). In contrast to this general escalation, Baskinta moved from being a primary target of shelling to zero shelling.

Thirdly, the improvement in Baskinta cannot be attributed to any apparent demographic difference special to the village which may have influenced the level of fighting. All the villages are within the same small region in which the strategic balance did not change throughout the period studied. They all have an agricultural economic base and are similar in population size and altitude, and the two primary control villages share the same religious and political affiliation as Baskinta.

The only other plausible explanation would be that there was some unique or critical incident affecting Baskinta alone (apart from reaching the one-percent level practicing the Transcendental Meditation technique) causing the improvements in this village. However upon questioning, the villagers themselves could identify no such incident.

The social and economic changes (revival of social and sporting activities, repair of roads and telephones) followed the cessation of
fighting, and might partly be explained as secondary effects due to lack of continuing hostilities. Though the cessation of violence in the community may have been a facilitating (and possibly necessary) condition for such social changes to take place, it is unlikely to have been a sufficient reason for such large-scale improvements to take place in such a short period of time. In any event, one certainly cannot preclude the possibility that these social changes were also directly facilitated, at least in part, by the enhancement of coherence in the collective consciousness of this village which presumably mediated the reduction in violence itself.

Due to lack of quantitative time series data on social, economic, and ecological factors in this study, the precise nature of the relationship between these social factors, the level of fighting, and the influence of the Maharishi Technology of the Unified Field could not be statistically evaluated. However, in a time series analysis of the influence of this technology on a national scale conducted in Israel over a two-month period, daily data were available for these factors. In this study, it was found that increases in the size of the coherence-creating group above a projected critical threshold closely predicted not only a parallel reduction in the number of war deaths and overall war intensity in Lebanon ($p < .01$), but also improvements in economic (Israel stock market index: $p < .025$) and ecological indicators (e.g., less extreme summer temperatures, $p < .001$; and fewer accidental fires in Jerusalem, $p < .0001$). For each factor the relationship to the Maharishi Technology of the Unified Field was highly significant, although in most cases the factors were not significantly correlated with (i.e., were relatively independent from) each other (Orme-Johnson, Alexander, et al., 1991). Thus, this concurrent improvement across a broad range of separate indices of quality of life was predicted and appeared to be explicable only in terms of increased coherence in collective consciousness through the practice of the Maharishi Technology of the Unified Field.

A particular strength of the present study is that it is comparative and longitudinal, allowing closer observation over a longer period of time. It provides a more intimate perspective on the social changes which may be precipitated or maintained as one percent of a population practices the Transcendental Meditation program. In this it has some elements of a “case study,” yielding information complementary to that
from large-scale statistical analysis, on what appears to be a prototypical conflict situation. It is a single case, but in fact is representative of a whole class of instances, especially in developing nations, where agricultural communities are subject to tremendous external sources of violence from national or international conflict. Historically, in this situation, villages have been rendered essentially helpless in preventing external forces from disrupting community life.

In marked contrast, in this case when the one-percent threshold was surpassed, the village appeared to become highly resistant to external disruption. According to Vedic Science, any society has the capacity to protect itself by ensuring coherence in collective consciousness through the Maharishi Technology of the Unified Field (Maharishi Mahesh Yogi, 1978; Dillbeck and Orme-Johnson, 1990; Orme-Johnson, 1988). The strength, resilience, and integrity of a society is said to depend on the coherence of its own collective consciousness, with destructive elements arising from inside or outside only as a result of its own weakness (incoherence). According to the ancient Yoga Sutras of Maharishi Patanjali from which the TM-Sidhi program is specifically derived: Tat sannidbau vaira tyagab—in the vicinity of the enlightened, enmities are abandoned; and further: Heyam dukham anagatam—avert the danger that has not yet come (through creating an armor—kavach—of coherent consciousness). These expressions have been operationalized and confirmed in the present study: in a community where there were sufficient (one percent) individuals whose consciousness was coherent through this technology (“the enlightened”), enmities (violent conflict) were found to be abandoned. Further, continuing practice by this one percent appeared to avert any resurgence of violence in the village despite high levels of conflict in the surrounding region.

In physiological terms, the EEG phase coherence which has frequently been associated with individual practice of this technology (Dillbeck and Bronson, 1981) and which appears to be a reliable index corresponding to the experience of more coherent (settled and alert) consciousness (Farrow and Hebert, 1982), has also been found to increase between subjects during collective practice of the Maharishi Technology of the Unified Field by large groups even at some distance from the experimental subjects (Orme-Johnson et al., 1982), providing a possible index of coherence of collective consciousness. Just as
individual EEG coherence (particularly frontal) across frequency bands has been associated with deep physiologic rest, alleviation of tension and stress, improved neurophysiological coordination, cognitive and creative skills and moral reasoning (Dillbeck et al., 1981b; Nidich et al., 1983; Orme-Johnson and Haynes, 1981; Orme-Johnson et al., 1981), so inter-subject EEG coherence may correspond with improvement in these qualities on the collective level in a society, as reflected in reduced crime, improved social conditions, and greater resistance to external causes of disorder.

Although the improvement in the present study was dramatic, sustained, and ecologically valid in the sense that it is relevant to a broad class of current conflict situations, it is only a single case. However, in addition to the study involving a coherence-creating group in Israel (Orme-Johnson, Alexander, et al., 1991), two more recent prospective studies on a national and international scale have also indicated a relationship between practice of the Maharishi Technology of the Unified Field and the Lebanese war.

Orme-Johnson, Cavanaugh, et al., (1991) again predicted reduced hostilities in Lebanon, this time as a result of collective practice of the TM-Sidhi program by a group of 7000 (the square root of one percent of the entire world’s population) in Iowa, U.S.A., from 17 December 1983 to 6 January 1984. Level of conflict (conflict rating scale from content analysis of Al Nahar, the major Lebanese newspaper) was found, as predicted, to be significantly lower during the three weeks of the Iowa conference compared with the three weeks before ($p < .01$) or afterwards ($p < .05$). Improvement in global, social, economic, and ecological indices over the same period was also reported: e.g., the World index of stock prices on the world’s major stock exchanges (Capital International S.A., Geneva) rose significantly in this same period ($p < .005$) and progress by heads of state toward reversal of prior negative trends (from content analysis of The New York Times) was significantly higher than in pre- ($p < .05$) or post- ($p < .004$) conference periods, indicating that a positive influence on society from the collective practice of this technology by the square root of one percent of the population may be achieved regardless of the size of the population.

This global experiment conducted from the United States was followed by an extended experiment over a six-month period to assess,
via impact time series analysis, the influence of additional national
and international “creating-coherence assemblies” on the level of fight-
ing and progress toward peace in Lebanon (Alexander, Nader, et al.,
1991). Taken either separately or collectively, there was found to be
significantly greater progress toward peace in Lebanon (according to
daily quantitative content-analysis of Al Nahar) during the three assem-
blies (Iowa, U.S.A., global assembly, 17 December–6 January 1984;
Broumana, Lebanon, national assembly, 1–17 March 1984; Yugoslavia,
international assembly, 13–23 April 1984) than during the nonexperi-
mental days over this same six-month period (p < .0005). There were
also significantly fewer war deaths (reduced by approximately one-half,
p < .001) during these three assemblies in contrast to the remainder of
the period.

To date, large-scale studies involving collective practice of the TM-
Sidhi program have covered relatively short experimental periods
during which the square root of one percent threshold has been con-
sistently surpassed (typically during assemblies of 1-6 weeks duration).
This has allowed analysis of both pre- and post-experimental baseline
periods and, given the smaller number of participants required relative
to the total population, greater control over the location and timing
of the experiment. One value of the present study is that it provides
evidence that once the critical threshold (one percent of the popula-
tion practicing the Transcendental Meditation program) is surpassed,
not only is there a marked phase transition to lower societal violence
and disorder, but this positive influence can be maintained over a long
period through the daily practice of the Maharishi Technology of the
Unified Field.

The replicability of this long-term influence is apparent from studies
of 48 cities (Dillbeck et al., 1981a) and 160 cities (Dillbeck et al., 1991)
in the U.S.A. over periods up to 15 years, showing significant partial
correlation between decreases in crime rate and percentage of Tran-
cendent Meditation participants in each city over the long term, even
after controlling through multiple regression analysis for the effects of
other factors (e.g., police coverage, unemployment and demographic
variables) which may have influenced outcome.

Similar results have been reported for motor vehicle accidents and
suicides (Landrith and Dillbeck, 1991). In each of these studies, the
level of violence, whether through war, crime, or accidents, has been reduced significantly and consistently, and often with even slightly less than one percent meditating: in the present study there was no shelling damage or casualties in the season just prior to one percent being reached.

Hence there seems to be no reason in principle why an equally long-term beneficial influence could not be sustained on a national or even international scale by one percent of the larger population practicing the Transcendental Meditation program or sustained collective practice of the Transcendental Meditation and TM-Sidhi programs by the square root of one percent of society.

In summary, this study of Lebanese villages taken together with the studies reviewed above provides substantial evidence to support the hypothesis that the Maharishi Technology of the Unified Field is a simple and highly effective mechanism for resolving conflict and enhancing the strength and integrity of culture through creating coherence in individual and collective consciousness.

Acknowledgments
We wish to express our deep gratitude to the families of Baskinta, Lebanon, who generously accommodated us while conducting this study. We are also especially indebted to Robert Kfoury for his significant contribution as an instructor in the Transcendental Meditation program in Baskinta, and to Messrs. Jean and Elie Abou-Karam for their invaluable help in collecting the data.
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Reduction of Armed Conflict: Lebanese Villages


This article, “The Maharishi Technology of The Unified Field and Reduction of Armed Conflict: A Comparative, Longitudinal Study of
Lebanese Villages,” by T. M. Nader, M.D., Ph.D., et. al., here revised/updated, and reprinted with permission, was originally published as paper 331 in volume 4 of *Scientific research on the Transcendental Meditation and TM-Sidhi programme: Collected papers*. Vlodrop, The Netherlands: MVU Press, 1991. The research for the article was completed July 1984.
International Peace Project in the Middle East:

The Effects of the

Maharishi Technology of the Unified Field

David W. Orme-Johnson, Ph.D.
Charles N. Alexander, Ph.D.
John L. Davies, Ph.D.
Howard M. Chandler, Ph.D.
Wallace E. Larimore
ABOUT THE LEAD AUTHOR

David W. Orme-Johnson, Ph.D., was Chairman of the Psychology Department, Director of the Doctoral Program in Psychology, and Director of the Institute of World Peace at Maharishi International University. Dr. Orme-Johnson received his Ph.D. from the University of Maryland in 1969 in experimental psychology. Dr. Orme-Johnson has pioneered research on the Transcendental Meditation and TM-Sidhi programs in several areas, including autonomic stability, EEG coherence, intelligence, field independence, medical care utilization, prison rehabilitation, quality of life, and conflict resolution. His papers have appeared in such journals as American Psychologist, Psychosomatic Medicine, International Journal of Neuroscience, Personality and Individual Differences, and Journal of Conflict Resolution. Dr. Orme-Johnson was coeditor of Volumes 1 and 5 of Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers.
ABSTRACT

The collective practice of the Maharishi Technology of the Unified Field (MTUF) by a group of experts, numbering approximately the square root of one percent of the Israeli population, was found to lead to improvements in the quality of life both within the nation and in neighboring Lebanon. This was reflected in decreased war deaths and decreased intensity of fighting in Lebanon; increased economic prosperity as shown by rises in the Tel Aviv stock market; decreased crime; increased positivity in the national mood; and, in Jerusalem where the group was located, decreased automobile accidents, crime, and fires.—Editors

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This prospective social experiment tests a new theory and technology for alleviating violent conflict through reducing societal stress in an underlying field of “collective consciousness.” It was predicted that group practice of the MTUF (the Transcendental Meditation and TM-Sidhi programs) during August and September, 1983, in Jerusalem, would reduce stress in the collective consciousness and behavior of Israel and Lebanon. Box-Jenkins ARIMA impact assessment, cross-correlation, and transfer function analyses were used to study the effects of changes in the size of the group on several variables and composite indices reflecting a) the quality of life in Jerusalem (automobile accidents, fires, and crime), b) the quality of life in Israel (crime, stock market, and national mood derived from news content analysis), and c) the war in Lebanon (war deaths of all factions and war intensity derived
from news content analysis. Increases in the size of the group had a statistically significant effect in the predicted direction on the individual variables and on all composite quality-of-life indices. The effects of holidays, temperature, weekends, and other forms of seasonality were explicitly controlled and could not account for these results. Cross-correlations and transfer functions indicated that the group had a leading relationship to change in the quality-of-life indicators, supporting a causal interpretation.

The imperative of establishing world peace has deeply motivated the search for innovative methods of conflict resolution (e.g. Fogg, 1985). This paper presents the results of an empirical test conducted in the Middle East of a new approach to peace through reduction of stress in the underlying “collective consciousness” of society (Maharishi, 1986a, b; see also Dillbeck et al., 1987; Orme-Johnson and Dillbeck, 1987; Orme-Johnson, Gelderloos, and Dillbeck, 1988).

Stress in Collective Consciousness: The Source of Violent Conflict

Numerous theorists in the field of conflict resolution identify societal stress as a primary source of violent conflict (e.g. Feierabend and Feierabend, 1971a, b; Linsky and Strauss, 1986; McKinney and Tiryakian, 1970; Sorokin, 1957). Political psychologists such as Ralph White (1984, 1986) argue that in an environment where tensions are high, efforts for peaceful resolution of conflict can succeed only in the context of concurrent steps for “drastic tension reduction.” Stress fuels political violence either directly or indirectly through exacerbating misperception (Jervis, Lebow, and Stein, 1985), irrationality in decision making (Janis, 1982; Lebow, 1987), and rigidity in attitudes (Tetlock and McGuire, 1986) both in decision makers and the people they represent.

According to Maharishi Mahesh Yogi (1979, p. 38), the founder of the Transcendental Meditation and TM-Sidhi programs, it is the accumulation of stress in collective consciousness that predisposes society to go to war.

All occurrences of violence, negativity, conflict, crises, or problems in any society are just the expression of growth of stress in collective consciousness. When the level of stress becomes sufficiently great, it bursts
It is proposed that drastic reduction of societal tension can be provided through a program introduced by Maharishi to systematically reduce stress in collective consciousness. In order to understand the possible effects and underlying mechanisms of such a program, we will first briefly consider the nature of collective consciousness, its origins, and how it can be influenced.

In Maharishi’s theory, collective consciousness is the wholeness of consciousness of the group which is more than the sum of the consciousness of all individuals comprising that group. Just as the consciousness of the individual determines his or her thought and behavior, the collective consciousness of society governs the activity of social life. Thus, a level of collective consciousness corresponds to each level of social organization—family, community, city, state, nation, and world (Maharishi, 1976, p. 2). Individual consciousness is the basic unit of all levels of collective consciousness, influencing them all and in turn being influenced by them (Maharishi, 1977, p. 124).

The primary determinant of the quality of behavior in society is the level of “coherence” in collective consciousness (Maharishi, 1978, pp. 123–129). Just as the quality of individual consciousness reflects the level of functional integration among the various subcomponents composing the nervous system, societal coherence is said to be a function of the degree of cooperative or complementary interaction among the individuals and subgroups comprising society. Societal coherence is reflected in the spontaneous integration of the needs of the individual and of various groups with those of society as a whole; societal incoherence results in the frustration of individual and group needs, and hence in collective conflict and stress (Maharishi, 1978, pp. 146–156).

The concept of a pervasive field of consciousness underlying both the individual and society is central to Eastern as well as Western philosophical traditions. Two founders of modern psychology, Gustav Fechner and William James (1898/1977), argued that there exists a continuum of consciousness uniting individual minds that could be directly experienced if the psychophysical threshold of perception were sufficiently lowered through refinement in the functioning of the nervous system. Carl Jung (1959) and Emile Durkheim (1951, pp. 310,
also proposed theories of collective consciousness, although, as McDougall (1920/1973) pointed out, such theories will not have a major influence on mainstream psychology until they are empirically testable.

The Vedic tradition of India, systematically presented by Maharishi (1986b) as Vedic Science, posits a unified field of “pure consciousness” at the basis of the diverse activities of all individual minds. All processes of thought and perception are viewed as fluctuations or qualified expressions of this underlying unqualified, least-excited state of consciousness. Maharishi (1969, p. 470) likens the individual mind transcending its more active levels and experiencing its basis in pure consciousness to a localized wave settling to become the silent, unbounded depth of the ocean. Such experiences are said to create non-local, field-like effects of order and coherence in the environment, just the opposite of the incoherent effects of stress. Thus according to the classic text of Patanjali (1912/1978), “yoga,” or union with pure consciousness, is said to quell animosity in its vicinity. Hence, a set of techniques derived from this tradition to promote experience of pure consciousness—the Maharishi Technology of the Unified Field (MTUF)—has the testable prediction of improving the quality of life in the surrounding population (Maharishi, 1986a,b).

The most fundamental of these procedures is the Transcendental Meditation technique, which allows the mind to settle from its active states of thought and perception of external objects to its least-excited state in which the only “object” of consciousness is pure consciousness itself. Wallace (1970) proposed that the experience of pure or Transcendental Consciousness is characterized by a psychophysiological state of “restful alertness” distinct from the ordinary states of waking, dreaming, and sleep. Subsequent research has confirmed that subjective experience of Transcendental Consciousness is correlated with unique neurophysiological changes, including virtual breath suspension and increased EEG coherence, an indicator of long range spatial ordering of the brain (e.g. Badawi et al., 1984; Dillbeck and Bronson, 1981; Farrow and Hebert, 1982; Levine, 1976; Orme-Johnson and Haynes, 1981; see Alexander, Cranson, et al., 1987, for a review).

This restful alertness experienced during the Transcendental Meditation technique appears to be a distinctly effective means for “dras-
tic tension reduction,” as called for by White (1986) and other experts on conflict resolution. A recent quantitative meta-analysis of 31 studies indicated that the Transcendental Meditation technique produces twice the statistical effect size of resting with eyes closed on reduction of somatic arousal, as indicated by increased basal galvanic skin resistance and decreased respiration and plasma lactate (Dillbeck and Orme-Johnson, 1987). These changes promote marked stress reduction and enhanced functioning outside the practice. An exhaustive meta-analysis of 104 studies (Eppley, Abrams, and Shear, 1989) found that the effect size of the Transcendental Meditation technique on trait anxiety reduction was again approximately twice as large as that associated with other forms of relaxation or meditation. Another meta-analysis yielded similar results on additional measures of psychological distress (Ferguson, 1981). Further, long-term reductions in physical illness rates and enhanced psychophysiological capacity to cope with environmental stressors have been observed (Alexander, Langer, et al., 1989; Brooks and Scarano, 1985; Orme-Johnson, 1973, 1987).

The TM-Sidhi techniques, also employed in this study, consist of a set of advanced procedures to stabilize and integrate the experience of pure consciousness with specific psychophysiological channels of perception, cognition, and action by exercising the individual’s latent capacity to consciously initiate thought and action from the underlying unified field of consciousness (Maharishi, 1986b, p. 29). Research indicates that the TM-Sidhi program produces significant additional gains in neurophysiological integration and cognitive-behavioral performance to those found during the Transcendental Meditation technique alone (Orme-Johnson and Gelderloos, 1988; Orme-Johnson and Haynes, 1981; Wallace, Mills, et al., 1983; Wallace, Silver, et al., 1983; see Wallace, 1986, for a review).

Social scientists have identified a major source of collective stress and violence in “systemic frustration” of individual and collective progress (Gurr, 1971, 1972; Lebow, 1985); or in blocks to the satisfaction of deep “ontological needs” for identity, security, and effective participation, which lie at the basis of both individual and collective development (Azar and Burton, 1986). Indeed, Johann Galtung (1980, 1985) normatively defines peace as the absence of any avoidable impediment to realization of full mental and physical potential. Maharishi (1986a,b)
also identifies the origin of stress in blocks to individual development, and because the individual is seen as the unit of collective consciousness, restricted individual development can be identified as a fundamental source of collective stress as well. Therefore a requirement of peace may be to “unfreeze” the development of the individual.

Maharishi (1969, 1986b) has delineated a sequence of “postrepresentational” higher states of consciousness, based in growth of pure consciousness, that appear to extend far beyond the representational endpoint of “formal operations” described by Piaget (1970) (see Alexander, Davies, et al., 1990). This new framework is consistent with and extends Holt’s (1986) view that peace requires the development of postformal operational “systems thinking”—a more comprehensive mode of thinking commensurate with the enormous complexities of the issues raised by nuclear technologies (see also Nelson, 1984; Stagner, 1977). A series of longitudinal studies indicates that marked reduction in stress and enhanced neurophysiological integration through the Transcendental Meditation and TM-Sidhi programs appear to “unfreeze” development and reduce hostility, even in highly stressed adult populations otherwise recalcitrant to improvement, such as maximum security prisoners (Abrams and Siegel, 1978; Alexander and Marks, 1982; Bleick and Abrams, 1987; Dillbeck and Abrams, 1987; see review by Alexander, Boyer, and Alexander, 1987).

Given the proposed reciprocal relationship between individual and collective consciousness (Maharishi, 1976, p. 2), it follows that reduction of stress and stimulation of development in a sufficient number of individuals in the population would create a general condition of increased coherence throughout collective consciousness, thereby decreasing violence and improving quality of life in society as a whole.

**Empirical Research on Collective Consciousness**

Given the extent to which the Transcendental Meditation program reduces stress and fosters development in the individual, an important theoretical and empirical question is how many individuals need to participate in this program in order to have an influence of increased coherence in the population as a whole. Based on the general observation in nature that the coherent elements in a system have a more
powerful influence than the incoherent components, Maharishi similarly proposed that raising the coherence in even a small proportion of the population could be expected to stimulate increased coherence in society as a whole.

As early as 1960, Maharishi estimated that as few as 1% of a population practicing the Transcendental Meditation technique would be sufficient to produce a measurable influence on improved quality of life throughout society. Over 30 studies on the effects of the Transcendental Meditation and TM-Sidhi programs on quality of life on the city, state, national, and international levels have been reviewed by Orme-Johnson and Dillbeck (1987). Studies conducted on the city level have consistently shown that 1% of the population practicing the Transcendental Meditation program is sufficient to decrease societal incoherence as operationalized by reductions in such indicators as crime, accident, and suicide rates. (This phenomenon was named the Maharishi Effect by the first investigators to study it: Borland and Landrith, 1976). For example, in 1973, Dillbeck, Landrith, and Orme-Johnson (1981) found decreased crime rate in all 24 U.S. cities (with populations over 10,000) that reached 1% participation in the Transcendental Meditation technique in 1972, compared to 24 control cities matched for population size, geographic region, college population, and prior crime rate. In addition, the 1% cities showed a reduction in crime trend during the five-year period 1972–1977, compared to their own prior trend from 1967–1972, and in contrast to control cities. This study also statistically controlled for a number of other variables known to affect crime, such as median years of education, per capita income, and percentage of population aged 15–29. These results were replicated in a study on a stratified random sample of 160 U.S. cities (25% of the total U.S. urban population) over a 15-year period, using cross-lagged panel correlation methods to address the issue of causality; increased participation in the Transcendental Meditation technique in these cities was consistently followed by decreased crime rates in the following years (Dillbeck, 1981).

With the introduction of the more advanced TM-Sidhi program in 1976, Maharishi anticipated an even more marked influence of coherence in collective consciousness. He predicted that when the TM-Sidhi program was practiced in a group by as few as the square root of one
percent ($\sqrt{1\%}$) of a population, there would be a measurable effect on standard indices of quality of life. This prediction is based on a field theoretic model describing the coherent superposition of amplitudes, in which the intensity of the effect generated is proportional to the square of the number of participants (Hagelin, 1987). For example, in coherent systems such as lasers, the coherent elements in the system have an influence that is proportional to their number squared, whereas incoherent elements generally have an influence that is proportional only to their number. Thus the predicted population size influenced by a given number of Transcendental Meditation and TM-Sidhi program participants would be tentatively modelled by the polynomial:

\[
(1) \quad ME = aN_1 + bN_2^2
\]

where ME (Maharishi Effect) is defined as the size of the population that is positively influenced by the number of independent meditators distributed throughout the population ($N_1$), and the number of individuals practicing the more advanced TM-Sidhi program collectively in one place ($N_2$). The quadratic term reflects the proposed coherent influence resulting from constructive interference of the group of $N_2$ subjects. Coefficients $a$ and $b$ are empirically defined constants, with data suggesting that both have an estimated value of approximately 102 (for values of $N$ over 100). The absence of a constant term follows from the assumption that the effect vanishes (and does not diverge) as $N$ tends to zero. (Cubic and higher-order terms are neglected because they have no clear theoretical motivation.) The apparent necessity for having a single group meet at one time and place to produce this $\sqrt{1\%}$ effect may again be understood with reference to coherent physical systems such as lasers. In these systems, close proximity of elements is required to ensure that they have sufficient opportunity to stimulate coherent behavior in other members of the group.

Because relatively small numbers should be required to produce such a social-coherence effect, this prediction can be tested by direct experimental intervention of small groups on a state, national, or even international level. For example, in five experiments by Dillbeck et al. (1987), time series impact assessment analysis (Box and Jenkins, 1976; McCleary and Hay, 1980) indicated significantly decreased crime in Puerto Rico, in the Territory of Delhi, India, and in the Philippines.
Moreover, improvements were found in composite quality-of-life indices for Rhode Island and the Philippines during experimental periods compared to control periods during which group practice did not take place. The quality-of-life indices included crime rate, motor vehicle fatality rate, unemployment rate, and infant mortality. These experiments controlled for a number of alternative explanations, and the use of time series methodology allowed for the reliable estimation of experimental effects independent of cyclical trends in time-dependent data. Similar findings were obtained on a more comprehensive quality-of-life index for the U.S. as a whole over a much longer period (e.g. Orme-Johnson, Gelderloos, and Dillbeck, 1988, and on an international scale during brief experimental impact periods (e.g. Orme-Johnson, Cavanaugh, et al., 1989).

When immediate changes on a national or even international level can be precipitated by a very small group having virtually no direct interaction with the larger population, clearly such influences cannot be explained through direct behavioral contact. To understand such apparent action at a distance, further examination of possibly related phenomena in physical systems may be instructive.

**Collective Consciousness and Quantum Fields**

In the history of physics, the need to explain action-at-a-distance phenomena, such as gravity and electromagnetism, gave rise to the concept of fields that mediate these influences. Indeed, action at a distance through underlying abstract physical fields, as in the transmission of radio or television signals through the electromagnetic (EM) field, has become a completely familiar concept within the lifetime of a single generation. The question naturally arises, could known physical fields be involved in mediating such collective consciousness effects?

There is, in fact, growing evidence for direct effects of the EM field on biological systems—including circadian rhythms (Wever, 1977), EEG (Adey and Bawin, 1977), calcium ion flow in cerebral tissue (Bawin and Adey, 1976), simple reaction time (Hamer, 1968), response rate (Gavales-Medici and Magdeleno, 1975), fish orientation and navigation (Adey and Bawin, 1977), and bird navigation and bee communication (Keeton, 1969). It seems unlikely, however, that the human brain could emit EM radiation capable of being detected by other brains at
a distance because the power of the EEG is orders of magnitude too small, even given the recent discovery that the nervous system is highly sensitive to EM radiation. (Tourenne, 1985, has argued, however, for the possibility of modulation of EM radiation in the microwave region by soliton oscillations of cortical pyramidal neurons.)

It also appears that the other three fundamental force fields, the strong and weak interactions and gravitation, are of inappropriate scales to mediate direct inter-human effects. The strong and weak interactions operate at a distance scale too small to explain effects occurring at macroscopic distances, as were involved in the research on collective consciousness. Likewise, any gravitational influence produced by a group of individuals would be negligibly small. A potential explanation for the apparent propagation of such coherent effects may lie, however, at the ultimate scale of superunification, the Planck scale of $10^{-33}$ cm and $10^{-44}$ sec, where the fundamental force and matter fields are said to become fully unified (Green, 1985, 1986); nonlocal effects could be mediated through the agency of the unified quantum field due to the intrinsically nonlocal structure of space-time at this scale (Hagelin, 1987, p. 68).

If, as is proposed in current quantum field theory, the unified field is the source of all phenomena, it should be the source of subjective as well as objective existence. Indeed, since the unified field is the only dynamical degree of freedom present at the super-unified scale, at that level the observer and observed would both be found within the same self-interacting dynamics of the unified field; hence it would be formally as much a field of subjectivity as of objectivity (Hagelin, 1987). Several physicists have noted that at fundamental scales, much of the objective character of macroscopic, classical physics begins to disappear and characteristically subjective qualities begin to emerge (Davies, 1984, pp. 104–112; Llewellyn-Smith, 1981; Pagels, 1982). Striking parallels between the description of the unified field by the objective approach of modern science (Schwartzschild, 1985; Waldrop, 1985) and pure consciousness by the subjective approach of the ancient Vedic tradition, suggest that they may reflect different perspectives on the same fundamental reality (Hagelin, 1987).

The present theory proposes that through the MTUF, the localized conscious awareness of the individual becomes experientially connected
back to pure consciousness, the unified source of order and intelligence at its base, thus increasing coherence, reducing stress, and accelerating development in the larger society. If the field of collective consciousness operates like known physical fields, then this influence of coherence would fall off at a distance from the individuals who initially generated it. If this effect is mediated by the unified field, however, it will not necessarily fall off as a precise function of the inverse square of the distance from the source, as is the case with other known fields (Hagelin, 1987; Hawking, 1984).

The purpose of this prospective experiment was to provide a critical test of this innovative approach to conflict resolution in a major trouble-spot area: the civil war in Lebanon. The Arab-Israeli conflict affects all aspects of life in Israel (Shamir and Sullivan, 1985) and, at the time of this study (the summer of 1983), Israel was heavily involved in the Lebanon crisis, with troops stationed deep inside Lebanon in the Shouf Mountains. The central prediction of the experiment was that establishing in Jerusalem a sufficiently large group of Transcendental Meditation and TM-Sidhi practitioners (approximately $\sqrt{1\%}$ of each population to be affected) would improve the quality of life in Jerusalem and Israel, and generate an influence of coherence extending into Lebanon, resulting in a calming of the conflict.

Methods
The experimental hypotheses and dependent variable measures (based on publicly available data sources) were lodged in advance of the study with independent review boards of scientists in both North America and Israel. The dates of the experiment—August 1 through September 30, 1983—were arbitrarily selected with respect to the social variables to be studied. After the first and second months of the experiment (prior to final data analysis), the review boards were also informed of the daily number of participants in the group practice of the Transcendental Meditation and TM-Sidhi programs (the independent variable).

Independent Variable
In order to assemble the group, a research project was announced to all practitioners of the MTUF in Israel, inviting them to participate for whatever time period they could allot. The program was collectively
practiced twice daily, once in the morning and once in the late afternoon, in a hotel rented for this purpose in East Jerusalem. Approximately half of the participants attended additional meditation sessions in the late morning and early afternoon. During the remainder of the day, participants had the option of viewing videotaped lectures, maintaining their ordinary or modified work schedules in Jerusalem and surrounding areas, or helping with the maintenance of the course itself (e.g. cooking or administration). In exchange for their participation, subjects’ board and lodgings were subsidized for the duration of their involvement in the study.

By subsidizing participation, the researchers were able to gain some control over the independent variable. The level of participation was experimentally elevated from August 15 to August 27 by also offering an advanced MTUF course as an additional incentive to participate during this time. This 13-day high period could be considered an experiment within the experiment. In general, however, level of participation also depended on such factors as when participants could schedule their vacations, and the necessity for some students to return to school in September; for these reasons the group size was not completely under experimenter control and was not a truly randomized variable.

The independent variable used in the time series analyses was the daily number of subjects participating in either the morning or evening group practices of the MTUF, whichever was higher for a particular day. The number ranged from 65 to 241. The numbers of participants in the morning and evening programs tended to be quite similar and were highly correlated (r= .90). Outside of the scientists who were initially informed, no public or media announcements were made in advance of the study. There was minimal interaction between course participants and the larger population during the experiment, and subjects were asked not to discuss the precise nature of the study with non-participants. These procedures were followed in order to control for any potential societal expectation effects.

Israeli meditators had already been practicing the TM-Sidhi program in Israel over the previous seven years. The number practicing together at any one time, however, remained well below the hypothesized minimum threshold of \( \sqrt{1\%} \) of the population, which for Israel’s four million people is a group of about 200. The hypothesis
that the group of MTUF participants would influence the quality of life in the larger society when the group size reached $\sqrt{1\%}$ of the population was tested for three different population sizes (estimated figures for the period studied): 1) Jerusalem—429,000, including the Arab population; 2) Israel—5,304,000 total, consisting of 4,024,000 plus 1,280,000 for the West Bank and Gaza Strip; and 3) Israel and Lebanon combined—7,905,000 (Lane, 1985). For Jerusalem, Israel, and Israel and Lebanon combined, $\sqrt{1\%}$ is 65, 230, and 281, respectively. However, there were already more than 38,000 participants in the Transcendental Meditation program distributed throughout Israel and 2,000 in Lebanon at the time. This amounts to 0.51% of their combined populations, and from equation (1) it can be seen that the linear effect of these meditators would create coherence for 51% of the population. Taking this linear effect into account, and because the quadratic effect of those in the MTUF group is modeled as additive in equation (1), it is estimated that the MTUF group had to create coherence for only the remaining 49% of the population, which is 3,873,000 for Israel and Lebanon combined, and $\sqrt{1\%}$ of which is a group of 197. A similar consideration for Israel’s population (including the West Bank and Gaza Strip) reduced the required MTUF group size to affect Israel alone to approximately 122.

Dependent Variables
Upon arrival in Israel, the authors met with Israeli scientists to further reduce the list of dependent variables that had been proposed earlier. The following list represents all of the daily time series data publicly available at the end of the research period, when the authors departed from Israel.

Individual Variables

Jerusalem

1. Crime: total crimes per day, obtained from the Social Research Division of the Israel Police Department.

2. Auto Accidents: total number per day involving personal injury, obtained from the Municipal Government of Jerusalem.
3. Fires: total number of events to which the Fire Extinguishing Service responded per day, obtained from the Jerusalem District Fire Extinguishing Service.

**Israel**

4. Crime: total crimes per day for Israel, excluding Jerusalem, obtained from the Israel Police Department.

5. Stock Market: Tel Aviv Stock Exchange daily index of freely traded stocks, excluding stocks of commercial banks (whose prices were artificially supported by the banks).

6. National Mood: affective tone of the most prominent story (picture story of the front page) in the *Jerusalem Post* each day. The scale ranges from 1 (very negative, unpleasant) to 7 (very positive, uplifting). Scoring was blind and used the average score of two independent raters (Israeli college students).

**Lebanon**

7. War Deaths: total number per day of military and civilian deaths (all factions) due to the Lebanese conflict, as reported in the major Israeli newspapers (*Jerusalem Post* and *Haaretz*) as well as by the *International Herald Tribune* and BBC World Service reports. The natural logarithm of reported war deaths was used to make the series stationary with regard to variance.

8. War Intensity Scale: a content analysis scaling of the intensity of the hostilities in Lebanon each day as reported in news stories in the *Jerusalem Post*. This five-point scale was based on the content scale categories developed by Azar (1980): 0 (no reported fighting) to 4 (full-scale land battles, Transcendental Consciousness). The rating was blind with respect to the dates of events, and the analysis used the mean of three independent raters.

The dates of actual occurrence of events for both the war intensity scale and war deaths were used in the time series analyses. The date of occurrence was usually the day before the event appeared in the newspaper, and in some cases a week or more passed before information on
the conflict became available in the news. Reported war deaths and the war intensity scale were correlated with each other, $r = .71$. Further details on the variables and data sources are available from the authors.

**Composite Indices**

In addition to analyzing each variable individually, composite indices were formed for Jerusalem (JERCOM), Israel (ISRCOM), and Lebanon (LEBCOM) as the arithmetic mean of the standardized (z-transformed) variables representing each locale, as described above. The construction of these separate indices was necessary in order to study possible distance effects, the hypothesis being that the effect would cover increasingly wide distances as a function of group size. The individual variables composing the standardized scales were inverted when necessary, so that a positive deflection in an index always indicated a positive change in quality of life, i.e., decreased auto accidents, fires, crimes, war deaths, and war intensity, and improved national mood and stock market. All of the composite indices were standardized daily series, 61 days in length with a mean of zero and a standard deviation of 1. On days for which there were missing data, the composite indices reflected the mean of all available data.

Cross-correlation analysis revealed that JERCOM and ISRCOM were not independent due to a significant correlation at lag 0 ($r = .50$, $p < .001$) between crime in Jerusalem and crime in the rest of Israel when the influence of weekends and other forms of non-stationarity were removed by prewhitening.

Therefore, two additional uncorrelated composite indices were studied: JERCOM2, consisting of fires and auto accidents for Jerusalem; and ISRCOM2, consisting of crime for all Israel (including Jerusalem), stock market, and national mood. In addition to the above composite indices representing each separate locale, a global Overall Composite Index was computed as the daily arithmetic mean of six standardized (z-transformed) variables: war intensity scale, automobile accidents, fires, stock market, total crime (all Israel, including Jerusalem), and national mood. Because the war intensity scale and reported war deaths were highly correlated, only the more stationary of the two (war intensity) was used in the Overall Composite Index. As before, the sign
given to each variable was such that positive numbers represented positive change in society.

A Variability Index was also computed as a measure of the variation each day among the six dependent variables in the Overall Composite Index. It was constructed by calculating the standard deviation among the six z-transformed variables for each day, thus creating a time series of between-variable variability. The scale was then standardized (z-transformed) so that an increase on the index reflected an increase in variability among measures. The Overall Composite Index and Variability Index taken together were expected to provide a broad-based operational definition of “coherence” in society. As coherence increases in the collective consciousness underlying society, the scores of the separate indicators should uniformly converge in a positive direction—i.e., the composite score should increase and variability should decrease. In contrast, when coherence is low, the separate measures should display greater variability and generally be less positive, reacting more independently to the complex forces that ordinarily influence their separate behaviors.

**Time Series Analyses**
All individual variables and composite indices were analyzed by two Box-Jenkins ARIMA time series methodologies: a) impact assessment analysis to study the shape of the function and to explore the possibility of distance effects, and b) transfer functions to address the question of causality (Box and Jenkins, 1976; McCleary and Hay, 1980).

**Impact Assessment Analysis**
ARIMA models provide estimates of the linear relationships between variables. However, the present test of collective consciousness assumes a nonlinear effect because the linear term in equation (1) was held constant over the experiment, whereas the quadratic component (MTUFgroup size) varied. In order to estimate the slope of the function (whether linear or nonlinear) between the MTUF group size and the dependent series, impact assessment was used with multiple independent binary variables representing the different quartiles in the range of MTUF group size. This approach allowed visual inspection of the general shape of the function without making an a priori assumption that it was quadratic.
The complete ARIMA compound intervention model consisted of the following: the noise component \((N_t)\); a constant term \((b_0)\) representing the 15 days when the TM-Sidhi group size was smallest (65 to 124); and three binary independent variables representing ranges in MTUF group size of 125–157 \((I_{0t})\), 158–179 \((I_{1t})\), and 180–241 \((I_{2t})\), for 15, 15, and 16 days, respectively. The compound intervention model was thus:

\[
Y_t = \omega_0 I_{0t} + \omega_1 I_{1t} + \omega_2 I_{2t} + N_t + b_0,
\]

where \(Y_t\) represents the level of the dependent variable at time \(t\), and \(\omega_0\), \(\omega_1\) and \(\omega_2\) are the parameter estimates for the impact of the respective independent variables, which are zero when the associated binary independent variables \((I_{0t}, I_{1t}, I_{2t})\) are “0” and are their full values when the associated independent variables are “1.” The variables \(I_0, I_1,\) and \(I_2\) were modeled as zero-order transfer functions, that is, as abrupt, permanent changes, in effect whenever there was a pulse of “1” (McCleary and Hay, 1980) because there was no theoretical motivation for assuming delayed onset or a temporary effect.

Such ARIMA models were fitted for all individual variables and composite indices except for stock market and national mood; time series analysis was not appropriate for these two because of missing data points for weekends and several holidays when the stock exchange was closed and the Jerusalem Post was not published.

The potential influence of holidays on the composite indices was controlled by including an additional binary independent variable for the Jewish High Holidays (September 8, 1983, for Rosh Hashanah; September 17, 1983, for Yom Kippur). The effect of maximum daily temperature on each composite index was also studied using transfer function methodology. The standard ARIMA iterative procedure for identification, estimation, and diagnosis of the model for each variable was followed (Box and Jenkins, 1976; McCleary and Hay, 1980).

**Cross-Correlations and Transfer Functions**

In order to test the hypothesis that variations in the MTUF group size caused change in the dependent variables, cross-correlations and transfer functions were analyzed using MTUF group size as the input series or causer series, and the six individual variables and four composite
variables (JERCOM, ISRCOM, LEBCOM, and Overall Composite Index) as output series. The model-building strategy and diagnostic procedures of McCleary and Hay (1980, p. 251) were followed. Identification of possible transfer function components involves filtering the dependent variable on the noise model for the MTUF as the input series and studying the cross-correlation function (CCF) between the residuals of the filtering and the pre-whitened MTUF as the input series. The hypothesis that the MTUF caused change in a dependent variable would be supported if change in the MTUF group size was followed within a reasonable lag by significant cross-correlation change in the dependent variable in the predicted direction, and if the dependent variable did not lead change in the MTUF. All analyses were done using the BMDP 2T program on a vax 11/780 computer. All the hypotheses are directional, and the $p$-values are for one-tailed tests.

Figure 1: Variations in the Size of the Maharishi Technology of the Unified Field Group. This figure shows the variations in the size of the MTUF group over the course of the experiment from August 1 to September 30, 1983.

Results and Discussion

Figure 1 displays variations in Maharishi Technology of the Unified Field (MTUF) group size over the course of the experiment, and shows the four quartiles of MTUF group size as event traces on the lower part of the figure. It can be seen that, in response to the call for the proj-
The level of participation rose gradually over the first two weeks, remained high for the next 13 days during which a special course was offered to attract more participants, and then rose on weekends and fell during the week for the remainder of the project. The four quartiles of group size were irregularly distributed over the experiment, and their autocorrelation functions indicated that each had a virtually random temporal distribution, offering some protection to the internal validity of the experiment (Campbell and Stanley, 1963).

Figure 2 shows an inverse correlation between the MTUF group size and the Lebanon war intensity scale ($r = - .48$), and Figure 2 shows a positive correlation ($r = .57$) between the MTUF and the Overall Composite Index. Plots of the other variables (obtainable from the authors) also indicate change in the predicted direction, i.e. negative variables (auto accidents, fires, crime in Jerusalem, crime in Israel, and war deaths) show an inverse correlation with the MTUF size, while the positive variables (stock market, national mood, and composite indices) show a positive correlation.

**Impact Assessment And Transfer Functions**

**Individual Variables**

For each variable presented below, the impact assessment results are presented first, followed by the cross-correlations and transfer functions. The name of each dependent variable is followed by its noise model (MA for moving average and AR for auto-regressive), and the t statistics associated with each model component. For each variable, all noise model estimates were statistically significant, the noise components lay within the bounds of stationarity-invertibility, and the transfer function parameters lay within the bounds of system stability. The MTUF noise model used in the identification procedure of transfer function components was seven-day seasonal differencing, with first and seventh order autoregressive components (AR1 and 7). The Ljung-Box Q statistic (hereafter referred to as the LBQ; Ljung and Box, 1976) indicated that the residuals of the model did not have an above chance autocorrelation structure at 36 lags, LBQ(36) = 26; thus the model was statistically adequate.
Below the graph are lines with event marks indicating the temporal distributions of the four different quartile ranges of group size.

- - - - - MTU Group Size

| Lebanon War Intensity Scale |

![Graph showing MTU Group Size and Lebanon War Intensity Scale over time](image)

Time (Days)

Figure 2: Standardized Daily Time Series of the MTUF and the Lebanon War Intensity Scale. These graphs show a tendency toward an inverse correlation between the MTUF group size and the war intensity in Lebanon ($r = -.48$).

**War Intensity Scale.** Impact assessment noise model: AR1, $t(55) = 5.52$. Impact assessment analysis estimated that the level of fighting during the first (lowest) quartile of group size was 2.96 scale points (i.e. prolonged artillery exchanges, medium-scale troop engagements, Transcendental Consciousness.) During the fourth (largest) quartile of MTUF group size, the war intensity in Lebanon was 1.76 on the scale (light fighting) indicating an estimated 45% decrease in war intensity; $t(55) = 2.71$, $p = .0045$. The impact assessment model passed all of the diagnostics for statistical adequacy; $LBQ(36) = 29$. There were no significant spikes in the autocorrelation function (ACF) or partial autocorrelation function (PACF), and a plot of the residuals appeared stationary with regard to level and variance.
Figure 3: Standardized Daily Time Series of the Overall Composite Index Plotted against the MTUF. An Overall Composite Index composed of six variables was constructed so that a positive deflection on the graph represents global improvement in quality of life. It can be seen that the index showed a positive correlation with the MTUF ($r = .57$).

Transfer function noise model: MA4, $t(45) = -2.95$. As anticipated, there was no evidence in the cross-correlation function (CCF) that the war intensity scale led the MTUF series. There was a simultaneous correlation at lag 0 between the MTUF and war intensity, and the MTUF led the war intensity scale at lag 10. These were both significant as transfer function components, which indicated reductions in war intensity of 34%, $p = .0001$, at lag 0, and 15.5%, $p = .015$, at lag 10 (see Table 1). Diagnostics indicated that model residuals were white noise; LBQ(36) = 27 with no significant spikes in the autocorrelation function (ACF) or partial autocorrelation function (PACF), and a plot of the residuals appeared stationary with regard to level and variance. Transfer function diagnosis revealed that the model residuals were uncorrelated with the prewhitened MTUF causal variable (no significant $r’s$ in the CCF to 12 lags), indicating a statistically adequate model. The significances of the transfer function components were robust with respect to different specifications of the war intensity scale noise model and differ-
ent specifications of the MTUF noise model used in the identification procedure of the transfer function components. The 49.5% reduction estimated by the transfer function method (lags 0 and 10 combined) is quite similar to the 45% reduction in war intensity estimated by the impact assessment method.

For the rest of the dependent variables reported, all the impact assessment and transfer function models also passed all these diagnostic tests, but for brevity, only the LBQ is reported.

**War deaths.** Impact assessment noise model: AR1, \( t(55) = 6.06 \). Impact assessment analysis showed that deaths in Lebanon decreased 1.38 log units, corresponding to a 75.9% drop from a mean of 40.1 deaths per day in the first quartile, to 9.7 per day in the fourth quartile; \( t(55) = -2.12, p = .019, \text{LBQ}(36) = 39 \) (see McCleary and Hay, 1980, p. 174, on conversion of log intervention parameters to percent change).

Transfer function noise model: AR1, \( t(52) = 6.46 \). The CCF showed significant spikes at lags 0 and 5, with the MTUF leading the war deaths, and there was no indication that the war death series led the MTUF series. Transfer function analysis estimated that at lag 0, war deaths decreased by 56.6%, \( p = .0004 \), from the mean of 24.5 deaths per day and decreased an additional 26.6%, \( p = .08 \) (trend), at lag 5 (Table 1), \( \text{LBQ}(36) = 42 \). This combined 83.2% decrease estimated for the two transfer function components is of similar magnitude to the estimated 75.9% decrease estimated by impact assessment analysis.

**Crime in Israel.** Impact assessment noise model: AR5, \( t(48) = 10.84 \); AR7, \( t(48) = 16.53 \). Crime rate in Israel decreased an estimated 12.1%, from a baseline of 607.8 per day during the first quartile, to 534.5 per day during the third quartile; \( t(48) = -3.10, p = .0016, \text{LBQ}(36) = 43 \). Change was in the predicted direction but did not reach significance in the fourth quartile.

Transfer function noise model: AR5, \( t(44) = 7.02 \); AR7, \( t(44) = 9.13 \). The CCF suggests that the MTUF led reduction of crime in Israel the next day and six days later. However, transfer function analysis indicated that only the lag 6 component was significant; thus the lag 1 component was dropped from the model (Table 1). Crime was estimated to decrease 4.1% (22 fewer crimes per day), \( p = .022 \). The model was adequate (\( \text{LBQ}(36) = 40 \)) and robust, and there was no evidence
of crime in Israel leading the MTUF. A zero-order spike appeared in transfer function diagnosis, but it was not significant when entered as a component in the transfer function model.

Crime in Jerusalem. Impact assessment noise model: AR1, $t(48) = 1.80$, and AR7, $t(48) = 2.58$. Crime in Jerusalem declined 8.8%, from a mean of 46.69 crimes per day during the first quartile to 42.60 during the fourth quartile, but this decrease was not statistically significant.

Transfer function noise model: AR7, $t(45) = 3.30$. Like crime in Israel, the CCF indicated that the MTUF led decrease of crime in Jerusalem at lag 1 and lag 6 (Table 1), but the tentative transfer function indicated that the lag 1 component was only marginally significant, $t(43) = -1.21$, $p = .11$ and it was dropped from the model. The final transfer function indicated a decrease in crime by 7.4% at lag 6 from the mean level of 46.4 crimes, $p = .023$. The model was adequate (LBQ(36) = 26) and robust, and there was no evidence of crime in Jerusalem leading the MTUF.

Table 1. Cross-Corelations and Transfer Functions of the MTUF (Input) and individual Variable(Output)

<table>
<thead>
<tr>
<th>Variable</th>
<th>rCCFa</th>
<th>LAG</th>
<th>Transfer Estimateb</th>
<th>Functions: $t(df)$</th>
<th>$p^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>War</td>
<td>-.24</td>
<td>0</td>
<td>-34.0%</td>
<td>-4.91(45)</td>
<td>.0001</td>
</tr>
<tr>
<td>intensity</td>
<td>-.26</td>
<td>10</td>
<td>-15.5%</td>
<td>-2.28(45)</td>
<td>.015</td>
</tr>
<tr>
<td>War death</td>
<td>-.42</td>
<td>0</td>
<td>-56.6%</td>
<td>-3.58(52)</td>
<td>.0004</td>
</tr>
<tr>
<td>(log)</td>
<td>-.35</td>
<td>5</td>
<td>-26.6%</td>
<td>-1.39(52)</td>
<td>.08</td>
</tr>
<tr>
<td>Crime-</td>
<td>-.33</td>
<td>1</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
<tr>
<td>Israel</td>
<td>-.48</td>
<td>6</td>
<td>-4.1%</td>
<td>-2.07(44)</td>
<td>.022</td>
</tr>
<tr>
<td>Crime-</td>
<td>-.32</td>
<td>1</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>-.50</td>
<td>6</td>
<td>-7.4%</td>
<td>-2.06(45)</td>
<td>.023</td>
</tr>
<tr>
<td>Fires</td>
<td>-.35</td>
<td>4</td>
<td></td>
<td></td>
<td>n.s.</td>
</tr>
<tr>
<td>Auto accidents</td>
<td>-.36</td>
<td>6</td>
<td>-7.8%</td>
<td>-1.09(52)</td>
<td>.14</td>
</tr>
</tbody>
</table>

a. Standard errors - .15 to .16
b. Units are % change from the mean of series
c. One-tailed
**Fires.** Impact assessment noise model: AR1, \( t(55) = 2.52 \). Fires decreased an estimated 30.4\%, from 8.09 per day during the first quartile to 5.63 per day during the fourth quartile; \( t(55) = 1.70, p = .045 \), \( LBQ(36) = 24 \).

Transfer function noise model: AR1, \( t(57) = 2.55 \). The CCF shows a significant spike at lag 4 with the MTUF leading reduction in fires, but it was not significant as a transfer function component (Table 1). There was also a significant spike in the opposite direction with fires leading the MTUF by one lag, but this did not prove to be significant as a transfer function component, indicating that fires did not significantly lead the MTUF. The MTUF did make a marginally significant contribution as a transfer function component to fires at lag 0, associated with a 10.8\% reduction from the mean of 6.16 fires per day, \( t(57) = -1.32, p = .1 \) (trend).

**Auto accidents.** Impact assessment noise model: MA 8, \( t(56) = 2.46 \). The auto accidents series was virtually white noise without prewhitening. There were no significant spikes in the ACF, \( LBQ(36) = 27 \), or PACF, although there was one near significant spike at lag 8, which was significant when estimated, as indicated in the noise model above. Auto accidents decreased 34.4\%, from 3.88 per day during the first quartile to 2.54 per day in the third quartile; \( t(56) = -2.03, p = .024 \), \( LBQ(36) = 22 \). Change was in the predicted direction but did not reach significance during the fourth quartile.

Transfer function noise model: MA 8, \( t(55) = 2.28 \). The cross-correlation of the unprewhitened auto accident series with the residuals of the MTUF model provided a single significant spike at lag 6 (table 1). Prewhitening the auto accidents series with an MA 8 also gave a similar cross-correlation at lag 6 with the prewhitened MTUF, \( r = - .312 \), s.e. = .16, suggesting that increases in the MTUF resulted in decreased auto accidents six days later. The transfer function showed that the decrease in auto accidents associated with the MTUF at lag 6 was 7.8\% from the mean of 3.0 auto accidents per day, \( t(52) = - 1.09, p = .14 \) (trend).

Thus, for most individual variables, the two methods of analysis, transfer functions and impact assessment, yielded consistent results. In support of the experimental hypotheses, all outcomes proved sig-
nificant on at least one of the two methods of assessment. The transfer functions indicate that change in the MTUF was followed by change in the predicted direction in the individual variables, suggesting a causal relationship. This causal hypothesis is further supported by analysis of the composite indices.

The relatively stronger performance of the war-related variables, compared to the other separate variables (crimes, fires, and auto accidents) which are more direct reflections of individual behavior, is consistent with Maharishi’s theoretical perspective that the leadership of government is more sensitive to changes in collective consciousness than are individual members of society (1977, p. 122; 1986a, pp. 10–14). The intensity of the conflict in Lebanon is presumably largely under the control of governments and large military organizations. Caution should be taken, however, in interpreting differences between the different ARIMA models for different variables because the estimate of the impact may depend upon specific characteristics of the variable, such as the magnitude of the standard error, the population size represented by the variable, as well as its sensitivity to the effect.

**Composite Indices**

The results of impact assessment analysis of the composite indices are shown in Table 2a–e. The constant terms in Table 2a–e show the level of variables during the first quartile relative to the zero mean of the standardized series, and are negative (except for the variability index for which a constant 1 was added to the series because without it the constant was too close to zero to permit estimation). The binary variables 10, 11, and 12 represent the second, third, and fourth quartiles of MTUF size respectively, as defined earlier in equation (2) and illustrated in Figure 1. The results of the High Holidays binary variable in each of the models is also shown in Table 2. During the High Holidays the quality of life indices increased for Jerusalem, Israel, and the Overall Composite Index, although there was also a nonsignificant increase in the hostilities in Lebanon on those days. Use of transfer function methodology indicated that, in most cases, adding the High Holidays component increased the statistical significance of the intervention components, because it accounted for additional variance, thus reducing the standard error. Maximum daily temperature did not have a
significant effect on any of the variables and therefore was not included in the final models.

### Table 2a-e
ARIMA Impact Assessment Results of Composite Indices

#### 2a: Jerusalem Composite Index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order</th>
<th>Estimate</th>
<th>t(55)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>JERCoM MA</td>
<td>7</td>
<td>-.41</td>
<td>-3.07</td>
<td>.0033</td>
</tr>
<tr>
<td>JERCoM Const.</td>
<td></td>
<td>-.70</td>
<td>-2.97</td>
<td>.0022</td>
</tr>
<tr>
<td>I₀</td>
<td>UP 0</td>
<td>.63</td>
<td>2.22</td>
<td>.0153</td>
</tr>
<tr>
<td>I₁</td>
<td>UP 0</td>
<td>.99</td>
<td>3.29</td>
<td>.0009</td>
</tr>
<tr>
<td>I₂</td>
<td>UP 0</td>
<td>.94</td>
<td>2.85</td>
<td>.0031</td>
</tr>
<tr>
<td>High Holidays</td>
<td>UP 0</td>
<td>1.67</td>
<td>3.01</td>
<td>.0039</td>
</tr>
</tbody>
</table>

LBQ(12) = 12, n.s.: LBQ(36) = 32, n.s.

#### 2b: Israel Composite Index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order</th>
<th>Estimate</th>
<th>t(54)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISRCoM AR</td>
<td>1</td>
<td>.36</td>
<td>2.65</td>
<td>.0105</td>
</tr>
<tr>
<td>ISRCoM Const.</td>
<td></td>
<td>-.95</td>
<td>-3.68</td>
<td>.0003</td>
</tr>
<tr>
<td>I₀</td>
<td>UP 0</td>
<td>.69</td>
<td>3.01</td>
<td>.0020</td>
</tr>
<tr>
<td>I₁</td>
<td>UP 0</td>
<td>1.31</td>
<td>3.94</td>
<td>.0001</td>
</tr>
<tr>
<td>I₂</td>
<td>UP 0</td>
<td>1.38</td>
<td>4.00</td>
<td>.0001</td>
</tr>
<tr>
<td>High Holidays</td>
<td>UP 0</td>
<td>2.03</td>
<td>4.11</td>
<td>.0001</td>
</tr>
</tbody>
</table>

LBQ(12) = 12, n.s.: LBQ(36) = 32, n.s.

#### 2c: Lebanon Composite Index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order</th>
<th>Estimate</th>
<th>t(54)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEBCoM AR</td>
<td>1</td>
<td>.65</td>
<td>6.12</td>
<td>.0001</td>
</tr>
<tr>
<td>LEBCoM Const.</td>
<td></td>
<td>-.32</td>
<td>-.93</td>
<td>n.s.</td>
</tr>
<tr>
<td>I₀</td>
<td>UP0</td>
<td>.43</td>
<td>1.29</td>
<td>n.s.</td>
</tr>
<tr>
<td>I₁</td>
<td>UP0</td>
<td>.75</td>
<td>2.07</td>
<td>.0216</td>
</tr>
<tr>
<td>I₂</td>
<td>UP0</td>
<td>-.46</td>
<td>-1.10</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

LBQ(12) = 15, n.s.: LBQ(36) = 42, n.s.
2d: Overall Composite Index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order</th>
<th>Estimate</th>
<th>t(54)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Composite</td>
<td>AR 1</td>
<td>.27</td>
<td>1.99</td>
<td>.0517</td>
</tr>
<tr>
<td>Overall Composite</td>
<td>Const.</td>
<td>-1.09</td>
<td>-4.17</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>I₀</td>
<td>UP 0</td>
<td>1.03</td>
<td>3.57</td>
<td>.0004</td>
</tr>
<tr>
<td>I₁</td>
<td>UP 0</td>
<td>1.59</td>
<td>5.04</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>I₂</td>
<td>UP 0</td>
<td>1.69</td>
<td>5.15</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>High Holidays</td>
<td>UP 0</td>
<td>1.20</td>
<td>2.46</td>
<td>.0171</td>
</tr>
</tbody>
</table>

LBQ(12) = 8.7, n.s.: LBQ(36) = 35, n.s.

2e: Variability Index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Order</th>
<th>Estimate</th>
<th>t(54)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Index</td>
<td>AR 1</td>
<td>-.25</td>
<td>1.79</td>
<td>.0791</td>
</tr>
<tr>
<td>Variable Index</td>
<td>Const.</td>
<td>-.40</td>
<td>1.41</td>
<td>n.s.</td>
</tr>
<tr>
<td>I₀</td>
<td>UP 0</td>
<td>-.99</td>
<td>2.81</td>
<td>.0035</td>
</tr>
<tr>
<td>I₁</td>
<td>UP 0</td>
<td>-.50</td>
<td>1.33</td>
<td>n.s.</td>
</tr>
<tr>
<td>I₂</td>
<td>UP 0</td>
<td>-.96</td>
<td>2.50</td>
<td>.0078</td>
</tr>
<tr>
<td>High Holidays</td>
<td>UP 0</td>
<td>1.28</td>
<td>-2.08</td>
<td>.0423</td>
</tr>
</tbody>
</table>

LBQ(12) = 9.5, n.s.: LBQ(36) = 34, n.s.
a. ARIMA was done on Variability Index +1.

JERCOM. According to impact assessment analysis, it can be seen in table 2a that compared to the first quartile, JERC O M increased by .99 standard deviations in the third quartile (p = .0009) and .94 standard deviations in the fourth quartile (p = .0031).

Transfer function noise model: AR7, t(42) = 3.36. A significant MTUF transfer function component was found at lag 6 (p = .05), associated with an estimated .25 standard deviation increase in JERCOM with a nonsignificant lag 9 component, LBQ(36) = 29 (Table 3). When the lag 9 component was dropped, the lag 6 component was only marginally significant, t(46) = 1.23, p = .1 (trend). There was no evidence in the CCFs of JERCOM leading the MTUF.

ISRCOM. Table 2b shows an estimated 1.38 standard deviation increase in ISRCOM during the fourth quartile as compared to the first quartile (p < .0001).
### Table 3. Cross Correlations and Transfer Functions of the MTUF (Input) and Composite Indices (Output)

<table>
<thead>
<tr>
<th>Variable</th>
<th>rCCF²</th>
<th>Lag</th>
<th>Transfer Functions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Estimate^b</td>
</tr>
<tr>
<td>JERCOM</td>
<td>.31</td>
<td>6</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>.38</td>
<td>9</td>
<td>n.s.</td>
</tr>
<tr>
<td>ISRCom</td>
<td>.34</td>
<td>1</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td>.42</td>
<td>6</td>
<td>.30</td>
</tr>
<tr>
<td>LEBCOM</td>
<td>.41</td>
<td>0</td>
<td>.44</td>
</tr>
<tr>
<td></td>
<td>.46</td>
<td>5</td>
<td>.25</td>
</tr>
<tr>
<td>Overall</td>
<td>.22</td>
<td>1</td>
<td>.34</td>
</tr>
<tr>
<td></td>
<td>.23</td>
<td>6</td>
<td>.24</td>
</tr>
</tbody>
</table>

a. Standard errors = .15 to .16.

b. Units are standard deviations.

c. One-tailed.
Transfer function noise model: AR1, \( t(44) = 2.8 \); AR7, \( t(44) = 3.24 \).

The CCF showed that the MTUF led the Israel composite index at lags 1 and 6; there was no indication that ISRCOM led the MTUF. Table 3 shows that the transfer function components for lags 1 and 6 were .49, \( p = .004 \), and .30, \( p = .018 \), respectively, which represented a combined .79 standard deviation increase in the quality-of-life index for Israel, \( \text{LBQ}(36) = 38 \). Comparable results were found for ISRCOM2 (which also had a noise model of AR orders 1 and 7); lag 1 estimate = .5 standard deviation, \( t(44) = 2.94, p = .003 \); lag 6 estimate = .31 standard deviation, \( t(44) = 2.27, p = .014 \).

**LEBCOM.** Table 2c indicates an estimated .75 standard deviation improvement in LEBCOM in the fourth quartile relative to the first quartile, \( p = .0216 \).

Transfer function noise model: AR1, \( t(52) = 5.20 \). The CCF and transfer function analysis showed that the MTUF had significant impacts on LEBCOM at lags 0 and 5. Since LEBCOM was the primary variable of interest in the study, the robustness of this result was tested by seeing if three other specifications of the MTUF noise model identified lags 0 and 5 components, which they consistently did. The magnitude of changes estimated for the lags 0 and 5 transfer function components were .44, \( p = .0006 \), and .25, \( p = .029 \), standard deviations, respectively (table 3). The model was statistically adequate, \( \text{LBQ}(36) = 40 \). A lag 10 component was in the predicted direction but did not reach significance.

The improvement of .69 standard deviations estimated by the two transfer function components combined was comparable to the .75 standard deviation improvement estimated by the impact assessment method.

**Overall Composite Index.** Table 2d shows estimated 1.03, 1.59, and 1.69 standard deviation increases in the overall quality of life during the second, third, and fourth quartiles, respectively, compared to the first quartile; all three were highly statistically significant, especially the third and fourth quartiles (\( p's < .0001 \)).

Transfer function noise model: AR1, \( t(51) = 2.15 \). The transfer function estimates indicated increases by .34, \( p = .018 \), and .24, \( p = .038 \), standard deviations in the overall quality of life at lags 1 and 6, respectively, for a combined influence of .58 standard deviations (Table 3).
The model was statistically adequate, \( \text{LBQ}(36) = 36 \), and there were no significant spikes in the CCF of the transfer function diagnostics.

Table 2e presents data on the Variability Index, supporting the hypothesis that when the quality of life increased as shown by the Overall Composite Index, the variability between variables decreased. Compared to the first quartile, there was a significant decrease of .99, \( p = .0035 \), and .96, \( p = .0078 \) standard deviations in the Variability Index during the second and fourth quartiles, respectively. Variability actually increased during the High Holidays, perhaps reflecting a positive change in quality of life in Israel together with a negative flare-up in the Lebanon war.

Figures 4a-d show that the different versions of the composite indices (e.g. JERCOM and JERCOM2) including those that add a High Holidays component to the model (e.g. JERCOM HH) yielded similar results. It can also be seen in Figures 4a-b that for the Jerusalem and Israel composite indices, the effect leveled off at the largest MTUF quartile, while Figure 4c shows that the effect accelerated in the fourth quartile for the Lebanon composite index. The similarity of functions for Jerusalem and Israel, along with the finding of a significant cross-correlation between levels of crime in Jerusalem and Israel, suggests that Jerusalem and Israel may form a single, inseparable system with regard to collective consciousness.

For the Jerusalem and Israel composite indices, the effect reached significance by the second quartile, when the group size lay between 125–157 (Tables 2a-b), whereas for the Lebanon composite index the effect did not reach significance until the fourth quartile when the group reached 180–241 (table 2c). These results provide general support for the prediction made from equation (1) that Israel would be affected by a group size of 122 or more, whereas Lebanon would not be affected until the group size exceeded 197.

Such distance effects were also indicated by previous research in which the quality of life improved within the “1% cities” and not in the control cities (Borland and Landrith, 1976; Dillbeck, Landrith, and Orme-Johnson, 1981), and by studies showing effects within the specific area where TM-Sidhi groups were located but not in other areas (e.g., Dillbeck et al., 1987; Orme-Johnson, Gelderloos, and Dill-
Figure 4a-d: ARIMA Impact Assessment Estimates for the Four Quartiles of the MTUF for the Composite Indices. ARIMA estimates for all composite indices increased at higher MTUF quartiles. The ARIMA estimates that included the High Holidays (indicated in the figure legends by HH) are only plotted for those variables for which the High Holidays variables had a significant effect. The High Holidays did not account for the relation of any variable with the MTUF. Also, it can be seen that the plots are very similar for the two versions of the Jerusalem Composite Index and for the two versions of the Israel Composite Index.
beck, 1988). The exact nature of the relation of the effect to distance, however, must await further experimental clarification.

The results of the impact assessment and transfer function analyses show that combining variables into composite indices generally resulted in more clear-cut effects, especially for the overall index. This pattern would be expected if the MTUF produced a global effect influencing all variables, because adding the variables together would then enhance the signal-to-noise ratio.

**Evidence of Causality**

Since the MTUF group size was not completely under experimenter control, it was not a fully randomized variable. Nevertheless, when the MTUF was broken into quartiles, the 15 (or 16) days representing each quartile were found to be essentially randomly distributed over the duration of the experiment. The general finding of increased ARIMA impact for the larger quartiles supports a causal interpretation because it is unlikely that an unknown variable(s) would follow that same random time course as the distribution of group sizes reflected in the different quartiles. In addition, all significant seasonal components such as “weekend effects,” drifts, and trends in the dependent variables, were explicitly removed by the ARIMA noise models, and the effects of holidays and temperature were explicitly controlled. Further, in controlling for the prior history of each of the dependent variable series, the noise component of the model is said to implicitly control for systematic influence of exogenous variables reflected in the behavior of the outcome series not specified in the impact assessment component of the model (Box and Jenkins, 1976; Vandaele, 1983).

Perhaps even stronger support for a causal interpretation is provided by crosscorrelation and transfer function analyses which showed that none of the dependent variables led the MTUF, whereas there was consistent evidence of the opposite. A lag 0 cross-correlation was observed between the war-related variables and the MTUF. This latter finding is consistent with the original prediction of a sudden and system-wide phase transition to decreased regional violence when the MTUF was practiced by a sufficiently large group. A possible alternative explanation—that knowledge of the war had an immediate influence on the level of group participation—is unlikely for several reasons. First, con-
conflict events in Lebanon were almost always reported in the newspapers the day after they occurred, whereas the date of occurrence was used in the time series analysis. Therefore, the lag 0 effect indicated by the transfer function took place the day before the course participants would have known about it through the newspaper. This makes it unlikely that news accounts of the war were motivating participation in the project. Furthermore, participants came from all over Israel, usually for a week or more at a time or on the weekend, and the number of “drop-ins” from the immediate Jerusalem area was quite small. Thus, it also does not appear that hearing news reports over the radio immediately stimulated large numbers to participate in the project.

During the 13-day “experiment within an experiment,” August 15–27, group size was experimentally raised to a high level (mean of 197.1) according to a preassigned schedule independent of the ongoing level of fighting. Nevertheless, the average number of war deaths per day during this experimental period was 1.5 compared with a mean of 33.7 for the 13-day periods immediately preceding and following the high MTUF period. The mean war intensity of .9 during the high MTUF period was also much lower than the average of 2.7 during the immediately prior and subsequent 13-day periods. Also, other variables consistently indicated a markedly higher quality of life during the high MTUF period.

Even if news of the war had been motivating individuals to participate in the project, it would not explain the consistent leading relationship of the MTUF to the wide variety of other variables, including the statistically independent composite indices (i.e., not correlated with level of fighting). That several uncorrelated variables could all be correlated with the MTUF is possible because the MTUF only accounted for some of the variance in each variable.

Further, records maintained by the experimenters indicate that no subjects had to leave the course because of being immediately “called up” for military service in response to escalation of fighting. Hence, the correspondence between a higher level of fighting and a smaller group size cannot be attributed to that cause.

The length of the lag between change in the MTUF and change in the dependent variables also needs to be considered. Whether the effects manifested immediately or evolved more slowly appeared to
depend on the nature of the system. In the case of the Lebanese conflict, the apparent delayed effects (at lags 5 and 10) could also have resulted from a direct positive influence that became observable only after steps were taken by policy makers over a period of several days.

**A Field-Theoretic View of Collective Consciousness**

In this experiment, a very small group practicing this technology of consciousness in East Jerusalem appeared to influence overall quality of life in Jerusalem, Israel, and even in neighboring Lebanon. Such apparent action-at-a-distance and coherent amplification effects would seem to require mediation through an underlying field characterized by or capable of interacting with consciousness. These findings are consistent with the prediction of Maharishi Vedic Science that societal change can be initiated at a distance via an abstract field of collective consciousness (Maharishi, 1986a, b; Orme-Johnson and Dillbeck, 1987). These data support the interpretation of an underlying unifying influence being produced on many diverse systems simultaneously. The stronger effects seen on the composite indices suggest that this influence is common to—or adds “constructively” across—different outcome areas. The pattern of decreased variability along with an increase on the Overall Composite Index further indicates that when the group was large, diverse and ordinarily independent systems appeared to operate in a more integrated, “coherent” manner conducive to positive development for both the individual and society.

The war in Lebanon provides an especially critical test of the ability to neutralize tension and create coherent or constructive interaction among typically antagonistic groups in society. This long-standing crisis has resisted solution for the very reason that the involved parties are so factionated over ethnic, religious, socioeconomic, and political issues (Azar and Burton, 1986); the conflict is further exacerbated by being a focal point of larger regional and international conflicts. Indeed, at the time of this study, Israeli forces were directly involved in the war.

The apparent impact of the MTUF on reduction of conflict in Lebanon was highly significant (an estimated drop of 75% in war deaths when group size was large), suggesting that decreased stress and increased coherence in regional collective consciousness during high MTUF group periods may have diminished violent outbursts in Lebanon and
facilitated more cooperative interaction among typically antagonistic factions. Nevertheless, because high MTUF impact periods were of short duration (from one to six continuous days) and took place over a single summer season, it may still be asked whether this effect can generalize to other times and places and be maintained over longer periods. Since completion of this study, reduction of armed conflict in Lebanon (including additional conflict areas in some cases) has been replicated in eight additional experiments utilizing the MTUF.

In these studies, required group sizes were maintained from 1 to 10 weeks during all four seasons, with control periods lasting up to 2 years (Alexander, Nader, et al., 1987; Davies, Alexander, and Nader, 1988; Orme-Johnson and Dillbeck, 1987, pp. 227–231, 241–248). In each case, according to equation (1), experimental group size was sufficient to affect the war in Lebanon: group sizes varied from less than 100 meeting in the focal area of the conflict within Lebanon, to a group of over 7,000 assembling in the United States. The U.S. assembly (constituting $\sqrt{1\%}$ of the world’s population) was also predicted and found to be associated with reduction of armed conflict on a global scale (in Nicaragua, Afghanistan, etc.), compared to immediately prior and subsequent periods and to the same period during the previous year (Orme-Johnson, Cavanaugh, et al., 1989). Further, experimental replications were obtained employing several different methods of assessing the Lebanese conflict, including blind scoring of Lebanese news sources by Lebanese raters representing all major factions (Alexander, Nader, et al., 1987), and retrospective application of Azar’s (1980) independently scored Conflict and Peace Data Bank (Orme-Johnson, Dillbeck, Bousquet, and Alexander, 1989).

Conclusion

There is clearly a need for a viable means to drastically reduce societal tension in order to resolve conflict without violence, and thereby create a stable basis for progress and peace (White, 1984). We recognize that this proposed approach is highly novel and that to explain its apparent effects an entirely new field-theoretic orientation to international relations would be required. Nevertheless, given the acute need and the apparent failure of “policy irrelevance of available approaches to resolving enduring civil and international conflicts” (Blight, 1986, 1987),
promising new methods must be examined very seriously. Given the findings of the current experiment and its subsequent replication, we suggest that an immediate priority for social scientists and policy makers would be to investigate the large-scale application of this simple and nonintrusive technology to resolving international conflicts over extended periods of time.

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The following appendix has been added to the original published paper—*Collected Papers, Vol. 4.*—Editors
A Field-Theoretic Model of Conflict Resolution: Authors’ Reply to Comments by Editor and Reviewer

We wish to respond to comments published by the editor and one reviewer, which accompanied our article in the *Journal of Conflict Resolution* (Dec. 1988). They both concluded that while our hypothesis was new to the social sciences, it was logically derived from our initial premises and rigorously tested. Thus, it met the standards of the scientific review process and could not be rejected simply because its premises were not shared by the reviewers. We would like to comment on the plausibility of our theoretical approach and reply to the editorial observations on our research methods.

As Dr. Russett pointed out, criteria for the plausibility of scientific theory are not clear. Students of the sociology of knowledge would probably agree that two factors which strongly affect plausibility are familiarity and current acceptability. There is, however, no compelling theoretical justification or empirical support for the familiar paradigm that human interactions are necessarily limited to the behavioral domain. Is interaction between individuals at a distance really that implausible, given our current understanding of the structure of nature? Quantum field theory, the most successful theory in the history of science, informs us that underlying material existence are unbounded fields (such as the electromagnetic field) that mediate physical effects at a distance. The ultimate basis of these physical fields is described as a completely unified field of natural law. Most social scientists undoubtedly are familiar with the quantum field-theoretic view of reality but have not yet considered its implications for social theory.

To explain our findings it is necessary to posit that consciousness also has a field character capable of mediating behavioral effects at a distance. Maharishi Vedic Science, the theoretical basis of this research, states that mind and matter share a common source in a single Unified Field of unbounded pure consciousness. Also, modern physics has glimpsed that matter may ultimately have its basis in consciousness. James Jeans, the eminent British physicist, wrote that as physics progresses, “the universe begins to look more like a great thought than a great machine.” Perhaps it is time for social scientists also to stop conceiving of the universe as a machine.
With regard to comments on research methods, the data were publicly available social indicators that can be checked. The variables relating to the war in Lebanon were derived from content analysis (blind as to date) of newspaper accounts that can also be checked. We are pleased to report that recently, in his doctoral dissertation, one of the coauthors, John Davies (currently Research Coordinator, Center for International Development and Conflict Management, University of Maryland), replicated and extended our findings. He used a highly experienced independent scorer (a Lebanese national) who knew nothing about the hypothesis of the experiment, much less when the experimental periods took place. Using a different scoring system, he rated all of the news items on the war from eight international news sources (e.g. the New York Times) and the Foreign Broadcast Information Service (which includes news broadcasts from local radio stations in Lebanon representing all factions in the war). Even though the news sources were different from and more extensive than ours, his results for this period were similar to ours. Using Box-Jenkins impact assessment analysis, he estimated a 55% reduction in the level of conflict (45% in our study) and an 85% reduction in war deaths (76% in our study) when a group constituting 1% of Israel’s population practiced the Transcendental Meditation and TM-Sidhi programs together. In addition, Dr. Davies showed that the effect replicated during six subsequent experimental periods over a 2.25-year period in Lebanon.

Note that the comments published along with our study give no recognition to the growing body of research of which this study is a part. As referenced in our article, over 30 studies found comparable results on conflict and quality-of-life indicators; 11 of these studies are now published in refereed scientific journals, and several others of excellent methodology are under review. Thus the current “normal” view of international politics may indeed warrant reconsideration.

While one reviewer questioned the precision of the Box-Jenkins approach, it is widely held to be the most rigorous methodology for analyzing time series data. Moreover, in our experiment, application of this technique was highly constrained because the hypothesis specified both a positive direction and an immediate effect. Also, our statistical models proved very straightforward. For example, the noise models for the separate composite indices for Israel, Lebanon, and the Overall
index were all ARIs—one of the simplest possible models. There were no exotic models that might have created spurious effects, and comparable results were found using two different methods, impact assessment and transfer functions. The results are so obvious that they can be seen in the plots of the raw data with no statistical analysis.

Although these findings challenge the limited paradigm of contemporary social science, their practical implications are profound. Maharishi has proposed that a long-term effect of large groups practicing the Transcendental Meditation and TM-Sidhi programs would be a dramatic positive transformation in international relations. Having established such groups on every continent over the past ten years, he specifically predicted in 1986 that there would soon be a striking reversal in the relationship between the superpowers, leading to lasting world peace. In fact, in mid-1988, the world experienced an unprecedented and otherwise unexplained outbreak of peace.

Maharishi further predicts that creating a permanent group of over 7000 participants in the Transcendental Meditation and TM-Sidhi programs (\(\sqrt{1\%}\) of the world’s population) would end remaining regional conflicts and foster the creativity and international cooperation necessary to eliminate worldwide poverty, disease, and environmental abuse.

Scientists and politicians must not reject an idea simply because it is new or sounds too good to be true. According to Maharishi, these goals can be quickly achieved by teaching this technology to any large group—such as students, employees, retired citizens, prisoners, or the military. We invite the leaders of every nation to use this knowledge and technology of consciousness to create a truly heavenly life on earth.
Part IV

International and World Peace
Creating World Peace
through the Collective Practice
of the Maharishi Technology of the Unified Field:
Improved U.S.-Soviet Relations

Paul Gelderloos
Martin J. Frid
Phil H. Goddard
Xiaoping Xue
Sarah A. Loliger
ABOUT THE LEAD AUTHOR

Paul Gelderloos (Ph.D.) received his doctorate at the University of Nijmegen, the Netherlands. In 1983 he joined the faculty of Maharishi University of Management. It was during this time that he conducted the research on the Maharishi Effect and its impact on the U.S. quality of life as well as the international relationship between the U.S. and the former Soviet Union. Two papers resulted, included in this volume. He also published several studies on the Transcendental Meditation and TM-Sidhi programs and psychological measures such as field independence and psychological health; as well as theoretical papers on the development of consciousness. He spent time in India, Thailand, and Russia, where he taught almost 5,000 people the Transcendental Meditation technique. He then returned to the Netherlands, his home country, and became a very successful businessman in the Internet industry. In recent years he has focused on creating invincibility for the Netherlands and for India, by organizing groups of practitioners of the TM and TM-Sidhi programs, by acquiring schools in Holland and by supporting the Maharishi Vedic Pandit project in India.
ABSTRACT

Time series analysis of public statements of the U.S. president concerning the Soviet Union indicated a warming of U.S.-Soviet relations associated with periods of high participation in the group practice of the Transcendental Meditation and TM-Sidhi programs in the U.S.

—EDITORS

This paper analyzes the development of the U.S.-Soviet relationship, as measured by the content of the relevant public statements of the U.S. president, in relationship to the number of participants in the collective practice of the Maharishi Technology of the Unified Field—the Transcendental Meditation and TM-Sidhi programs. The hypothesis being tested is that when a large number of people participate in the collective practice of the Maharishi Technology of the Unified Field, the collective consciousness becomes more coherent or integrated, which would result in improved international relations. A Box-Tiao impact assessment analysis is employed with the outcomes of a content analysis of the presidential statements on the U.S.-Soviet relationship, utilizing an adaptation of the Conflict and Peace Data Bank War/Peace Index, as the endogenous series. An objective criterion of model selection was used based on the minimization of the Akaike information criterion (AIC). A highly significant effect of the collective practice of the Maharishi Technology of the Unified Field toward improved U.S.-Soviet relations was found (p = .007).

Introduction

Before introducing the empirical study we will present some theory on the relationship between collective consciousness and statements and actions of the head of state, as well as research findings on the effect of the Maharishi Technology of the Unified Field in creating coherence in collective consciousness and its role in improving international relations and creating world peace.

Head of State and Leadership—When a head of government speaks, everybody listens. The importance of every expression of a head of state lies in its range of influence—every speech or statement affects the outcome of large-scale affairs (McConnel, 1967). It has been assumed that the role of a head of state is to represent his people, as well as actively lead and formulate the policies of the country (Hargrove, 1966). How-
ever, political scientists today note that the extent to which a head of state (and government) can actively influence the destiny of a country seems very limited (e.g., Banks, 1986).

In international affairs, leadership is necessarily a complex issue. The network of channels of political communication between countries falls under the jurisdiction of the government, and important communications between nations are commonly expressed by the heads of state. In the case of Soviet and American relations, the heads of state have within their jurisdiction to make decisions on international relations as well, although it is recognized that the latitude of their decision-making power is restricted. The international policies of the two superpowers have far-reaching effects, and could ultimately have an impact on every human being on earth. This is presently evident in the Far East, in Central America, as well as in Europe. In addition, the leaders of the U.S. and the U.S.S.R. each have within their reach a nuclear force capable of annihilating life on earth. Hence statements from these heads of government prove to be of the utmost importance.

Creating world peace, on the other hand, should also be within the range of influence of the heads of state of the superpowers. But historically, this has been accomplished to very limited degrees. The methods to achieve peace have included power politics, diplomatic missions, third party mediations, or the establishment of international organs such as the United Nations. The failure of traditional approaches to create peace is evident from the fact that war has been and is the living reality for millions of people on earth. Today there are over 60 domestic and international conflicts, and it becomes evident to researchers of international relations that heads of state and governments have very limited power in directing the destiny of their countries. Banks (1986) notes that the emerging paradigm is that international relations are determined by interconnecting, interactive patterns of economics, ethnicity, ideology, and other transnational processes, in which governments only play minor roles.

It should be emphasized that neither war nor peace is the result of the actions or intentions of the head of government. Political scientists agree that public opinion, or the attitudes held by people at large, does make an important difference in, for example, the “realm of nuclear confrontation and the production of risks thereof” (Smith, 1984, p. 466).
McConnel (1967, p. 85) states: “The quality of leadership is dependent upon the man who is president, but if the leader is to succeed it must be accepted by those who follow.” The support of the people is vital not only directly, as in the election of an individual to become president, but also indirectly, by providing a basis for his power to make decisions.

**Head of State as the Reflection of Collective Consciousness**—
What is the relation between the people and government? According to Maharishi Mahesh Yogi (1976), the founder of the Transcendental Meditation and TM-Sidhi programs, the government of any country, irrespective of its system, is governed by the collective consciousness of the nation. In the same way as an individual consciousness directs an individual’s thinking and behavior, so collective consciousness governs the functioning of society, including governmental activity. The government, with all its authority, is not an independent entity, but, no matter what the political system, is the “innocent mirror” of the collective consciousness of its people, naturally reflecting whatever is presented to it (Maharishi Mahesh Yogi, 1976).

The absolute philosophy of government is that the government of any country, irrespective of its system—whether capitalist, communist, or any other system—is governed by the collective consciousness of the nation. Whatever the quality of national consciousness, that will always be the quality of national government and national law. (Maharishi Mahesh Yogi, 1986, p. 80)

It is the wholeness of consciousness of all individuals together that forms collective consciousness, and because national consciousness is the collective consciousness of all the individuals of the nation, it is ultimately the consciousness of the individual which is the prime mover of the nation and shapes its destiny. All individuals in the nation, whether they are aware of it or not, are directly responsible for the quality of government through their contribution to collective consciousness (Maharishi Mahesh Yogi, 1976).

Although the leaders of each government have their own individuality and their own opinions about the nation’s needs and its international relations, when they are engaged in the process of governing, their actions are determined by factors beyond their individual judgment (Maharishi Mahesh Yogi, 1976). It may be said that they are
instruments of the collective consciousness of the nation, whereas the real actor is the national consciousness.

A high quality of international relations can only be achieved when the collective consciousness of the nation becomes integrated and coherent. If it is fragmented, problems dominate society, which will be reflected in a low quality of life, and poor international relations or even international conflicts. According to Maharishi (1986), improvement in the quality of the consciousness of the individual is the direct and most practical way to improve the performance and achievement of the government. Coherence on the individual level, he explains, is expressed in coherent individual thoughts and actions. Coherent individuals behave in a most progressive or evolutionary way: they are of maximum benefit to themselves and to the environment. This will form a coherent national consciousness, which will be reflected in the acts (and statements) of the head of state. The international relations of an integrated, coherent nation will steadily improve.

Therefore, it is the national consciousness that has to be made more coherent. Every country has to rise to national integration. Integrated national consciousness will promote national life in the evolutionary direction, which means life is always positive and free from suffering (Maharishi Mahesh Yogi, 1986, p. 80).

Maharishi’s Program to Create World Peace—Maharishi’s approach to the creation of world peace consists of increasing the coherence in the parties concerned, or even better, in the world consciousness as a whole. According to Maharishi (1978), lack of coherence in national consciousness leads to a loss of national integrity, insecurity, and fear of one’s neighbors. As a means to alleviate fear, a nation may resort to the buildup of arms to defend against the imagined enemy.

Maharishi has said that “It is the inner enemy of violence, fear, and weakness in the nation itself that makes it amass the means of defense.” Maharishi goes on to say “It is the integrated national consciousness, the internal integrity of a nation that upholds freedom in a country and makes the country really invincible. (Maharishi Mahesh Yogi, 1986, pp. 139–140)

Azar and Burton (1986) make a similar analysis of the U.S.-Soviet relationship:
There is the issue of mutual fear, and the related issue of preservation of identity. The fear each side has of the other is a fear for the internal survival of its own system. The hypothesis is that if there were more total security internally, there would be no fear of any external intentions or influences. (p. 119)

The internal integrity of a nation can be developed and maintained by increasing the coherence of collective consciousness (Maharishi Mahesh Yogi, 1978). This will lead to the spontaneous and full unfoldment of local cultural values and the emergence and preservation of a political system most evolutionary to the country involved. Increase of coherence in collective consciousness can easily be brought about, according to Maharishi, due to the reciprocal relationship that exists between individual consciousness and collective consciousness. Every individual influences, and is in turn influenced by, the quality of every level of collective consciousness.

As individual consciousness grows, collective consciousness rises; and as collective consciousness rises, individual consciousness grows. Individual consciousness is the basic unit of all levels of collective consciousness—family consciousness, community consciousness, national consciousness, and world consciousness— influencing them all and being in turn influenced by them. (Maharishi Mahesh Yogi, 1978, p. 259)

According to Maharishi (1986), incoherence in collective consciousness is caused by collective stress. Stress is generated in collective consciousness by individuals who are not able to fulfill their desires in an evolutionary manner. Maharishi has brought out a highly effective technology to neutralize stress in individual and collective life—the Maharishi Technology of the Unified Field, comprised of the Transcendental Meditation and TM-Sidhi programs. The Maharishi Transcendental Meditation program is a simple, natural, and effortless mental technique which allows the awareness to settle into a state of deep silence while remaining fully alert. This unique state of restful alertness is the self-referral state of consciousness, Transcendental Consciousness, the total potential of the mind. Whereas the Transcendental Meditation technique gives the experience of Transcendental Consciousness, the more advanced TM-Sidhi program trains the individual to think and act from this level, enhancing the benefits of the
practice of the Transcendental Meditation program. Scientific research has indicated that through the practice of the Transcendental Meditation and TM-Sidhi programs stress is released, leading to improved cognitive abilities (Dillbeck et al., 1986), better health (Orme-Johnson, 1987), and enhanced psychological development (Gelderloos, 1987). Specifically, increased brainwave coherence has been observed as a result of the practice of the Transcendental Meditation and TM-Sidhi programs (Orme-Johnson & Haynes, 1981; Dillbeck & Bronson, 1981). EEG coherence has been found to be related to intelligence, creativity, physiological efficiency, and moral reasoning (Dillbeck, Orme-Johnson, & Wallace, 1981). Thus practice of the Transcendental Meditation and/or TM-Sidhi program results in a more “coherent” or integrated individual consciousness.

It has been suggested that consciousness, like most fundamental processes in nature, is a field phenomenon (Hagelin, 1987). Maharishi Vedic Science deals extensively with the nature of consciousness and holds that Transcendental Consciousness is a field of pure consciousness underlying all subjective and objective creation (Maharishi Mahesh Yogi, 1986). Hagelin (1987) proposes that this field of pure consciousness is identical to the unified field of force and matter fields, recently postulated by quantum physicists. At the scale of the unified field all aspects of natural law become “infinitely correlated” with each other, and an impulse at that level would spread automatically throughout the whole universe. According to Maharishi (1986), through the practice of the Maharishi Technology of the Unified Field an individual enlivens pure consciousness, and thus generates nonlocalized field effects of coherence throughout the environment.

This understanding leads to a practical solution to the problems facing the leaders of the world. Creating world peace, in Maharishi’s view, starts with the individual. Because increase of coherence in collective consciousness can be brought about by increasing coherence in individual consciousness, peace and harmony on a global level can be reached by developing individual consciousness. Maharishi’s Program to Create World Peace consists of the generation of coherence in world consciousness through the practice of the Maharishi Technology of the Unified Field.
Evidence of the Field Effects of the Maharishi Technology of the Unified Field—In 1960, Maharishi hypothesized that a small percentage of the population of an area practicing the Maharishi Technology of the Unified Field would be sufficient to produce a positive influence on society as a whole. The first empirical support for this hypothesis came in 1974, when 1% of the population of several cities in the U.S. had begun the practice of the Transcendental Meditation technique. Two sociologists at Maharishi University of Management found that crime rate decreased in these cities compared to control cities, and they named the phenomenon the Maharishi Effect (Borland & Landrith, 1976). Dillbeck, Landrith, and Orme-Johnson (1981) replicated this finding in a sample of forty-eight cities. Dillbeck (1978), in a sample of cities in the Kansas City area, studied extensively alternative variables which have been found to covary with crime figures, such as unemployment, poverty rate, income, educational level, size and density of the population, and age composition.

The Transcendental Meditation program had a significant effect even when the data were controlled for the variance that could be accounted for by the alternative variables. In order to study the issue of causality more directly, Dillbeck, Landrith, Polanzi, and Baker employed the method of crossed-lagged panel correlation on stratified random samples of 160 U.S. cities and 80 Standard Metropolitan Statistical Areas over 15-year periods. It was confirmed that an increasing percentage of Transcendental Meditation participants resulted in a decline in crime rate in the following years, providing evidence for a causal relationship. Landrith and Dillbeck found decreases in automobile accidents and suicides as well in the cities which reached the 1% threshold.

The practice of the more advanced TM-Sidhi program was predicted to have stronger sociological effects than the practice of the Transcendental Meditation technique alone (Maharishi Mahesh Yogi, 1978). Collective practice of the TM-Sidhi program is thought to have an effect proportional to the effect of the square of individual practitioners, according to the physical coherence principle of “constructive interference,” which states that the power or intensity of a field is proportional to the square of the amplitude of the field (Hagelin, 1987). The amplitude of a field can be increased by the coherent summation of amplitudes from different sources, thus the cumulative effect of the
coherent elements is proportional to their number squared. According to this principle, the square root of 1% of the population participating in the collective practice of the Maharishi Technology of the Unified Field would have the same effect as 1% of the population practicing the Transcendental Meditation program alone.

Several studies have supported this hypothesis. The requirement of the square root of 1% of a population makes the Maharishi Effect amenable to experimental interventions since relatively small groups are needed to produce large sociological effects. In the summer of 1978 a project was held in Rhode Island during which several small groups of TM-Sidhi participants (total 300) resided in this state. Dillbeck, Cavanaugh, Glenn, Orme-Johnson, and Mittlefehldt (1987) found a highly significant improvement in the quality-of-life during this three-month period, as measured by an index comprised of crime rate, auto accidents and fatalities, death due to other causes, cigarette and alcohol consumption, unemployment, and air pollution; they employed Box-Jenkins autoregressive integrated moving averages (ARIMA) time series analysis, in this way controlling for naturally occurring cycles. The improvements in the index of these eight quality of life indicators were relative to that of the control state of Delaware, thereby excluding regional or national trends as alternative explanations of these changes. Dillbeck et al. (1987) report also on studies in India, Puerto Rico, and the Philippines, which all found significant improvement in the quality of life during periods in which the required number of participants in the collective practice of the Maharishi Technology of the Unified Field was assembled, controlling for weekly, monthly, and seasonal cycles, and alternative explanations.

Orme-Johnson, Gelderloos, and Dillbeck (1988) conducted a retrospective 25-year study on the effect of the Transcendental Meditation technique participants throughout the U.S. and the permanent group of participants in the Transcendental Meditation and TM-Sidhi programs established in 1979 at Maharishi University of Management in Fairfield, Iowa. A dramatic improvement of the quality of life was found in the United States as measured by a composite index of 11 social indicators, once the combined influence of the Transcendental Meditation participants throughout the U.S. and TM-Sidhi group at Maharishi University of Management exceeded the 1% threshold.
Structural equation modeling using the LISREL program supports a causal interpretation. Cavanaugh (1987) investigated the impact of the coherence-creating group in Maharishi University of Management, Fairfield, Iowa, on an widely used economic indicator, called the “misery index,” which is comprised of the inflation and unemployment rate. There was a progressive reduction in the misery index of both the U.S. and Canada when the Maharishi University of Management group size, as categorized according to its quartiles, was larger.

Evidence of the Feasibility of Maharishi’s Program to Create World Peace—Several intervention studies with the Maharishi Technology of the Unified Field have been conducted in areas of civil strife and international conflicts. In 1978 teams of TM-Sidhi participants were sent to conflict areas in Central America, Southern Africa, the Middle East, Iran, and Southeast Asia with the purpose of calming down the violence. They did not engage in any public activity, but practiced the Maharishi Technology of the Unified Field in groups in their hotels. Orme-Johnson, Dillbeck, Bousquet, and Alexander analyzed the coded data from the Conflict and Peace Data Bank, the largest independent daily data bank, which collects from over 70 major public sources (Azar, 1980), and found that the situations improved significantly in the five trouble spots during the experimental period in comparison to the previous ten years and to the world as a whole. In addition, there was a significant improvement in international relations globally as indicated by a significant decrease in hostile acts and verbal hostilities and an increase in cooperative events, measured by the weekly time series of 1978 relative to the weekly averages of the previous ten years employing ARIMA impact assessment.

In a prospective intervention study in 1981 in the war-torn Lebanese village of Baskinta, a complete cessation of hostilities was observed from the time 1% of its population began to practice the Transcendental Meditation technique (Nader, Alexander, & Davies). The number of incoming shells, property damage, and casualties dropped significantly after the 1% level was reached, in abrupt contrast with the previous trend and to neighboring towns where an increase of hostilities was observed. Another study in the Middle East with collective practice of the TM-Sidhi program was held in August and September, 1983.
Predictions of the outcomes of the study were lodged in advance with scientists in the U.S. and Israel. Orme-Johnson, Alexander, Davies, Chandler, & Larimore studied the effects of the various group sizes, categorized by quartiles, on the quality of life in Jerusalem, where the assembly was held, and Israel as a whole, as well as on the war violence in Lebanon. The range of influence was directly proportional to the group size: Relatively smaller groups had an effect on Jerusalem and Israel, while when the group size rose above the third quartile a significant influence on the Lebanese war was found, as indicated by fewer war casualties and decreased intensity of war as studied by content analysis using a scale similar to Azar’s COPDAB Peace/War Index (Azar, 1980). Cross-correlations and transfer functions supported the hypothesis that the TM-Sidhi group was the cause of the noted changes.

A global experiment was held in Fairfield, Iowa, in December 1983. The critical threshold to create a global Maharishi Effect at that time was 7,000 participants in the collective practice of the Maharishi Technology of the Unified Field. This number was reached during the Christmas period of 1983 with participants from over 50 countries. During this period reduced conflict in trouble-spot areas throughout the world was observed, international relations and local situations improved significantly as indicated by public statements of heads of state, and quality-of-life indices improved significantly in countries throughout the world for which the data were available, relative to the same periods in the previous years and/or the three-week periods before and after the assembly (Orme-Johnson, Cavanaugh, et al.; Alexander, Nader, et al. (1987) studied the effects of the large and smaller local assemblies on the Lebanon war over a period of six months. Time series impact assessment of daily levels of a Peace/War Index as obtained from content analysis of the major newspaper, daily reported war deaths, and daily injuries due to war showed that during the assemblies there was a highly significant improvement in the Lebanese war as compared to the days that no such assembly was held.

In the present study we investigated the impact of the Maharishi Technology of the Unified Field on a protracted international conflict with worldwide implications: the U.S.-Soviet relationship. Since World War II the two superpowers have lived in an atmosphere of suspicion and mistrust, and have at several times been engaged in indirect hos-
tile activities against each other. With the increase of coherence in the national consciousness of the U.S. it could be expected that the U.S. would show a more conciliatory attitude toward its enemies. The fluctuations in coherence of collective consciousness of the U.S. are best measured by the fluctuations in the size of the number of participants in the collective practice of the Transcendental Meditation and TM-Sidhi programs at Maharishi University of Management, since this group has by far the largest impact (in comparison to the participants in the Transcendental Meditation program and several smaller coherence-creating groups of TM-Sidhi participants throughout the U.S.); thus the size of the Maharishi University of Management group will be employed as the independent or exogenous variable. The statements of the president are used as indicators of the quality of U.S.-Soviet relations, both because the president is the channel of all the significant international communications, and because the head of state can be considered as the representation of the collective consciousness of the nation. The quality of presidential statements on the relationship between the two superpowers as well as the quantity of positive references is predicted to be enhanced, thus the total sum of the quality of presidential statements on U.S.-Soviet relations within certain time units (one-week periods) will form the endogenous series.

Methods

A content analysis was performed on President Reagan’s public statements from April 4, 1985 to September 23, 1987, which was considered to be a long enough period to perform a reliable time series analysis. The statements of the president are published by the Office of the Federal Register of the National Archives and Records Administration as the Weekly Compilation of Presidential Documents. The documents are dated and arranged in the order they are presented. A “presidential” week begins on Saturday and ends on Friday. In the study, the following categories were used: speeches, statements, interviews, proclamations, radio addresses, and addresses and remarks. All documents that were referenced in the index as Union of Soviet Socialist Republics—General Secretary and Union of Soviet Socialist Republics—relations with U.S. were photocopied. The copies were given random numbers and all dates (as well as references to dates in the text) were removed. Longer
speeches or interviews were divided into shorter sections with a maximum length of two pages. In most cases, questions by press reporters or comments by others than the president himself were taken out from the documents, except in cases where the president’s answer was ambiguous without them. A total of 347 statements were prepared in this way.

For content analysis purposes a scale was adapted from the International Peace/War scale from the Conflict and Peace Data Bank (Azar, 1980), which appeared appropriate for the rating of developments in the U.S.-Soviet relationship. The scale ranges from –7 to +7 with specific descriptions at every level, where –7 stands for extensive war acts, 0 for neutral, routine or nonsignificant actions or statements, and +7 for harmony, agreement, and unification. Two raters from Sweden and the People’s Republic of China (both these countries are considered neutral, and have fair or good relations with both the United States and the Soviet Union, and both raters evaluated themselves to be “objective” in their attitudes toward the politics of the U.S. and Soviet Union) were trained extensively to become experts in the content analysis procedure, and were blind to the date the statements to be analyzed were made. The content analysis was conducted in the following way: The raters alternately read a statement aloud to each other, and individually scored it according to the Peace/War Scale on the scoring sheets. The inter-rater reliability of these 347 scores was \( r = .77 \) \((p < .0001)\), which is adequate. In the case of disagreement between the two raters, which was defined as a score difference larger than one point, a discussion between the two raters would follow until one or both raters adjusted the score(s) to yield a maximum of one-point difference. This procedure was followed to ensure that both raters understood the full implication of the statements to be rated, and thus contribute to the objectivity and generalizability of the analysis. Such adjustments occurred in 8% of the ratings (57 cases out of 694), indicating a high level of overall agreement between the two raters. For each statement, an average score was compiled from the two ratings. These average ratings were then summarized into weekly totals (129 values), which formed the endogenous series.

According to the theoretical model, a “phase transition” toward more coherence in the population would be generated in the nation once the square root of 1% of the population participated in the collective prac-
tice of the Maharishi Technology of the Unified Field. For the U.S. that critical threshold for 1986 and 1987 lies around 1,560. However, it could be theorized that to produce improved relationships between two nations, relatively more coherence would be required than to improve the quality of life in one country alone, although it would be difficult to establish precisely a certain critical threshold (to date in the Soviet Union the Transcendental Meditation program has not been taught, thus the required coherence for improved relations between the superpowers needs to be generated by the U.S. alone). Therefore we took an empirical approach of studying the impact of different group sizes, categorized according to the quartiles of the group size distribution.

The independent variable was the weekly averages of the attendance at the afternoon sessions of the collective Transcendental Meditation and TM-Sidhi practice for the period from April 1985 to September 1987. On the two occasions when the size of the group at Maharishi University of Management was exceeded by the number of participants in the collective practice in Washington, D.C., due to conferences being held there, the latter number was used instead.

A Box-Tiao impact-assessment analysis (Box & Tiao, 1975) was used to test the hypothesis that a sufficiently large group of participants in the Maharishi Technology of the Unified Field at Maharishi University of Management would have a positive effect on the statements of the president concerning U.S.-Soviet relations. To allow for uncertainty about the appropriate critical threshold, an empirical approach was used which compared the ratings of the Reagan statements of weeks categorized according to the average size of the attendance at the collective practice at Maharishi University of Management. We used a similar method as the one used by Cavanaugh (1987) and Orme-Johnson, Alexander, et al. (1988) for the assessment of the influence of the collective practice of the Maharishi Technology of the Unified Field on the misery index in the U.S. and Canada, and the quality of life in Israel, respectively. This impact-assessment approach employed three binary intervention variables to represent weeks in which the average size of the group of TM-Sidhi participants fell within specific ranges defined by quartiles of the group size. Specifically, the weeks that the group size fell between the first and second quartile, the second and third quartile, and beyond the third quartile, were compared with the
weeks with an average size below the first quartile. In this way the differential effects of the different group sizes beyond the first quartile are estimated with reference to the impact of the Maharishi University of Management group below the first quartile on the ratings of the presidential statements. This serves as a conservative test, especially since the size of the Maharishi University of Management group was consistently large during the studied period, exceeding frequently the predicted national threshold of 1,560 participants, which would yield a high baseline level, and thus the differential effect would be deflated. In this impact-assessment analysis, which is a special case of transfer function analysis, three binary indicator or “pulse” variables of “0”s and “1”s served as the input series. Intervention one took the value of zero except in the cases where the average weekly group size fell between the first and second quartiles (1688 to 1764), intervention two took the value of one when the group size fell between the second and third quartiles (1765 to 1864), and intervention 3 took the value of one when the group size lay beyond the third quartile (1865 or over).

The general approach of the Linear Transfer Function method was used, which employs three steps in the iterative process of identification of the impact-assessment model with multiple-input transfer functions (Liu, 1985; Cavanaugh, 1987):

1. Estimation of the impulse response weights for each input variable (up to 10 lags);

2. Determination of the form of the transfer function which best approximates the pattern of the impulse response weights; and

3. Determination of the form of the noise model of the dependent variable.

Initial estimates of the impulse response weights were based according to the maximum likelihood estimates of the following equation (Liu, 1985; Cavanaugh, 1987):

\[ Y_t = C + V_1(B)I_{1t} + V_2(B)I_{2t} + V_3(B)I_{3t} + N_t \]

where \( V_s(B) \) represents the impulse response weights, \( B \) is the backshift operator, \( I_{st} \) represents the interventions, \( C \) is a constant, and \( N_t \) is a stochastic noise component to be modeled. Estimates of the noise and
impact-assessment model were obtained by employing an approxima-
tion to the likelihood function as implemented in the SCA for Fore-
casting and Time Series Analysis, version III (Hillmer & Tiao, 1979; 
Liu, Hudak, Box, Muller, & Tiao, 1986).

The Linear Transfer Function approach was modified by the use of 
the Akaike information criterion (AIC) to provide an objective crite-
rion in model identification (Akaike, 1972, 1973; Larimore, 1983). The 
choice between plausible alternative models was based on the mini-
mization of the AIC. This criterion is defined as:

\[
\text{AIC} = -2 \log_e (\text{maximum likelihood}) + 2k
\]

where \(k\) is the number of parameters estimated. The same number of 
effective observations was used in the AIC calculations to allow precise 
comparisons across model structures.

**Results**

The noise component for the endogenous series which minimized the 
AIC had an ARMA (2,3) structure with autoregressive components 
at the first and second order and a third-order moving average process. 
This noise model can be represented as follows:

\[
N_t = \Phi_1 Z_{t-1} + \Phi_2 Z_{t-2} + a_t - \theta_3 a_{t-3}
\]

where \(\Phi_1\) stands for the autoregressive parameters, \(\theta_3\) for the mov-
ing average parameter, and for a series of independent and identically 
distributed random disturbances. All the parameter estimates of the 
ARMA model were statistically significant (Table 1). All roots of the 
AR and MA polynomials lay outside the unit circle, confirming the 
stationarity of the estimated model.

The three intervention variables were distributed fairly randomly 
throughout the studied period, without a progressive increase of any 
variable over time. None of the impulse response weights of the first 
binary variable (between first and second quartile) were significant, 
hence these intervention values were collapsed with the baseline, 
expanding the baseline to include all weekly averages below the median 
of the collective practice attendance. The value of the constant, repre-
senting the average score of the Reagan ratings during the baseline
period, was 1.10 indicating that there was an overall tendency toward positive verbal support during this period. The second intervention (between second and third quartiles) had a borderline significant impulse response weight of 1.95 one week later ($t = 1.63$, $df = 123$, $p = .053$, one-tailed), and a highly significant impulse response weight of 3.90 at a lag of three weeks ($t = 3.00$, $df = 123$, $p = .002$, one-tailed). The third intervention (beyond the 3rd quartile) had a contemporaneous impulse response weight of 2.18 points which was borderline significant ($t = 1.65$, $df = 123$, $p = .051$, one-tailed), and a significant effect at the three-week lag of 2.67 points ($t = 1.99$, $df = 123$, $p = .024$, one-tailed). The impulse weights for the second and third intervention are given in Table 1 and charted in Figure 1. The steady state gain (the sum of the impulse response weights) of the second intervention is larger than the steady state gain of the third intervention. This is caused by a leading time relationship of the second on the third intervention, rather than that the total effect of the third intervention variable was less than the second. Cross-correlations indicate that weeks with numbers of participants in the collective practice at Maharishi University of Management between the second and third quartile were often followed by weeks beyond the third quartile after three and four weeks ($r = .201$ and $r = .208$, respectively, $p < .025$), thus adding substantially to the impulse response weight of the second intervention at lag three.
### Table 1. Intervention Model Estimates: Ratings of Presidential Statements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Variable</th>
<th>Parameter Type</th>
<th>Order</th>
<th>Value</th>
<th>Std. Error</th>
<th>t(123)</th>
<th>p</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>Const.</td>
<td>0</td>
<td>1.0956</td>
<td>1.2195</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>( \omega_{21} )</td>
<td>I(_2)</td>
<td>Num. 1</td>
<td>1.9539</td>
<td>1.1960</td>
<td>1.63</td>
<td>.053*</td>
</tr>
<tr>
<td>3</td>
<td>( \omega_{23} )</td>
<td>I(_2)</td>
<td>Num. 3</td>
<td>3.9004</td>
<td>1.2993</td>
<td>3.00</td>
<td>.002*</td>
</tr>
<tr>
<td>4</td>
<td>( \omega_{30} )</td>
<td>I(_3)</td>
<td>Num. 0</td>
<td>2.1783</td>
<td>1.3170</td>
<td>1.65</td>
<td>.051*</td>
</tr>
<tr>
<td>5</td>
<td>( \Phi_{33} )</td>
<td>I(_3)</td>
<td>Num. 3</td>
<td>2.6680</td>
<td>1.3425</td>
<td>1.99</td>
<td>.024*</td>
</tr>
<tr>
<td>6</td>
<td>( \Phi_{21} )</td>
<td>Y</td>
<td>MA    3</td>
<td>-0.2689</td>
<td>0.0909</td>
<td>-2.96</td>
<td>.004</td>
</tr>
<tr>
<td>7</td>
<td>( \Phi_{21} )</td>
<td>Y</td>
<td>AR    1</td>
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<td>0.0921</td>
<td>1.81</td>
<td>.073</td>
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<tr>
<td>8</td>
<td>( \Phi_{21} )</td>
<td>Y</td>
<td>AR    2</td>
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<td>0.0889</td>
<td>2.39</td>
<td>.018</td>
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<tr>
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<tr>
<td>Residual Sum of Squares</td>
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<tr>
<td>Ljung-Box Q Statistic (9 d.f.)</td>
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<tr>
<td>R-Square</td>
<td>0.261</td>
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</tr>
<tr>
<td>Likelihood Ratio Statistic (4 d.f.)</td>
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<td></td>
</tr>
<tr>
<td>Effective Number of Observations</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>A.I.C.</td>
<td>784.282</td>
<td></td>
</tr>
<tr>
<td>Residual Standard Error</td>
<td>5.317</td>
<td></td>
</tr>
</tbody>
</table>

*One-tailed
Number of Participants in Collective Practice at Maharishi University of Management

Figure 1. Improved U.S.-Soviet relations (1985–1987) resulting from the practice of the Maharishi Technology of the Unified Field. A content analysis of the presidential public statements about U.S.-Soviet relations from April 1985 to September 1987 was performed employing an adaptation of the COPDAB Peace/War Scale. Using Box-Tiao impact assessment analysis it was found that the weeks in which the number of participants in the collective practice of the Maharishi Technology of the Unified Field at MUM was between the second and third quartiles of collective practice attendance were followed one and three weeks later by significantly more positive statements as rated on the content analysis scale, signifying improved U.S.-Soviet relations. When the number of participants exceeded the third quartile an immediate effect toward improved relations was observed during the same week, followed by another significant increase three weeks later.

A test for the joint significance of the intervention parameter estimates is given by likelihood ratio test (Nelson, 1976: Cavanaugh, 1987), which is based on the following formula:

$$\lambda = N \log_e \left(\frac{\text{SSE}_c}{\text{SSE}}\right)$$

Where N represents the effective number of observations, SSE$_c$ the residual sum of squares for the constrained model (without interven-
tions), and SSE the residual sum of squares for the impact assessment model. The test statistic $\lambda$ follows for large N approximately the Chi-square distribution, with the number of degrees of freedom equal to the number of constrained variables. The likelihood ratio test is a highly significant effect of the collective practice of the Maharishi Technology of the Unified Field on the summarized quality of the statements of President Reagan on the U.S.-Soviet relationship.

The final AIC estimate of the impact-assessment model was 784.282, which was the lowest of several alternative mode structures (including noise and intervention alternatives). In addition, diagnostic tests on the model residuals were satisfactory, with no significant autocorrelations for lags 1 to 12 ($Q = 6.8, df = 9, p > .5$), 24 ($Q = 15.2, df = 21, p > .7$) and 36 ($Q = 20.1, df = 33, p > .9$) as indicated by the Ljung-Box $Q$ statistic (Ljung & Box, 1978). An ARMA (0,0) structure was shown for the extended autocorrelation function of the residuals, suggesting white noise, and the histogram and plot of the residuals showed no gross departure from normality.

**Discussion**

The outcomes are consistent with the hypothesis that large numbers of participants in the collective practice of the Maharishi Technology of the Unified Field affect the U.S.-Soviet relationship in a positive direction, as indicated by an increase in the quantity and quality of presidential addresses with respect to the U.S.-Soviet relationship. When the size of the group exceeds the median, a substantial positive differential effect is observed compared to the impact of a group size of collective practice of the Maharishi Technology of the Unified Field below the median. When the average group size during a particular week lies between the second and third quartiles, a significant positive effect is found one and three weeks later, and when the group size exceeds the third quartile an immediate effect is found the same week, followed by another positive effect three weeks later. The lags of zero, one, and three weeks can be understood as follows: It is within the president’s jurisdiction to make immediate changes in tone and emphasis of speeches and addresses or to decide on minor agreements, which thus will occur immediately or possibly one week later; however, policy and adminis-
trative changes will have to be verified through his staff apparatus, a process that may take several weeks.

The major alternative explanation to be considered is that the increase in positivity in President Reagan’s public statements is a reflection of an increased openness and conciliation from the Soviet side, rather than a result of increased coherence in the United States. Especially, the innovative leadership of General Secretary Gorbachev has been widely praised in this respect by political observers. However, as we noted in our introduction, government leaders are more correctly perceived as the instruments of the collective consciousness, rather than initiators of new developments. According to this point of view, Gorbachev is merely reflecting a newly emerging quality of Soviet collective consciousness. Second, the distribution of the intervention variables was random throughout the two-and-a-half year period, and the dependent variable fluctuated according to the changing number of participants in the collective Transcendental Meditation and TM-Sidhi practice at Maharishi University of Management, while Gorbachev’s presence and apparent impact was constant over the studied period. There were no indications that there was a constantly improving trend in Reagan’s statements, although even intermittent improvement of relations accumulate in the long run, of course, into a permanent better mutual understanding and concrete achievements of enhanced cooperation.

Finally, it has to be understood that, according to Maharishi’s theory, the collective consciousness of various nations are interconnected; when coherence substantially increases in one country, there is more coherence in world consciousness as a whole, reflecting back on all countries in the world. Remarkably, a significant differential impact was observed only in the weeks with more than 1765 participants (the second quartile) in the collective practice at Maharishi University of Management, substantially more than the 1560 participants required to create noticeable effects for the U.S. alone. Apparently, an excess of coherence is needed to improve the relationship between the two superpowers. Thus, it is possible that the structural changes taking place in the Soviet Union at this time are an effect of the increased coherence in the U.S.

Although causality is not easily established in field research, the outcomes were consistent with the theory, contributing to the accumula-
tion of scientific evidence of the Maharishi Effect—which indicates that increased coherence in a population results in improved quality of life as measured by decreased crime rate and traffic fatalities, improved economic welfare, etc., as well as improved international relations. The lag pattern of the effects suggests that improvements in U.S.-Soviet relations are led in time by the number of participants in the collective practice of the Maharishi Technology of the Unified Field occurring at Maharishi University of Management, supporting a causal interpretation. In addition, the fact that significant impacts were observed, while the distribution of the intervention variables was random throughout the studied period, suggests a causal relationship.

The ratings of the presidential statements are very well in accord with substantial and concrete improvements in U.S.-Soviet interactions over the last years, substantiating the validity of ratings of the presidential statements as indicators of U.S.-Soviet relations. The current changes taking place in the relationship between the two superpowers could be of a unique nature, as recently expressed in a front-page article in the *Des Moines Register* (February 28, 1988), under the heading, “U.S., Soviet military moves may signal a turning point.” The article begins:

The United States and the Soviet Union are pulling back from confrontation around the world in what could be the most profound and dramatic change in their relationship since World War II. Military budgets on both sides are leveling off or being trimmed. Weapons are being removed. Military forces are being withdrawn. Bases may be closed. (p. 1)

As noted in the introduction, Maharishi (1978) views the accumulation of armaments as the expression of fear and lack of integrity of national consciousness, a theory that is beginning to be voiced by peace researchers as well (Azar & Burton, 1986). In addition, Maharishi has predicted that increased coherence in world consciousness will enhance the national integrity of all nations, and make a large buildup of weapons obsolete (Maharishi Mahesh Yogi, 1986). The signing of the INF (Intermediate-Range Nuclear Forces) treaty on December 8, 1987, in Washington, D.C., and the present developments toward reduced military budgets are an indication of this direction of development.

In both countries there are signs that the expansionist’s view of saving the world by enforcing one’s own political system and ideology onto
every nation is being questioned. Azar and Burton (1986) suggest that expansionism strategy is ultimately based on fear of system failure. Again, when national integrity is enhanced, expansionism is not necessary for system preservation. Maharishi (1987) predicts that with rising coherence in world consciousness, brought about by an increasing number of coherence-creating groups practicing the Maharishi Technology of the Unified Field throughout the world, all nations will rise to cultural integrity, self-sufficiency, and freedom, political systems will find fulfillment, and permanent world peace can become a living reality:

The fulfillment of the requirement of our time will be the rise of that supreme power which will have only an evolutionary, nourishing ability. In a natural way, most silently, it will not allow anything that would be destructive to life. I am quite sure the superpowers will be happy that now pure knowledge from modern science and Vedic Science is rising to help them to accomplish their cherished goal of nourishing life everywhere. Very soon, capitalism in the world will find fulfillment—all the people will have affluence in life. All the cherished goals of communism to destroy poverty, improve creativity, and have no conflict—all these cherished goals will be fulfilled. Today we have a full heart overflowing for all mankind to bring fulfillment to all philosophies, old and new, and to raise our human race to a level of life which may be heavenly on earth. (p. 9)

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The Dynamics of U.S.-Soviet Relations, 1979–1986:
Effects of Reducing Social Stress
through the Transcendental Meditation
and TM-Sidhi Programs

Paul Gelderloos, Ph.D.
Kenneth L. Cavanaugh, Ph.D.
John L. Davies, Ph.D.
ABOUT THE LEAD AUTHOR

Paul Gelderloos (Ph.D.) received his doctorate at the University of Nijmegen, the Netherlands. In 1983 he joined the faculty of Maharishi University of Management. It was during this time that he conducted the research on the Maharishi Effect and its impact on the U.S. quality of life as well as the international relationship between the U.S. and the former Soviet Union. Two papers resulted, included in this volume. He also published several studies on the Transcendental Meditation and TM-Sidhi programs and psychological measures such as field independence and psychological health; as well as theoretical papers on the development of consciousness. He spent time in India, Thailand, and Russia, where he taught almost 5,000 people the Transcendental Meditation technique. He then returned to the Netherlands, his home country, and became a very successful businessman in the Internet industry. In recent years he has focused on creating invincibility for the Netherlands and for India, by organizing groups of practitioners of the TM and TM-Sidhi programs, by acquiring schools in Holland and by supporting the Maharishi Vedic Pandit project in India.
ABSTRACT

This paper presents an empirical test of a new field-theoretic paradigm of international conflict resolution which predicts that international tensions can be reduced through a technology of consciousness—the Transcendental Meditation and TM-Sidhi programs—which is reported to be highly effective in reducing individual and social stress. Simultaneous transfer function modeling of the dynamic interaction between U.S. and Soviet actions, using content-analyzed events data, found a sizeable and highly significant ($p = .00001$) positive effect of the Transcendental Meditation and TM-Sidhi programs on U.S.-Soviet relations after controlling for the preexisting interaction between the U.S. and U.S.S.R. Significant improvement in both U.S. actions toward the Soviet Union and in Soviet actions toward the U.S. was found during, or shortly following, months in which the average number of participants in the group practice exceeded the predicted critical threshold, with larger groups having a larger impact.

KEYWORDS: U.S.-Soviet relations; International conflict and cooperation; Zurich Project on East-West Relations; International interactions; Time series analysis; Simultaneous transfer function models; Transcendental Meditation.

Introduction

Although the Moscow-Washington bipolarity around which the cold war has revolved now appears to be giving way to a multipolar system involving Japan and Europe (LaFeber, 1989), U.S.-Soviet relations have been the dominant influence on the global political climate over the last four decades. As Nikita Khrushchev once stated: “The case of international tension is like a cabbage. If you tear off the leaves one by one you come to the heart. And the heart of this matter is relations between the Soviet Union and the United States” (New York Times, 1959:3).

Given the long history of Soviet-American confrontation it has been difficult for most analysts to explain the remarkable and sudden warming of relationships between the superpowers over the past few years, along with the consequent transformation of the global political climate. Even President Reagan, on his Moscow Summit visit in
1988, declared: “There is no way I really can explain how I came to be here. I never expected to be here” (Time, 1988a:13). Indeed, the Reagan administration was never able to construct a rationale for the newly established detente (Williams, 1989:279).

This lack of accepted explanations is not a new phenomenon. Political scientists have been frustrated in their attempts to understand and predict the development of the superpower relations for many years. Pipes (1984:47) has characterized efforts in “taking regular readings of the East-West climate as manifested in the level of rhetoric emanating from Washington and Moscow, the prevalence or absence of dialogues and negotiations, and the intensity of their competition in regions outside their immediate control” as fruitless exercises in “meteorology.” According to McClelland (1983:176), the “domain of action and response in international politics has a breadth and complexity that we may have been underestimating.”

Nevertheless, numerous systematic explanations of superpower relations have been proposed. Ruloff and Frei (1985) categorize models of U.S.-Soviet behavior into four groups. Trend models, especially popular in socialist countries, suggest that there is a secular trend toward peaceful coexistence of East and West (with a socialist system ultimately prevailing) (Arbatov, 1981; Paetusiak, 1978). Cyclical models emphasize the periodicities in East-West relations, such as a four-year cycle linked to U.S. presidential elections (Maddox, 1973; Wolfe, 1979). Stimulus-response models of interaction describe an interdependence between U.S. and Soviet actions which could lead either to escalation of conflict or a process of mutually reinforcing cooperative actions and reactions (Frei, 1980). An unresolved issue for these interaction models is causality: what sets the spiral in motion or brings it to a halt? For this Ruloff and Frei (1985) refer to a fourth group of models, describing autoregressive, stochastic processes in which arbitrary “inputs” or external influences produce specific impacts.

Ruloff and Frei (1985) present a mathematical model of U.S.-Soviet interactions using trend, cyclical, autoregressive, and interactive components with quarterly compounded events data from 1950 to 1984. The estimates of their simultaneous equation model of U.S. and Soviet cooperative and conflictive actions lend some support to each of the above-mentioned processes. In particular, their results sug-
suggest that there is a certain lawfulness in U.S.-Soviet behavior which can be mathematically described; but that, given the strong stochastic components of their model, the balances in the complete system of U.S.-Soviet interactions is delicate and highly sensitive to exogenous impulses or shocks.

Several theorists have emphasized the subjective nature of the East-West conflict, and the role of stress, emotions and cognitions. White (1984), for example, identifies tension as the basic source of international conflict. Tension in his definition includes anger and fear, which often become exaggerated in a vicious circle of hostile interaction. According to White (1984), the building up of tension in East-West relations has led to gross cognitive distortions which are reflected in apparently irrational acts such as accumulating nuclear arms sufficient to destroy the world 50 times over. Perceptual distortions and dysfunctional motivational forces in high-stress crisis situations are also emphasized by Lebow (1981) as central determinants of the course of international conflicts. Such factors also impede meaningful steps toward disarmament between the superpowers (Frei, 1986). High levels of societal stress and tension have thus been associated in many ways with increased risk of international or domestic violence (George and Smoke, 1974; Wright, 1942).

Similarly, Maharishi Mahesh Yogi (1986), the founder of the Transcendental Meditation (TM) and TM-Sidhi programs, views social violence as fueled by accumulated collective stress. Thus, from this perspective, the most fundamental requirement for reducing and preventing international conflict is the reduction of collective stress in the societies involved. White (1984) has also argued that none of the traditional approaches to improved superpower relations can be effective in the absence of a concurrent program to drastically reduce psychopolitical tension.

The purpose of this paper is to evaluate the influence on East-West relations of a program that has been reported to have wide ranging beneficial effects on collective stress and quality of life, as reflected in reduced crime, accidents, and violence (for a review, see Orme-Johnson and Dillbeck, 1987). It is hypothesized that groups practicing the Transcendental Meditation and TM-Sidhi programs tend to neutralize collective stress in the surrounding population, generating a more posi-
tive atmosphere of “coherence” in collective consciousness and behavior i.e., greater harmony among diverse interests and tendencies such that violence tends to subside and more constructive values are enhanced (Maharishi Mahesh Yogi, 1976; 1986).

A Technology of Consciousness

The hypothesized effects of the group practice of the Transcendental Meditation and TM-Sidhi programs on society are based on a new sociological paradigm which incorporates a field-theoretic description of consciousness. This field-theoretic view of consciousness displays striking parallels to fundamental features of recent quantum unified field theories in physics (Hagelin, 1987). Just as modern physics has discovered that localized particles can be more fundamentally understood as fluctuations of underlying universal quantum fields, it is proposed that the consciousness of each individual is a localized expression of a more fundamental, underlying field of pure consciousness (Hagelin, 1987; Orme-Johnson, Alexander, Davies, Chandler, and Larimore, 1988). In fact, Maharishi (1986) equates the field of pure consciousness with the unified field described in recent supersymmetric unified quantum field theories, such as the superstring theory (Hagelin, 1987). According to these unified field theories, the whole universe is structured from this fundamental unified field, which is therefore intimately connected (“infinitely correlated”) with all aspects of nature. The Transcendental Meditation and TM-Sidhi techniques are described as allowing conscious awareness to function coherently at this most fundamental level of life (Maharishi Mahesh Yogi, 1986). The impact of coherent activity at such a level is thus not restricted to the individuals engaged in the practice, but, through the underlying field of pure consciousness, extends to some degree throughout the larger environment.

Although the description of such an underlying, interconnecting field of consciousness is new to the social sciences, physicists have proclaimed that such a view is consistent with experimental findings. For example, Bernard D’Espagnat (1979:158) concluded: “The doctrine that the world is made up of objects whose existence is independent of human consciousness turns out to be in conflict with quantum mechanics and with the facts established by experiment.” Sir James Jeans (1932:186) remarked along the same lines that: “Mind no
longer appears as an accidental intruder into the realm of matter; we are
beginning to suspect that we ought rather to hail it as the creator and
governor of the realm of matter.”

In explaining the functioning of society, Maharishi (1978) has fur-
ther introduced the concept of hierarchical levels of collective con-
sciousness—the consciousness of the members of a family, community,
city, nation, or world taken as a whole—as dynamically interconnected
fields underlying individual and collective behavior. In the same way
as the orderly activity of individual brain cells may said to collectively
generate individual consciousness, so also the intelligent functioning of
many individuals in a social system may be said to generate the collect-
tive consciousness of that society. Similarly, as individual consciousness
guides individual behavior, collective consciousness may be understood
as governing the behavior of society.

According to Maharishi (1978), there exists a reciprocal relationship
between individual and collective consciousness. If the awareness of
individuals becomes more coherent, the collective consciousness of that
society correspondingly becomes coherent. This in turn reflects back
and influences all individuals in that social system. Likewise, there is
a reciprocal relationship between the collective consciousness of indi-
vidual nations and world consciousness as a whole. To the degree that
the collective consciousness of the world is coherent, the functioning
of nations will be orderly, and international relations will be mutually
supportive and beneficial (Maharishi Mahesh Yogi, 1986). However, if
stress is accumulated in collective consciousness, insecurity, fear, and
suspicion among nations will dominate. As Maharishi expressed it:

I attribute all the unfortunate trends of the superpowers in their policies
of administration and international affairs to the fact that they are the
victims of the stress in world consciousness. If the superpowers are not
succeeding in becoming friends, this is because of the intense stress in
world consciousness which we, through our technology of conscious-
ness, must neutralize. (Maharishi’s Programme to Create World Peace,
1987:6, 9)

The emphasis in Maharishi’s thinking is thus on the practical applica-
tion of a technology of consciousness to reduce stress. The basic element
of this technology is the Transcendental Meditation program, designed
to allow the mind to experience more subtle levels of awareness until
all mental activity is transcended and the field of pure consciousness is experienced (Maharishi Mahesh Yogi, 1967). The regular experience of pure consciousness has been reported to bring about decreased tension and stress in Transcendental Meditation participants, as indicated by declines in biochemical, electrophysiological, and behavioral indices of stress (e.g., Bleick and Abrams, 1987; Dillbeck and Orme-Johnson, 1987), and by correspondingly improved mental and physical health, enhanced cognitive functioning, and improved social relationships (e.g., Alexander, Langer, Newman, Chandler, and Davies, 1989; Gelderloos, Hermans, Ahlstrom, and Jacoby; Hanley and Spates, 1978; Orme-Johnson, 1987). The more advanced TM-Sidhi program further stabilizes the experience of pure consciousness by developing the ability to think and act from this level of maximum coherence. The TM-Sidhi program has been found to further amplify many of the outcomes of the Transcendental Meditation program (for a review, see Gelderloos and van den Berg, 1989).

Practice of the Transcendental Meditation and TM-Sidhi programs has also been correlated with reduced stress in collective consciousness and behavior, even with only one percent of the population engaged in the practice (Orme-Johnson and Dillbeck, 1987). Further, participation in the collective practice of the Transcendental Meditation and TM-Sidhi programs by as little as the square root of this number in any given population has similarly been associated with an apparent “field effect” of enhanced coherence and reduced stress throughout the social system (Orme-Johnson and Dillbeck, 1987). The theoretical justification for the square root part of this formula is derived from the superposition principle of fields (“constructive interference”) and the fact that the power carried by a field is proportion of the field’s amplitude (Hagelin, 1987). The one percent figure (associated with practice by separate individuals) is an empirical constant of proportionality proposed by Maharishi and confirmed by prior sociological research on this phenomenon, to be reviewed in the following paragraphs.

The first study on the sociological effect of the Transcendental Meditation program evaluated changes in the crime rate for all U.S. cities with a population over 25,000 that were not part of a larger metropolitan area, and in which one percent of the people had learned the Transcendental Meditation program by 1972. Relative to “control”
cities matched for geographic region, population, college population, and prior crime rate level (Borland and Landrith, 1976), there was a significant decrease in the crime rate for the eleven “1%” cities in the following year, while crime increased in the control cities and in the nation as a whole. Following the scientific tradition of naming field effects after the people who first described them (e.g., the Meissner Effect, the Doppler Effect), Borland and Landrith (1976) named this phenomenon the Maharishi Effect, after Maharishi who had first predicted it in 1962 (Thirty Years Around the World, 1986:430). The finding was replicated in a sample of 24 experimental and 24 control cities, and it was also established that crime rate continued to decrease over a five-year period after the 1% threshold was reached (Dillbeck, Landrith, and Orme-Johnson, 1981). Dillbeck (1978) tested this finding through analysis of alternative explanatory variables which have been found to covary with crime figures, such as unemployment, poverty rate, income, educational level, size and density of the population, and age composition, in a sample of cities in the Kansas City area. The Transcendental Meditation program was found to have no less significant effect after controlling for the influence of these variables.

In order to test the hypothesis of causality more directly, the method of crossed-lagged panel correlation was employed on a stratified random sample of 160 U.S. cities and 80 Standard Metropolitan Statistical Areas over a seven-year period (Dillbeck, Banus, Polanzi, and Landrith, 1988). It was confirmed that an increase in the proportion of the population practicing the Transcendental Meditation technique was followed by a significant decline in crime rate in the following years and not vice versa, providing evidence that higher participation in the Transcendental Meditation program was a cause, not an effect, of reduced crime rates.

Because relatively small groups practicing the more powerful TM-Sidhi program are predicted to have equally large sociological effects, introduction of this program in the late 1970s made the Maharishi Effect amenable to experimental intervention studies. Several such studies have been conducted throughout the world (e.g., Israel, India, Philippines, Puerto Rico, United States) during which participants in the Transcendental Meditation and TM-Sidhi programs assembled to practice their program in a single group for limited periods. Quality-of-
life indicators such as crime rate, auto accidents and fatalities, and infant mortality were recorded over extended periods during and outside the intervention period, so that time series analysis could be employed to control for preexisting cycles and trends. Consistently, the experimental periods—times of high attendance in the collective TM-Sidhi practice—were found to be associated with significant improvement in the quality of life, even when controlling for other explanatory variables (e.g., Dillbeck, Cavanaugh, Glenn, Orme-Johnson, and Mittlefehldt, 1987). Two studies of the conflict in Lebanon found significant developments toward peace and significant decreases in war fatalities when assemblies with a sufficient number of TM-Sidhi participants were held (Davies and Alexander, 1989; Orme-Johnson et al., 1988). Larger assemblies were found to have an effect over a proportionally larger distance (Davies and Alexander, 1989), and assemblies with approximately 7,000 TM-Sidhi participants (the square root of one percent of the world’s population) were observed to have a global effect of reduced international conflict and terrorism (Orme-Johnson, Dillbeck, Alexander, Chandler, and Cranson, 1989).

In 1979, a permanent group of Transcendental Meditation and TM-Sidhi participants was established at Maharishi University of Management (previously Maharishi International University, 1971–1995) in Fairfield, Iowa, for the purpose of enhancing the quality of life in the U.S. and improving the international situation. Several studies have investigated the long-term effects of this coherence-creating group which, beginning in 1983 began to frequently exceed the predicted critical threshold for the U.S. A study of the effect of this permanent group on the U.S. quality of life over a 25-year period (Orme-Johnson, Gelderloos, and Dillbeck, 1988) found sharp improvements in the quality of life corresponding to these increases in group size since 1983, as measured by a composite index of eleven social indicators. Structural equation modeling supported a causal interpretation.

In further studies of quality-of-life measures, Dillbeck observed a significant reduction in U.S. violent death (homicides, suicides, and motor vehicle fatalities) as a function of the group size at Maharishi University of Management. A series of studies investigated the impact of this coherence-creating group on a widely used economic quality-of-life indicator, called the “misery index,” defined as the sum of the infla-
tion rate and unemployment rate. Again, reductions in the misery index were found for both the U.S. and Canada corresponding to increases in the Maharishi University of Management group size, particularly when groups exceeded the threshold for the square root of one percent of the U.S. population (Cavanaugh, 1987). The observed impact of the TM-Sidhi group remained significant even when controlling for other related economic variables (Cavanaugh and King, 1988; Cavanaugh, King, and Titus, 1989; Cavanaugh, King, and Ertuna).

The field theoretic model of collective consciousness predicts that an increase in coherence of national consciousness will also contribute to more positive and harmonious behavior in international affairs (Maharishi Mahesh Yogi, 1978). This prediction was tested in a study of U.S.-Soviet relations. It was found that the quality of U.S.-Soviet relations, as reflected in public statements made by the president of the U.S., improved as predicted in the weeks when the Maharishi University of Management group size was larger (Gelderloos, Frid, Goddard, Xue, and Loliger, 1988; Gelderloos, Frid, and Xue, 1989). The model further predicts that such improvements in the coherence of national consciousness and behavior will inspire more cordial responses from others: “even enemies will want to become friends” (Maharishi Mahesh Yogi, 1978:105–106).

Thus, the present study extends the research on the impact of large TM-Sidhi groups by undertaking an empirical analysis of both U.S.-Soviet and Soviet-U.S. interactions, over an extended period, from 1979 to 1986. Given the delicate balance of U.S.-Soviet interactions and the importance of external “shocks” in this relationship (as noted by Ruloff and Frei, 1985), it was predicted that increases in size of a coherence-creating group above the national square root of one percent threshold would produce a positive influence on U.S.-Soviet relations. It was predicted that groups substantially above the threshold (i.e., 1700) would produce a greater impact than groups barely exceeding the threshold (above 1500). For the period of this study, the TM-Sidhi group at Maharishi University of Management was by far the largest permanent such group in the world. Until very recently Transcendental Meditation has not been taught in the Soviet Union. Thus the size of the Maharishi University of Management group is used as the single independent variable in this study.
Method

The relationship between the United States and the Soviet Union from 1979 to 1986 was assessed using events data obtained from the Zurich Project on East-West Relations, directed by Daniel Frei and Dieter Ruloff. These data were derived using Azar’s (1982) Conflict and Peace Data Bank (COPDAB) coding rules and scaling procedures in which each international event is rated on a 15-point scale from extreme cooperation to extreme conflict. The data sources used by Frei and Dieter (1988) were the New York Times and Keesing’s Contemporary Archives.

The COPDAB scales can be converted from ordinal to interval scales using Azar’s (1982) weighting scheme, with neutral events (level 8) scored as zero, and conflictive events weighted negatively. The daily ratings were aggregated into two monthly indices: (1) the U.S.-Soviet index, with the U.S. as actor and the Soviet Union as target, and (2) the Soviet-U.S. index, with the Soviet Union as actor and the U.S. as target. The monthly indices were adjusted for the different lengths of the months by dividing the index by the number of days in the month and multiplying it by 31.

The average monthly size of the TM-Sidhi group (afternoon session) for the period from April 1979 to December 1986 was used as the independent or exogenous variable in the analysis. April 1979 was selected as the beginning of the sample period because this was the first month that the Transcendental Meditation and TM-Sidhi programs were practiced collectively at Maharishi University of Management. To ensure that all 93 observations from April 1979 to December 1986 were employed in the estimation of the time series models, additional pre-sample values from the COPDAB file were used, as necessary, to provide starting values required in statistical estimation. On four occasions when the size of the group at Maharishi University of Management was (temporarily) exceeded by the number of participants in the collective practice at conferences in Amherst, Massachusetts, Washington, D.C. (twice), and The Hague, Holland (the latter group being sufficiently large for the predicted impact to include both the U.S. and Soviet Union), the attendance figures for the larger group were used in the calculation of the monthly average group size. The time series plot of the size of the TM-Sidhi group is shown in Figure 1.
To study the dynamic interaction between U.S. and Soviet actions, as well as to determine whether the Transcendental Meditation and TM-Sidhi programs had a significant influence on U.S. and Soviet actions after allowing for this interaction, a simultaneous transfer function (STF) model was empirically identified and estimated. STF models are a generalization of standard single-equation transfer function (TF) models which incorporate multiple endogenous variables, multiple input variables, and the explicit modeling of dynamic feedback (Liu, 1985; Liu and Hudak, 1985).

Simultaneous transfer function analysis was used to test the hypothesis that a group of participants in the Transcendental Meditation and TM-Sidhi programs at Maharishi University of Management comprising at least the square root of one percent of the U.S. population would have a positive effect on U.S.-Soviet interactions and that relatively larger groups would produce larger effects. Because it was hypothesized that a sharp improvement in U.S. actions toward the Soviet Union would occur when the critical threshold for the size of the TM-Sidhi group was exceeded, impact assessment analysis (Box and Tiao, 1975) was felt to be the most appropriate methodology for analyzing such discontinuous, nonlinear phenomena in time series data.
To implement the impact assessment analysis, three binary intervention variables were included as independent variables in the STF equations to represent months in which the average size of the group of Transcendental Meditation and TM-Sidhi participants fell within specific ranges defined by quartiles of the group size (where the second quartile was approximately equal to the square root of one percent of the U.S. population). The three intervention variables included in the STF equations were “pulse” variables of “0”s and “1”s. Intervention one took the value of zero except in the cases where the average monthly group size fell between the first and second quartiles; intervention two took the value of one when the group size fell between the second and third quartiles; and intervention three took the value of one when the group size was beyond the third quartile. In this way, months in which the average group size fell between the first and second quartile (approximately 1100 to 1500), the second and third quartile (approximately 1500 to 1700), and beyond the third quartile, were compared with months in which the average group size was below the first quartile. The second quartile, about 1500, was approximately equal to the predicted critical threshold for the TM-Sidhi group—the square root of one percent of the U.S. population.

To test the hypotheses stated above, a time series model consisting of two simultaneous transfer function equations was empirically identified and estimated. The STF model examined in this study consists of a system of two unrestricted reduced-form transfer function equations with intervention components:

\[
US_t = C_1 + \beta_1(B)USSR_t + \beta_2(B)I_{1t} + \beta_3(B)I_{2t} + \beta_4(B)I_{3t} + N_{1t}
\]

\[
USSR_t = C_2 + \beta_5(B)US_t + \beta_6(B)I_{1t} + \beta_7(B)I_{2t} + \beta_8(B)I_{3t} + N_{2t}
\]

In these equations, \(US_t\) is the monthly index of U.S. actions at time \(t\), and \(USSR_t\) is the monthly index of Soviet actions at time \(t\); these two variables are taken to be endogenously related. \(I_{1t}\), \(I_{2t}\), and \(I_{3t}\) are the exogenous, binary indicator variables defined above, representing three quartile-based categories for the size of the TM-Sidhi group. The \(\beta_i(B)\) are standard Box-Jenkins transfer functions which describe the dynamic relationship between the input variables and the dependent variable (Box and Jenkins, 1976; McCleary and Hay, 1980).
The form of the transfer function for all variables, including the binary intervention variables, was empirically determined using Liu’s (1985) linear transfer function method described below. B is the backshift operator where $B^k Y_t = Y_{t-k}$. The coefficients $C_1$ and $C_2$ are constant terms, and $N_{1t}$ and $N_{2t}$ are stochastic noise components to be modeled, each of which may take the form of an autoregressive moving average (ARMA) process.

The Linear Transfer Function Approach to Model Identification

Liu’s (1985) linear transfer function (LTF) method was used to identify each of the two transfer function equations of the STF model. The LTF method is a refinement of the “least-squares” approach to the identification of transfer function models (Liu and Hanssens, 1982) which has been shown to outperform the identification method of Box and Jenkins (1976). A major advantage of the LTF procedure is that, unlike the standard Box and Jenkins “prewhitening” approach (1976), it is readily generalizable to multiple input series (independent variables) and can be applied to the identification of transfer functions for binary intervention variables. A further advantage of the LTF method is that simulation studies have shown it to be very effective in detecting the lack of relationships between variables which are, in fact, unrelated, thus reducing the probability of spurious findings (Liu, 1985).

The LTF approach employs three steps in the iterative process of model identification (Liu, 1985): (1) estimation of the impulse response weights for each input variable; (2) determination of the form of the transfer function which best approximates the pattern of the impulse response weights; and (3) determination of the form of the noise model for the dependent variable.

Using the LTF approach, initial estimates of the impulse response weights for each input variable were based on maximum likelihood estimates of the two TF equations after approximating each transfer function by a linear polynomial of impulse response weights $V_i(B)$ (Liu, 1985). The impulse response weights were given by the estimated coefficients of the polynomial $V_i(B) = v_{i0} + v_{i1}B + v_{i2}B^2 + \ldots$, with each polynomial having a maximum lag of four months. Consistent with theoretical expectations of a fairly immediate effect of the TM-Sidhi
group on the quality of U.S.-Soviet interactions, models with higher order lags found no significant impulse response estimates beyond lag four for either the U.S. or Soviet TF equations. For the right-hand-side endogenous input variable in each TF equation, the lag-zero (contemporaneous) impulse response weight was set equal to zero to avoid possible simultaneous equation bias (Liu and Hudak, 1985).

Following Liu (1985), the noise component of each equation of the STF model was initially specified as a first-order autoregressive process. The tentative, initial assumption of an AR(1) noise process, which may be modified later if appropriate, allows a check for the necessity of differentiating and generally improves the efficiency of the initial estimates of the impulse response weights (Liu, 1985). Differencing of all variables in the model would be indicated if the estimated autoregressive parameter were close to 1.0, or, equivalently, if the root of the AR polynomial were on or inside the unit circle, thus suggesting that the noise process is nonstationary with respect to the mean (Liu, 1985).

The next step in the LTF method was tentative identification of the form of the noise model based on the autocorrelation, partial autocorrelation, and extended autocorrelation functions of the estimated noise process of the initially estimated model (Liu, 1985). The choice between alternative plausible noise models was based on the minimization of an objective criterion of model selection, the Akaike information criterion (AIC described below).

After tentative identification of the noise model, the model was then reestimated in order to obtain more efficient estimates of the impulse response weights. Once satisfactory estimates of the impulse response weights were obtained, the pattern of the impulse response weights was examined to identify the form of the transfer function for each input variable. If the estimated impulse response function displays a decay pattern, the corner method may be used to help identify the form of the rational transfer function (Liu and Hanssens, 1982). However, if the estimated impulse response function displays a “cutoff” pattern, this suggests that the transfer function is linear, consisting only of numerator parameters (Liu, 1985; Vandaele, 1983). In the case of all models reported in this paper, such a cutoff pattern was found for all estimated impulse response functions.
Using the tentatively identified transfer functions and the previously identified noise model, each TF equation was then separately estimated and diagnostic checks were used to suggest possible alterations in the model. Nonsignificant TF coefficients were deleted from the model at this stage, with higher-order coefficients being deleted first (Vandaele, 1983:314).

At each step in the identification process, minimization of Akaike’s information criterion was employed as the fundamental criterion for choosing between alternative models (Akaike, 1974). The AIC is defined to be:

$$AIC = -2 \log(\text{maximum likelihood}) + 2k$$

where $k$ is the number of model parameters estimated. Larimore (1983) has shown that the widespread use of the AIC in model identification has a firm foundation in statistical theory. The AIC criterion may be viewed as providing an optimal balance between the competing goals of parsimony and precision of model fit (Larimore and Mehra, 1985). The first term on the right-hand side of the AIC definition above can be interpreted as an indicator of model fit, while the second term can be understood as a penalty for overmodeing. Shibata (1983:238) demonstrates that the AIC “satisfactorily balances both underfitting and overfitting risks, and is asymptotically efficient for selecting one model from a family of models, each specified by many parameters.”

Because the AIC is proportional to the sample size used in estimation, all alternative models were estimated using the same number of effective observations (93) to allow precise comparison across model structures. In the case of nonsignificant differences between AICs, the simpler model with fewer parameters was selected.

The same iterative LTF procedure of model identification described above, as augmented by the use of the AIC, was applied separately to each TF equation. Following tentative identification of each equation, the two equations were jointly estimated by maximum likelihood to yield consistent and efficient estimates of the parameters. Joint estimation improves efficiency because it makes use of information about the correlation between the residuals of the two equations. Because positive effects of the TM-Sidhi group on both U.S. and Soviet actions were
predicted on theoretical grounds, one-tailed tests were used throughout
the paper for all estimated intervention parameters.

Results

The iterative model identification and estimation procedure described
above led to the unrestricted reduced-form STF model shown in Tables
1 and 2. The two transfer function equations of the model were jointly
estimated by maximum likelihood. The AIC for the full STF model
was 1449.704.

**U.S. Actions toward the Soviet Union**

![Graph showing the time series plot of the aggregated monthly ratings of U.S.
actions toward the Soviet Union.](image)

Figure 2. The time series plot of the aggregated monthly ratings of U.S.
actions toward the Soviet Union is shown in Figure 2.

Apart from two possible outliers in 1979 and one in 1983 (to be dis-
cussed below), the series appears to be stationary with respect to mean
and variance. Initial estimates of the U.S. TF equation with an AR(1)
noise specification indicated no need for differencing to induce station-
arity. The noise model which minimized the AIC was autoregressive,
with significant parameter estimates at lags one and seven. For the final
noise model, the roots of the AR polynomial lay outside the unit circle,
confirming stationarity.

Maximum likelihood estimates of the STF equation describing U.S.
actions toward the Soviet Union are shown in Table 1. Because none
of the impulse response weights of the first binary variable (between 1100 and 1500 participants) was significant, this variable was dropped from the model.\textsuperscript{11} Also, none of the parameters estimating the effect of Soviet actions on U.S. actions reached significance, and this variable was therefore dropped from the U.S. equation as well. The nonsignificance of this variable indicates that Soviet actions toward the U.S. did not temporally lead U.S. actions toward the U.S.S.R. during this period.

For intervention variable two (1500 to 1700 participants), a significant intervention parameter estimate of 23.450 ($t = 3.32$, $df = 88$, $p = .0007$; see Table 1) was found at a lag of three months. This estimate indicates that when the TM-Sidhi group rose to an average level of 1500 to 1700 in size, the index of U.S. actions increased by 23.450 points, on average, three months later. This increase is measured relative to the mean of the U.S. scale, -20.538 (the estimated constant term in Table 1), during those months in which the average size for the Maharishi University of Management group was below 1500. For the third intervention variable (group participation averaging more than 1700), a significant intervention parameter estimate of 32.541 was found at lag two ($t = 4.11$, $df = 88$, $p = .00004$; see Table 1).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Variable</th>
<th>Parameter Type</th>
<th>Lag</th>
<th>Parameter Estimate</th>
<th>Std. Error</th>
<th>T Value</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$C_1$</td>
<td>Const.</td>
<td>0</td>
<td>-20.538</td>
<td>4.139</td>
<td>-4.96</td>
<td>.0000</td>
</tr>
<tr>
<td>2</td>
<td>$\omega_1$</td>
<td>I$_2$</td>
<td>3</td>
<td>23.450</td>
<td>7.055</td>
<td>3.32</td>
<td>.0007*</td>
</tr>
<tr>
<td>3</td>
<td>$\omega_2$</td>
<td>I$_3$</td>
<td>2</td>
<td>32.541</td>
<td>7.920</td>
<td>4.11</td>
<td>.0000*</td>
</tr>
<tr>
<td>4</td>
<td>$\varphi_1$</td>
<td>US AR</td>
<td>1</td>
<td>0.194</td>
<td>0.096</td>
<td>2.01</td>
<td>.0475</td>
</tr>
<tr>
<td>5</td>
<td>$\varphi_2$</td>
<td>US AR</td>
<td>7</td>
<td>-0.219</td>
<td>0.085</td>
<td>-2.58</td>
<td>.0115</td>
</tr>
</tbody>
</table>

Because the monthly ratings of U.S. and Soviet actions do not constitute a ratio scale of measurement, it is not meaningful to express the
improvement in these ratings as absolute percentage changes. The relative magnitude of these effects, however, can be characterized as a proportion of a measure of variation in the rating of U.S. or Soviet actions. Because the standard deviation, like the range, may be unduly influenced by outliers, the interquartile range (the third quartile minus the first quartile) was used for this purpose. The interquartile range (IQR) measures the spread of the middle 50 percent of the data, a measure of variability widely used in robust data analysis because it is unaffected by extreme values (e.g., see Hoaglin, Mosteller, and Tukey, 1983). Using this standard of comparison, the parameter estimates in Table 1 for intervention variables two and three represent increases equal to 71.7% and 99.6% of the interquartile range, respectively, for the monthly index of U.S. actions toward the Soviet Union.

**Soviet Actions toward the U.S.**

The plot of this endogenous variable is shown in Figure 3. No transformations of the series appeared necessary to stabilize the variance, and initial estimates of the full LTF model with an AR(1) noise specification indicated no need for differencing to induce stationarity.¹²

**Soviet Behavior toward the United States**

Figure 3. Time series plot of the aggregated monthly ratings of Soviet actions toward the United States.
The STF equation describing Soviet actions toward the U.S. had an autoregressive noise component with significant parameter estimates at lags one and six (Table 2). The roots of the AR polynomial lay outside the unit circle, verifying stationarity. None of the intervention parameter estimates for binary variables one and two (below 1700 participants) was significant, so these variables were dropped from the final model.

A significant parameter estimate at lag one was found for the variable describing the effect of U.S. actions on Soviet actions. The latter parameter estimate of 0.167 ($t = 2.11, df = 86, p = .0378$) indicated that, on average, U.S. actions during this period led Soviet actions by one month. This estimate suggests that, other things equal, an increase of one point in the index of U.S. actions was followed by an increase of 0.167 points in the index of Soviet actions one month later. The significant effect of U.S. actions on Soviet actions also implies an indirect effect of intervention variables two and three on Soviet actions via the effect of these two variables on U.S. actions (see Table 3). In addition, a significant direct effect of intervention variable three (group participation more than 1700) on Soviet actions was indicated by intervention parameter estimates at lag 0 (12.296), lag 2 (20.619), and lag 4 (17.835), as shown in Table 4. These three estimates were all significant at the .05 level or better ($r = 1.82, df = 86, p = .0361; t = 2.82, 86, p = .0030; t = 2.49, 86, p = .0073$, respectively). The total steady state, or long-run, effect of the TM-Sidhi group on Soviet actions, direct and indirect, is given by the “steady state gain” (or “long-run multiplier”) for intervention variables two and three, as described below.

The reduced-form STF model also provided evidence of a significant, positive, contemporaneous relationship between U.S. actions and Soviet actions. This was shown by the significant, positive correlation between the residuals of the two STF equations ($r = .474, t = 4.568, df = 81, p < .00002$) (Liu, 1985).

A likelihood ratio test of the hypothesis that the impact assessment parameters in both STF equations are all equal to zero may be based on the statistic (Nelson, 1976):

$$\lambda = -2 \log_e (L_c / L_u),$$

where $\log_e$ is the natural logarithm, $L_c$ is the maximized value of the
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Variable</th>
<th>Parameter Type</th>
<th>Lag</th>
<th>Parameter Estimate</th>
<th>Std. Error</th>
<th>T Value</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$C^2$</td>
<td>Coast.</td>
<td>0</td>
<td>-28.105</td>
<td>4.140</td>
<td>-0.79</td>
<td>.0000</td>
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<td>2.</td>
<td>$\omega^3$</td>
<td>US</td>
<td>1</td>
<td>0.1.67</td>
<td>0.079</td>
<td>2.11</td>
<td>.0378</td>
</tr>
<tr>
<td>3.</td>
<td>$\omega^4$</td>
<td>I^3</td>
<td>0</td>
<td>12.296</td>
<td>6.772</td>
<td>1.82</td>
<td>.0061*</td>
</tr>
<tr>
<td>4.</td>
<td>$\omega^5$</td>
<td>I^3</td>
<td>2</td>
<td>20.619</td>
<td>7.309</td>
<td>2.82</td>
<td>.0030*</td>
</tr>
<tr>
<td>5.</td>
<td>$\omega^6$</td>
<td>I^3</td>
<td>4</td>
<td>17.835</td>
<td>7.165</td>
<td>2.49</td>
<td>.0073*</td>
</tr>
<tr>
<td>6.</td>
<td>$\Phi^3$</td>
<td>USSR</td>
<td>AR</td>
<td>0.348</td>
<td>0.091</td>
<td>3.81</td>
<td>.0003</td>
</tr>
<tr>
<td>7.</td>
<td>$\Phi^4$</td>
<td>USSR</td>
<td>AR</td>
<td>-0.186</td>
<td>0.081</td>
<td>-2.30</td>
<td>.0239</td>
</tr>
</tbody>
</table>

**Residual Study of Squares**: 695050

**R-Square**: 0.460

**Effective Number of Observations**: 93

**Residual Standard Error**: 27.338

**Ljung Box Q Statistic (10df)**: 10.1

**AIC for STF Model**: 1449.704

* One-tailed
likelihood function for the constrained STF model (with intervention variables excluded from the model), \( L_u \) is the maximum likelihood value for the complete STF model, and the statistic \( \lambda \) follows the chi-square distribution with degrees of freedom equal to the number of constrained parameters. The likelihood ratio test of the joint significance of all intervention parameters in both equations was highly significant (\( \lambda = 30.6045, p = .00001 \)), indicating that the null hypothesis of no effect of the group practice of the Transcendental Meditation and TM-Sidhi programs on U.S. and Soviet actions must be strongly rejected.

The steady state gain for each intervention variable is shown in Table 3, which shows the total long-run effect of each variable on U.S. and Soviet actions. Also shown in Table 3 is the gain expressed as a proportion of the interquartile range (IQR). A striking feature of Table 3 is the abrupt increase in the positive effect of the Maharishi University of Management group on U.S. actions—as predicted by the theory of collective consciousness—beginning with groups averaging more than the 1500 critical threshold. Likewise, for the Soviet Union, although there was no significant direct impact for a group size of 1500, the gain increased dramatically when the higher threshold of approximately 1700 group participants was reached. The bigger effect of larger groups for both countries is thus apparent.

<table>
<thead>
<tr>
<th>Average Group Size</th>
<th>Gain</th>
<th>Gain as % of IQR</th>
<th>Gain</th>
<th>Gain as % of IQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1109–1505</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>1506–1703</td>
<td>23.450</td>
<td>71.760</td>
<td>3.914</td>
<td>7.349</td>
</tr>
<tr>
<td>1704–</td>
<td>32.541</td>
<td>99.582</td>
<td>56.181</td>
<td>105.492</td>
</tr>
</tbody>
</table>

*IQR is interquartile range (third quartile minus first quartile)

To illustrate the interpretation of the gain estimates, Table 3 indicates that, other things equal, a sustained rise of the TM-Sidhi group to
a level above approximately 1700 would result in an ultimate improvement of 56.181 points in the monthly rating of Soviet actions toward the U.S. This estimated effect amounts to 105.5% of the interquartile range for the index of Soviet actions toward the U.S. The estimated effect of this same variable on U.S. actions was comparable in percentage terms.

Diagnostic checks on the residuals from the two STF equations indicated that both residual series appeared to be uncorrelated white noise. For the residuals from the U.S. equation, no significant autocorrelations were found at lags 1 to 24 and the null hypothesis that all autocorrelations are zero also could not be rejected using the Ljung-Box test (Ljung and Box, 1978) for lags 1 to 12 ($Q = 7.1$, $df = 10$, $p = .72$) or lags 1 to 24 ($Q = 15.6$, $df = 22$, $p = .84$). Likewise, for the residuals from the Soviet equation, the Ljung-Box statistic was not significant for lags 1 to 12 ($Q = 10.1$, $df = 10$, $p = .43$) or lags 1 to 24 ($Q = 17.7$, $df = 22$, $p = .72$). In addition, using a powerful test for periodicity based on the periodogram of residuals (Siegel, 1980), no evidence of significant seasonal or other cyclical behavior was found in the residuals of the U.S. or Soviet equations ($p = .67$ and $p = .60$, respectively). The latter test indicates that the AR noise models and other components of the model satisfactorily modeled any cyclical behavior, such as that found by Ruloff and Frei (1985) in quarterly events data. Finally, the cross-correlation matrices for the bivariate residual series showed no significant leading or lagging cross-correlations for lags 1 to 24, consistent with the hypothesis of a bivariate white noise process (Liu, 1985; Liu and Hudak, 1985).

To determine if the positive effects of the TM-Sidhi group on U.S. and Soviet actions could be attributed to the influence of a few large outliers, recently developed methods for the detection of time series outliers and explicit modeling of outlier effects were used (Liu et al, 1986; Chang, Tiao, and Chen, 1988; Wei, 1990). These methods, as well as the resulting empirical findings, are described in greater detail in Gelderloos and Cavanaugh (1990). For the U.S. residuals, the outlier detection test indicated the presence of negative residual outliers corresponding to December 1979 and January 1980 (Soviet invasion of Afghanistan) and September 1983 (Soviet downing of a Korean Airlines passenger jet). One positive residual outlier was found for the...
Soviet equation, corresponding to the November 1985 Geneva Summit between Gorbachev and Reagan. Apart from these few outliers, the plot of both residual series appeared to be consistent with the hypothesis of white noise processes with stable variance.

To adjust for effect of these outliers, additional intervention components were included in each STF equation to explicitly model the outlier effects, and then the STF model was reestimated. For both the U.S. and Soviet equations, significant TM-Sidhi parameter estimates again were found at the same lags as before, and all estimates remained positive and sizeable. The likelihood ratio test for the TM-Sidhi parameters in the STF model also remained highly significant ($\lambda = 26.092$, $df = 5$, $p = .00009$). Thus the outlier-adjusted STF results confirm that the significant estimated effects of the TM-Sidhi group on U.S. and Soviet actions were not simply due to the influence of a few extreme observations.

**Discussion**

The empirical analysis indicates a highly significant relationship between increases in the size of the coherence-creating group at Maharishi University of Management and subsequent improvement in U.S. actions toward the Soviet Union, as measured by events data for the period 1979 to 1986. This impact was felt three months after the average size of the group exceeded the predicted minimum critical threshold of approximately 1500, approximately the square root of one percent of the U.S. population. In months that the group size exceeded 1700, an even larger effect was observed more immediately (two months later). Likewise a significant and positive leading relationship between the size of the TM-Sidhi group and Soviet actions toward the U.S. (as well as a significant contemporaneous effect) was found. This estimate of the direct effect of the U.S. group on Soviet actions found that increases in the size of the group to a level above 1700 had an immediate positive effect and were followed by improvement in Soviet actions two to four months later. These positive effects on both U.S. and Soviet actions were quite large, as compared with a standard measure of variability (the interquartile range) for the content-analysis ratings. Thus the estimated effects of the Transcendental Meditation and TM-Sidhi group were practically, as well as statistically, significant.
Using a statistical model consisting of two simultaneous transfer function equations, the empirical analysis controlled for the dynamic interaction of U.S. and Soviet behavior and also provided estimates of the nature of that interaction. The simultaneous transfer function analysis found a positive effect of U.S. actions on Soviet actions one month later, with no significant leading effect of Soviet actions on U.S. actions. Because of the estimated effect on U.S. actions of a TM-Sidhi group of 1500 to 1700 in size, a small, but significant, indirect effect on Soviet actions of this lower group-size category was also implied by this effect of U.S. actions on Soviet actions. Also, a significant, positive contemporaneous interaction between the superpowers’ actions was found.

In an attempt to establish the pattern of leading-lagging relationships between the superpowers within the one-month periods, the same statistical procedures described above were used to analyze weekly, rather than monthly, averages of the same daily data. Although the identified model was different for the weekly series, the overall results were very similar. Again, significant, positive effects on U.S. actions were found for groups above the 1500 threshold, as well as positive direct effects on Soviet behavior for groups exceeding 1700 in size. Also, significant leading effects of U.S. behavior on the Soviet Union were found (with lags of one and four weeks), but no leading effects of Soviet actions on the U.S. were detected. For the weekly data, the correlation between the residuals of the equations decreased, indicating a weaker contemporaneous interaction between U.S. and Soviet actions.

The warming of East-West relations has been popularly attributed to the coming to power of Mikhail Gorbachev in 1985. Causal attribution processes (Kelley, 1967) lie undoubtedly at the basis of such perceptions and have led to the “great man theory,” which holds that major events in national and international affairs are influenced by the people who hold positions of leadership (Wood, 1913). This theory, however, has been long since refuted by scientific evidence (e.g., Simonthon, 1979). Although the bold and brilliant political leadership of Mr. Gorbachev must be acknowledged, it still needs to be explained how such a dynamic reformer was appointed General Secretary in the first place, and how he has managed to retain broad support. Interestingly, the traditional Russian view has always been that leaders merely represent...
fundamental historical forces and social factors. As expressed by Tolstoy (1869/1942: 671) in *War and Peace*.

In historical events great men—so called—are but the labels that serve to give a name to an event, and like labels, they have the least possible connection with the event itself. Every action of theirs, that seems to them an act of their own free will, is in an historical sense not free at all . . . .

This point of view is parallel to Maharishi’s theory of government (Maharishi Mahesh Yogi, 1978). Maharishi proposes that collective consciousness governs the destiny of a nation, and the head of the government is an instrument or mirror of the collective consciousness. When coherence in collective consciousness is rising, skillful leaders will be appointed to office and their actions will be effective and contribute to the progress of the nation as a whole, and to fruitful international relations. Conversely, any leadership will be unsuccessful to the extent that stress is allowed to accumulate in collective consciousness (Maharishi Mahesh Yogi, 1978).

To address the issue of Gorbachev’s role in the improvement of East-West relations more quantitatively, another binary variable representing Gorbachev’s leadership of the U.S.S.R. was added to the weekly and monthly STF models. This binary variable took the value 1 in March 1985, when Gorbachev was appointed General Secretary, and was set equal to zero before that period. This analysis of the monthly and weekly data found that Gorbachev’s presence did indeed coincide with more positive Soviet actions toward the U.S. (and, in effect, replaced the TM-Sidhi intervention variable in the Soviet equation of the monthly, but not the weekly series). However, the Gorbachev factor had no significant influence on U.S. behavior toward the Soviet Union; the U.S. continued to lead Soviet behavior rather than vice versa, and, most importantly, the intervention variables for the TM-Sidhi group in the U.S. equation remained significant for both the weekly and monthly series (as well as the weekly Soviet series). That the TM-Sidhi group significantly contributed to more positive U.S. actions toward the Soviet Union independent of Mr. Gorbachev’s influence is also supported by the findings of an earlier study which analyzed the impact of the TM-Sidhi group on U.S. presidential statements regarding U.S.-Soviet relations from April 1985 to December 1987, fully within the
Gorbachev period (Gelderloos et al. 1988). Thus even if Gorbachev is considered as an additional “exogenous” variable, the TM-Sidhi group continued to have a significant, positive effect on East-West relations. One attraction of the theoretical model of rising coherence in world consciousness generated by a large group of TM-Sidhi participants (Maharishi, 1986) is that this model is more parsimonious and comprehensive than one which adds the new Soviet leadership as an additional explanatory variable. Maharishi’s model explains both improved U.S.-Soviet behavior and the coming to power of a successful new leadership in the Soviet Union as the result of rising coherence in collective consciousness.

It could be argued that the outcomes of this study are merely the result of a spurious correlation arising from the coincidental association of instances of improved U.S.-Soviet relations with periods in which the size of the TM-Sidhi group at Maharishi University of Management increased. But this “spurious correlation” interpretation cannot account for the consistent leading relationship between the size of the TM-Sidhi group and both U.S. and Soviet actions. Nor can it explain why a significant relationship was found only for groups exceeding the predicted critical threshold and not below. Also supportive of a causal interpretation of these findings is that several previous studies have found significant contributions of the group practice of the Transcendental Meditation and TM-Sidhi programs to the reduction of international conflict and terrorism, with larger groups being found to have an effect at greater distance (Orme-Johnson et al., 1988; Davies and Alexander, 1989). Lending additional weight to a causal interpretation is that more than 30 other studies have likewise been able to reject the null hypothesis of no effect of the group practice of the Transcendental Meditation and TM-Sidhi programs on a wide range of other quality-of-life variables (e.g., Dillbeck et al., 1987; Dillbeck et al., 1988).

Further support for a causal interpretation of these results on U.S.-Soviet relations is provided by the fact that simulation studies have shown that, in contrast with some other influential time series methods, the statistical procedure of model identification used in this study is very effective in detecting the lack of significant relationship between unrelated variables. According to Liu (1985:11), simulation studies on the linear transfer function procedure indicate that “the LTF method
is very effective in the identification of unrelated variables in a system." To investigate further the possibility that the relationships were spurious we tested the effects of “pseudo-interventions.” We replaced the two significant intervention variables (I₂ and I₃) with five series of two variables (with equal numbers of nonoverlapping observations as I₂ and I₃) which were based on computer-generated randomly chosen months. None of the five “pseudo-interventions” showed a positive impact on U.S. behavior (three parameters with negative estimates were found). One “pseudo-intervention” variable had a marginally significant parameter with a positive value in the Soviet equation. These outcomes would be expected by chance alone (five intervention series with two intervention variables on two equations truncated at four lags give 100 outcomes).

Nor can trends, or seasonal or other cycles explain the results. The time series approach is specifically designed to adjust for spurious correlations arising from seasonal or other cycles and trends. The residuals from the STF model were found to be uncorrelated white noise, indicating that the STF model satisfactorily modeled any systematic time series behavior of these variables and their mutual relationships. In particular, the test for periodicity applied to the model residuals was not significant, indicating that any cycles of the type found by Ruloff and Frei (1985) in quarterly events data were adequately modeled by the autoregressive noise components of the STF model.

Finally, it was found that these results cannot be explained by the influence of a few extreme observations or outliers. As described above, the estimated positive effect of the TM-Sidhi group on both U.S. and Soviet actions remained large and significant in all cases when systematic adjustment was made for possible outliers. The outlier-adjustment procedure implicitly assumes that the size of the TM-Sidhi group had no effect on the occurrence of the incidents which gave rise to these outliers, and models them as exogenous events. However, the theory of conflict resolution presented in this paper predicts that events which increase U.S.-Soviet tensions are more likely to occur when the size of the TM-Sidhi group is below the critical threshold for creating coherence in U.S. consciousness. Likewise, the probability of positive events is increased when the group exceeds the threshold. Thus from the standpoint of the theory of collective consciousness, such incidents are
seen as endogenous, not exogenous events. One could argue, therefore, that the outlier-adjusted results provide an overly conservative, albeit supportive, test of the major hypothesis of this paper.

The findings of this study, then, are consistent with the hypothesis that a large creating-coherence group in the United States significantly contributed to improved superpower relations over the period 1979 to 1986, and that a relatively larger group size had a bigger effect. Multiple time series analyses found both a direct positive influence of this group on U.S. actions toward the Soviet Union and on Soviet acts toward the U.S., as well as a positive indirect effect on Soviet actions via the leading effect of U.S. actions on Soviet actions.

How can it be explained that such a small of group of people can create effects on such a large scale? We offer two approaches to this issue. First, as noted above, the Transcendental Meditation and TM-Sidhi programs are described as promoting coherent activity at the most basic and expanded level of pure consciousness, understood as the common basis of all activity in nature (Hagelin, 1987; Maharishi Mahesh Yogi, 1986). In the same way as a small sound impulse at a critical point in snow clad mountains can generate a tremendous avalanche, or an infinitesimal modification in a DNA molecule can result in massive changes in its expressed forms, equally, coherence being generated at the most fundamental level of nature’s functioning can generate powerful outcomes. If pure consciousness is in fact identical with the unified quantum field, it may be said to display the property of infinite correlation—whereby any stir being created at that level can influence behavior anywhere in the universe (Hagelin, 1987).

Alternatively, as observed by Ruloff and Frei (1985), the relationship between the U.S. and Soviet Union involves a very delicate balance. It is in fact a highly integrated system. Small influences can set a whole spiral of actions into motion with potentially worldwide implications. In an analysis of the superpowers’ nuclear arms control agreements, Goodin (1988) notes that both sides are actually “peace-loving” enough, but only four agreements have been made in the last 37 years because their “pacific moods” did not match up more often (the U.S. was in a mood to sign when the Soviets were not, and vice versa). According to this analysis, lack of greater progress in U.S.-Soviet relations was more a coordination, or coherence problem than anything else. Thus the cre-
ation of additional coherence in collective consciousness may serve to set off a positive spiral of U.S.-Soviet interactions—matching “pacifc moods” to allow cooperation, alleviating imagined fears of invasion or loss of inuence, correcting misperceptions, promoting more rational thinking, etc. One possible indication of more rational and cooperative behavior during the period of this study is that both the U.S. and the Soviet Union began to think more in terms of mutual security than mutually assured destruction (about which Reagan remarked in 1981: “You better believe it’s MAD!” *Time*, 1988b:31). Gorbachev in his keynote address at the Twenty-Seventh Soviet Party Congress in 1986 declared:

> The supreme wisdom does not lie in being concerned exclusively about yourself, much less to the other side’s disadvantage. The need is for all to feel equally secure, for fears and alarms of the nuclear age can give rise to unpredictability in policy and concrete acts. (*Pravda*, 1986).

In conclusion, the results of this study offer strong empirical support for the hypothesis that the practice of the Transcendental Meditation and TM-Sidhi programs by a group of suficient size can contribute to a significant easing of international tensions through the reduction of stress in national consciousness. The evidence presented in this paper, together with that presented in the other empirical studies discussed, suggests that this new approach to conict management may offer ful- lishment in the search for a “science of peace” (e.g., see Rapoport, 1989: S8S-S92) capable of offering policy-makers truly effective means for the reduction and prevention of international conict. In particular, the evidence suggests that progress toward the goal of greater harmony and cooperation in the family of nations may be signicantly accelerated by the establishment in several nations of coherence-creating groups to reduce the threats to security from either internal or international behaviors driven or exacerbated by high levels of stress.

**Acknowledgements**

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References


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**Notes**

1. COPDAB data was only available through 1978 at the time of the analysis. Data from 1979 through 1986 were collected by Frei and Dieter using Azar’s coding rules and scaling procedures.

2. More precisely, the binary variables were equal to 0 except that binary variable one was equal to 1 when the group averaged 1108.55 to 1505.50, variable two equalled 1 when the group average exceeded 1505.50 up to 1703.26, and variable three equalled 1 when the average group participation exceeded 1703.26.

3. Based on mid-year population estimates (United Nations, 1988), the theoretical threshold value ranged from approximately 1500 in 1979 to 1554 in 1986. Since the calculation of the theoretical threshold for the size of the TM-Sidhi group ignores the possible influence of several other TM-Sidhi groups of smaller size in the U.S., as well as the effect generated by the more than one million individual practitioners of the Transcendental Meditation technique in the U.S., the threshold specified in this study is an approximation. Although the theory suggests that the critical threshold increases over time as the U.S. population grows, this rising threshold over the sample period of this study falls entirely within the lower range of intervention variable two (groups of 1500 to 1700).
An unrestricted reduced-form model is one which is empirically estimated from available data, as opposed to a reduced-form model (a “derived reduced-form” model) which is mathematically derived from a prespecified structural model (Liu and Hudak, 1985). In a reduced-form model, contemporaneous endogenous relationships are not explicitly modeled, but the magnitude and significance of these relationships between endogenous variables may be determined by the contemporaneous correlation between the residuals of the STF equations (Liu, 1985).

Omitting the “i” subscripts for simplicity, each of the transfer functions $\beta_i(B)$ may be expressed in general as the ratio of two polynomials $\omega(B)/\delta(B)$ where $\omega(B)$ is a polynomial of “numerator parameters” $\omega(B) = (\omega_0 + \omega_1 B + \ldots + \omega_{s-1} B^{s-1}) B^b$, $b$ is a delay parameter, and $\delta(B)$ is a polynomial of “denominator parameters” $\delta(B) = 1 - \delta_1 B - \ldots - \delta_r B^r$.

Maximum likelihood estimates were obtained using an approximation to the likelihood function due to Hillmer and Tiao (1979) as implemented in the SCA System for Forecasting and Time Series Analysis, version 3.2 (Liu et al., 1986).

The AIC is an entropy-based criterion of model adequacy. Larimore (1983) demonstrates that use of the AIC for the evaluation of model order, model structure, and parameter estimates can be justified for both large and small samples on the basis of the fundamental statistical principles of sufficiency and asymptotic likelihood.

Because single-equation maximum likelihood estimates of the reduced-form parameters are consistent, but not necessarily efficient, tentative model identification may proceed equation by equation prior to joint estimation of the system (Liu and Hudak, 1985).

Although we refer to actions, in the case of international interactions a majority of these actions are actually verbal or written statements.

The AR(1) parameter estimate was 0.150, with standard error 0.120. Since the AR(1) estimate was 7.06 standard errors below 1.0, a formal test for unit roots was not necessary.
11 Because binary variable one was deleted, the constant term provides an estimate of the mean of the U.S. scale when the size of the Maharishi University of Management group was below 1500 participants.

12 The AR(1) parameter estimate was 0.508, with standard error 0.114. A formal test for unit roots was not felt to be necessary because the AR(1) estimate was 4.30 standard errors below 1.0.

13 For linear transfer functions such as those reported in this paper, the gain is given by the sum of the intervention parameters for each variable (Box and Jenkins, 1986). For the Soviet equation, this sum for each variable was calculated after substituting the U.S. equation into the Soviet equation. Although intervention variable two does not appear in the STF equation describing Soviet actions, after this substitution this variable did show a small indirect effect on Soviet actions via its effect on U.S. actions. The gain for intervention variable one was zero in all cases because it was not significant in either STF equation.

14 For the residuals from the Soviet equation, only two (barely) significant autocorrelations were found at high lags (18 and 20) for lags 1 to 36, approximately equal to the number expected by chance alone (1.8) if the null hypothesis of white noise were true and 36 individual tests for autocorrelation were conducted at 0.05 level.

15 The outliers for December 1979 and September 1983 were “additive outliers,” as defined in the references above, while the outlier for January 1980 was an “innovations outlier.” Outliers were defined as residuals having an outlier test statistic of 3.5 or greater, where 3 J represents a “moderately large” significant outlier (Liu et al. 1986:3.106). Outlier detection and adjustment was performed using the SCA System software, version 3.2 (Liu et al., 1986).

16 The positive Soviet residual outlier was an additive outlier.

17 For intervention variable two, the gain for the U.S. was 16.560 (50.7% of the IQR) and 3.946 (7.4% of the IQR) for the U.S.S.R. For variable three, the gain for U.S. actions was 23.465 (71.8% of the IQR) and 47.901 (89.9% of the IQR) for Soviet actions. The reason for the reduction in the size of the intervention estimates for the U.S. equation was that the Afghanistan crisis began during two months in which the size of the Maharishi University of Management group was very low (1152 and 1264). (Also the KAL inci-
dent occurred on September 1, 1983, following three consecutive months in which the average size of the group was 1332, far below the estimated 1700 needed to substantially improve Soviet actions toward the U.S., see Table 2). Thus modeling these monthly observations as exogenous outliers increases the mean for U.S. actions during the baseline period. Since the intervention effects of larger groups are measured relative to this baseline mean, the increase in the mean leads to a decrease in the size of the U.S. intervention estimates of about the same size. For the Soviet equation, the intervention estimates for a group of 1700 or more decreased because the Geneva Summit occurred in a month in which the average size of the group was very large, 1839 participants (and after nine consecutive months in which participation averaged more than 1850), thus reducing the estimated impact of the larger group.

The strength and significance of the contemporaneous relationship between U.S. and Soviet actions decreased ($r = .290$, $t = 2.797$, $df = 77$, $p < .007$), indicating that a large proportion of the contemporaneous correlation in the non-adjusted model was caused by the events described in the previous footnote. In the Soviet equation, the estimated effect of U.S. actions on Soviet actions at lag one increased to 0.238 ($t = 3.61$, $df = 84$, $p = .0005$). Also the $R^2$ for the Soviet equation increased to .58 while that for the U.S. equation increased to .59. Despite the greater “noisiness,” or purely random variation, generally found in monthly data, these $R^2$ values are well above the weighted average of .40 found by Ruloff and Frei (1985) for quarterly events data over a longer sample period. Although the $R^2$ values in the two studies are not directly comparable because they involve different dependent variables, this comparison does at least provide a tentative indication of the potential importance of including the TM-Sidhi variables in the analysis of U.S.-Soviet interactions.

Pure impact assessment models using the same binary intervention variables as the STF analysis were also estimated for both U.S. and Soviet actions. Significant intervention parameter estimates were found at the same lags as in the corresponding STF equations, and the size and significance of the results were very close to those for the STF equations, both with and without adjustment for outliers. Using the LTF method, we also estimated univariate transfer function (TF) models, with the index of U.S. actions (or Soviet actions) as the dependent variable and the actual monthly average number of participants in the TM-Sidhi group as the independent variable. Because the TF model provides only an estimate of the linear dynamic relationship
between the two variables, including periods in which the group was below the predicted critical threshold, and does not allow a test of the nonlinear threshold effects of the Maharishi University of Management group, this approach provides an overly conservative test of the major hypothesis of this study. Despite the conservative nature of the test, the TF model for the U.S. (with adjustment for outliers) showed that, on average, an increase of 100 in the average size of the group led to a significant contemporaneous increase of 1.217 points in the rating of U.S. actions \( (t = 2.66, \, df = 87, \, p = .0162) \). This estimate implies an increase of 18.25 for a group of 1500, or 20.68 for a group of 1700, effects comparable in size to those found in the STF analysis. However, the difference of 200 participants is estimated to be 2.435 in the TF model, while the impact assessment difference (with adjustment for outliers) between the second and third intervention variables was estimated to be 6.905 points. These contrasting values confirm that the Maharishi Effect is indeed nonlinear, but has a larger effect beyond certain thresholds. A positive, contemporaneous effect was also found in the TF model of the Soviet Union, but the estimate was not significant since the results reported in Table 2 indicate that a group of more than 1700 was required to significantly influence Soviet actions, so the insignificance of the latter TF estimate was not surprising.

20 This finding is certainly in contrast with the popular view that improved relations between the superpowers have been due largely to Soviet initiatives. Yet close observers note that the U.S. was actually the first to propose some of the major disarmament measures, and it was only several years later that the Soviets were ready to accept, for example, Reagan’s proposed zero option for INF missiles (Adelman, 1988).

21 A major part of the simultaneous interdependence between U.S. and Soviet actions seems to be caused by artifacts of the content-analysis procedure—in the case of direct interactions (such as meetings or negotiations), the same news items are scored for both series, U.S. and Soviet actions.

22 Frei and Ruloff (1988) observe that most of the major turning points in U.S.-Soviet relations occurred before the events generally considered by the public to be the key events leading from cold war to detente, and vice versa. Analysts note that the new reform trend first emerged under Andropov in 1983, who actually reintroduced the concept of glasnost. In particular, Andropov initiated the new direction by skillfully promoting officials to high office, including his protege Gorbachev, who were dissatisfied with the situation under Brezhnev and who thus were potential reformers (Tucker, 1987).
An Experimental Analysis of the Application of the Maharishi Technology of the Unified Field in Major World Trouble Spots: Increased Harmony in International Affairs

David W. Orme-Johnson, Ph.D.
Michael C. Dillbeck, Ph.D.
Jean G. Bousquet
Charles N. Alexander, Ph.D.
ABOUT THE LEAD AUTHOR

David W. Orme-Johnson, Ph.D., was Chairman of the Psychology Department, Director of the Doctoral Program in Psychology, and Director of the Institute of World Peace at Maharishi International University. Dr. Orme-Johnson received his Ph.D. from the University of Maryland in 1969 in experimental psychology. Dr. Orme-Johnson has pioneered research on the Transcendental Meditation and TM-Sidhi programs in several areas, including autonomic stability, EEG coherence, intelligence, field independence, medical care utilization, prison rehabilitation, quality of life, and conflict resolution. His papers have appeared in such journals as American Psychologist, Psychosomatic Medicine, International Journal of Neuroscience, Personality and Individual Differences, and Journal of Conflict Resolution. Dr. Orme-Johnson was coeditor of Volumes 1 and 5 of Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers.
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ABSTRACT

Simultaneous application of the collective practice of the Maharishi Technology of the Unified Field in the five major trouble-spot areas of the world in 1978 was found to reduce conflict and increase progress toward peace in these areas and to improve international relations in the world as a whole.—Editors

During the ten-week World Peace Project (8 October to 23 December 1978) 1,400 experienced practitioners in the Maharishi Technology of the Unified Field went to the world’s five major trouble-spot areas. The purpose of the project was to create coherence in collective consciousness through the group practice of the Maharishi Technology of the Unified Field and thereby reduce turbulence in these areas and restore balance to international relations around the world.

Evaluation of the project using the world’s largest independent data source on international conflict at the time of the study, the Conflict and Peace Data Bank (COPDAB) file, indicated that in the trouble-spot countries combined there was a significant proportional decrease of Hostile Acts and an increase of Cooperative Events in domestic affairs and international relations during the World Peace Project compared with the preceding baseline period ($p < .0001$).

The COPDAB file, used to study international relations for the whole world, indicated a similar shift toward decreased hostilities and increased cooperation during the World Peace Project compared with the prior baseline period ($p < .0001$). International events during the World Peace Project were significantly more positive than in the comparable period for the previous ten years ($p < .0001$). In addition, data for the previous ten years showed that international relations usually tend to worsen worldwide during the period in which the World Peace Project occurred. Therefore, the improvement in worldwide international relations during the World Peace Project could not be attributed to changes generally seen at that time of year.

Autoregressive Integrated Moving Averages (ARIMA) time series analysis of the COPDAB data aggregated into weekly time series was used to control for possible trends of weekly, monthly, and yearly cycles as well as variability in the size of the weekly data sets. Controlling for these factors, the World Peace Project had a significant impact on decreasing Hostile Acts ($p$
decreasing Verbal Hostilities ($p < .01$), and increasing Cooperative Events ($p < .007$) worldwide.

Case histories of events within the trouble-spot areas also indicated noticeable improvements within the areas coinciding with the experts’ arrival and stay.

**Introduction**

The influence of the Maharishi Technology of the Unified Field (of which the Transcendental Meditation and TM-Sidhi programs are an integral part) on collective consciousness was first discovered in 1974. It was found that one percent of the population of a city participating in the Transcendental Meditation program reduces the crime rate in the city (Borland and Landrith, 1976). This phenomenon was named the **Maharishi Effect** by the scientists who first discovered it, in honor of His Holiness Maharishi Mahesh Yogi, who had predicted its existence as early as 1960. This effect has now been extensively documented by sociological research (Dillbeck, Landrith, and Orme-Johnson, 1981; Dillbeck, 1984; Dillbeck, Landrith, Polanzi, and Baker, 1982; Hatchard, 1977; Landrith and Dillbeck, 1983).

The Maharishi Effect is believed to be mediated by the social field or collective consciousness of society. Maharishi has explained collective consciousness as follows:

*Just as the consciousness of an individual determines the quality of his thought and behavior, so also there exists another type of consciousness for a society as a whole; a collective consciousness for each family, city, state, or nation, having its own reality and the possibility of growth. The quality of the collective consciousness of a society is a direct and sensitive reflection of the level of consciousness of its individual members (Maharishi Mahesh Yogi, 1977).*

The Maharishi Technology of the Unified Field has been demonstrated to increase coherence in the individual as measured by increased integration of the nervous system (e.g., Orme-Johnson, Wallace, Dillbeck, Alexander, and Ball, 1981) and more holistic functioning at every level of life (Chalmers, Clements, Schenkluhn, and Weinless, 1977-1984; Orme-Johnson and Farrow, 1977). Because of the intimate relationship existing between individual consciousness and collective
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consciousness, it is predicted that individuals practicing this technology will propagate an influence of coherence throughout the various levels of collective consciousness, ranging from family consciousness to world consciousness.

Maharishi, working with leading physicists, has explained that the influence of coherence generated by the Maharishi Technology of the Unified Field arises from the unified field of natural law, the source of all order in nature, as recently described by quantum physics (Clements, Hagelin, Weinless, Sarma, and Badawi, 1991; Hagelin, 1984). The unified field is the central concern of Vedic Science, which provides both systematic subjective and objective means of gaining knowledge of the deepest levels of natural law. The Maharishi Technology of the Unified Field represents Maharishi’s recent synthesis of the theoretical understanding of the unified field provided by modern science and the knowledge and procedures for utilizing the unified field in practical life derived from ancient Vedic Science. Through this technology, individual awareness becomes directly identified with the unified field which provides the holistic organizing power that creates coherence at all levels of individual and collective life.

Increased coherence in collective consciousness means the enlivenment of the holistic evolutionary qualities of the unified field in the fabric of society. The infinite diversity of individuality in society is thus harmonized by the universality of the unified field. Coherent collective consciousness thus enhances cooperative behavior and supports the simultaneous fulfillment of the goals of individuals and society as a whole. In the Maharishi Effect, a very small fraction of the population is found to increase coherence in the collective consciousness of the entire society. This phenomenon can be understood in terms of a general principle in nature, well-illustrated in physics, that the coherent elements of a system have a much more powerful influence on the system as a whole than the incoherent elements. Extending this principle to social systems, it follows that the coherent members would have a much stronger influence on collective consciousness than incoherent members.

In a systematic application of this principle, Maharishi inaugurated the Global Ideal Society Campaign in the summer of 1978 to create models of an ideal society in 108 countries through the application of
the Maharishi Technology of the Unified Field. In 20 of the largest countries a single state was chosen to be the focus of the project.

It was during the Ideal Society Campaign that the magnitude of the effect of a more advanced aspect of the Maharishi Technology of the Unified Field, the TM-Sidhi program, was first discovered. For example, in the state of Rhode Island in the U.S.A. it was found that when approximately 300 meditators practiced the advanced TM-Sidhi program in groups throughout Rhode Island, a marked improvement in the quality of life occurred in the state (Dillbeck, Foss, and Zimmermann, 1983). The results of this project indicated that the group practice of the TM-Sidhi program by less than one percent of a population could reverse negative trends and enhance progress in society.

It was this discovery which inspired the World Peace Project. It was hypothesized that the group practice of the TM-Sidhi program—the group dynamics of consciousness—would amplify the power of this technology to create social coherence. In order to test this hypothesis, the World Peace Project deployed groups of experts in the TM-Sidhi program to the five major trouble-spot areas of the world in order to create an influence of coherence in these areas and thereby improve international relations in the world as a whole. At that time, during the fall of 1978, the major world trouble spots were located in: Central America, principally in Nicaragua; the Middle East, with two separate foci in Lebanon and Iran; Southeast Asia, primarily Kampuchea (formerly Cambodia); and southern Africa, especially in Rhodesia (now Zimbabwe).

The World Peace Project began when the World Government of the Age of Enlightenment sent experts in the Maharishi Technology of the Unified Field either to the principal trouble-spot countries or to immediately neighboring countries. The rationale for the project was that

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1 The World Peace Project was conducted under the auspices of the World Government of the Age of Enlightenment, which has its international administrative headquarters in Seelisberg, Switzerland. The goal of the World Government is to create coherence in national consciousness everywhere in the world for mutual progress and harmony in the family of nations. The World Government does not usurp any of the functions of existing governments nor does it replace them in any way. The World Government supports the achievement of the highest goals of all political and economic systems and upholds the constitution of each nation. The philosophy of the World Government is that through creating coherence in national consciousness, national creativity will spontaneously rise to peacefully solve the problems of society, whatever its political, social, or economic philosophy.
these areas were foci of stress in the highly complex network of international relations. Therefore, it was predicted that creating coherence and normalizing stress in these focal areas would not only create progress toward peace in the areas themselves but also enhance cooperation in international relations throughout the world.

As *Time* magazine (22 January, 1979) pointed out, the world’s political “hot spots,” those to which the experts in the Maharishi Technology of the Unified Field went, were also points of confrontation between the superpowers. Therefore, it could be expected that by creating a calming influence in the specific trouble-spot areas, the World Peace Project would reduce the polarization in world politics and increase cooperation and progress. This paper presents a sociological analysis of the effects of the World Peace Project on each of the areas visited and on world events as a whole.

**Methods**

The hypothesis of improved international relations and the date and locations for the various aspects of this global experiment were publicly lodged in advance of the project.² From early October to late December 1978, approximately 1,400 experts in the Maharishi Technology of the Unified Field went in groups of 30 to 400 to several countries in Central America, Southeast Asia, the Middle East, and southern Africa. These experts were experienced in the Maharishi Technology of the Unified Field with many years practice of the Transcendental Meditation program; the majority were also practicing the advanced TM-Sidhi program and had participated in many advanced training courses.

In southern Africa, groups of experts (totaling 121) went to Rhodesia (Zimbabwe) and Zambia in order to produce an influence of peace on the Rhodesian conflict. A group of over 140 experts went to Nicaragua, and another 160 to the surrounding countries of Honduras, Costa Rica, Guatemala, and El Salvador. A total of 206 experts went to Iran. For the purpose of producing a coherent influence on the Lebanese civil war, 100 experts went to Syria and Cyprus, and an additional 400 advanced Transcendental Meditation participants were located in Israel near the Lebanese border for a course of instruction in the TM-Sidhi

program. A group of 260 advanced Transcendental Meditation and TM-Sidhi participants were located in Thailand in order to produce an influence of coherence for Southeast Asia and specifically to prevent the spread of conflict from Kampuchea into Thailand.

In addition, in each country efforts were made to establish indigenous groups of experts in the Maharishi Technology of the Unified Field, although conditions did not permit the establishment of coherence-creating groups of sufficient size to permanently maintain peace in these areas.

The arrival of groups of experts in the Maharishi Technology of the Unified Field was not simultaneous for the different trouble-spot areas. Groups were present in Central America from 11 October to 22 December; in Iran from 17 October to 23 December; in the Middle East (for Lebanon) from 23 October to 12 January; and in southern Africa from 4 November to 15 December. In Southeast Asia, the first group arrived in Thailand on 11 November, and advanced courses continued to be held in the country for the next two years.

When the experts went to a country, they typically stayed in one location and practiced the Maharishi Technology of the Unified Field as a group in order to take advantage of the group dynamics of consciousness, which intensifies the beneficial effects of the practice for both the individual and society. The sole method used to create positive social change was the twice daily practice of the Maharishi Technology of the Unified Field. The experts did not attempt to directly influence the conflict on a behavioral level.

The sources of data analyzed in the two parts of the experiment were:

PART 1 Events in trouble-spot countries and worldwide as reported in the Conflict and Peace Data Bank (COPDAB).³

PART 2 Case histories of events and trends within the trouble-spot areas.

³ The principal investigator who originally collected the data for the COPDAB file is Edward E. Azar, Center for International Development, University of Maryland, College Park, Maryland, U.S.A. The COPDAB file is available from the Inter-University Consortium for Political and Social Research, P.O. Box 1248, Ann Arbor, MI 48106. Neither the collector of the original data nor the Consortium bears any responsibility for the analysis or interpretation presented here.
Part 1: Events in Trouble-Spot Countries and Worldwide as Reported in the COPDAB File

An analysis of the effects of the World Peace Project on domestic affairs and international relations for the trouble-spot countries and international relations worldwide was conducted using an independent data source, the Conflict and Peace Data Bank (COPDAB), 1948–1978: Daily Aggregations (Azar, 1980; Azar and Sloan, 1975). The COPDAB file is the largest daily data bank in the world coding for conflict in international affairs. The events contained in this data set were collected from over 70 major public sources (e.g., newspapers, weekly news reports and surveys, and similar publications). These sources were selected to represent the different views (cultural, political, and economic) of the various population regions of the world in order to provide a balanced summation of world events.

The COPDAB file contains approximately 415,000 records of daily international and domestic events from approximately 135 nations, international organizations, and nongovernmental actors between 1948 and 1978. Only “newsworthy” events within and between nations were recorded; routine transactions were not included in the data file. Raters of the COPDAB file receive extensive training and report a high degree of reliability in the scoring of international events according to standard criteria.

In order to study the effects of the World Peace Project on the network of international relations worldwide, analyses were conducted on the International File, which pertains to transactions between countries. For the analysis of events related to the trouble-spot countries, data from the International File were combined with data from the Domestic File, which pertains to events within the countries (see “Contingency Table Analysis” below). Each event in the International File and the Domestic File is coded for Conflict Scale Category and Primary Issue Type, both of which were used in the analysis.

The COPDAB International File contains 14,567 events for 1978. It also contains 172,938 events for the ten-year period from 1968 to 1977, which were used to control for seasonality. The Conflict Scale Category of the International File was aggregated into three categories:
A. **Cooperative Events** were all events of Conflict Scale Categories 1 through 8; these scales are described by the documentation accompanying the COPDAB file as:

1 = voluntary unification into one nation;

2 = major strategic alliance (establishing joint military command or alliance, establishing economic common market, etc.);

3 = military, economic, or strategic support (supplying military technical or advisory assistance, etc.);

4 = nonmilitary economic, technological, or industrial exchange;

5 = cultural and scientific agreement or exchange;

6 = official verbal support of goals, values, and regime;

7 = mild verbal support or exchanges of minor officials; and

8 = neutral or nonsignificant acts. (There were very few entries in this category.)

B. **Verbal Hostilities** were defined as COPDAB Conflict Scale Categories 9 and 10, which are described as:

9 = mild verbal hostility/discord (low-key objections to policy or behavior, etc.); and

10 = strong verbal hostility (strong condemnation of actions or policies, etc.).

C. **Hostile Acts** included COPDAB Conflict Scale Categories 11–15, which are described as:

11 = hostile diplomatic-economic actions (troop mobilizations, recall or expulsion of ambassadors, termination of major agreements, etc.);
12 = political-military hostile actions (inciting of riots and/or rebellions, termination of diplomatic relations, kidnapping of foreign citizens, etc.);

13 = small-scale military acts (limited air, sea, or border skirmishes);

14 = limited war acts (intermittent shelling or clashes, sporadic bombings, etc.); and

15 = full-scale war (full-scale air, naval, or land battles, etc.).

Thus, this aggregation of the Conflict Scale Category distinguished international Cooperative Events from two levels of hostility between nations, verbal (Verbal Hostilities) and behavioral (Hostile Acts). The Domestic File which was also used to study events in the trouble-spot countries had a completely parallel Conflict Scale Category, which was aggregated in the same way.

The Primary Issue Type of the COPDAB Domestic and International Files identifies the most important issue involved in the event within the country or interaction between countries. The Primary Issue Type was aggregated into Nonmilitary vs. Military Issues. Nonmilitary Issues consisted of COPDAB Primary Issue area categories 1, 2, 4–9, which comprise Symbolic Political Relations; Economic Relations; Cultural or Scientific Relations; Physical Environment and Natural Resource Relations; Human Environment, Demographic and Ethnic Affairs; Political Order, Political Relations, and Law/Organization; and Other. The Military Issues category (category 3) includes such events as troop deployment, security pacts, defense treaties, wars, prisoner of war releases or exchanges, guerrilla raids, etc.

Inspection of the total number of worldwide events reported per week in the COPDAB International File for 1978 revealed that the total number of events varied widely from week to week by as much as a factor of 19. These extremes in the total number of events could not be attributed to typical seasonal effects because they did not correspond to variations in the equivalent weekly means of the prior ten years.

Because of the large weekly variability in the size of the data set for the three categories, raw frequencies were transformed into the relative
proportion of the total events falling into each of the three categories every week. This permitted comparison of the degree of positivity and negativity across different time periods.

Two different types of analysis were performed: contingency table analysis and time series analysis.

A. Contingency Table Analysis—Contingency table analysis was used to study the effects of the World Peace Project within the trouble-spot areas as well as worldwide. The contingency table analysis (chi-square) makes the least number of statistical assumptions about the data. This method was used to analyze the proportional shift among the three Conflict Scale Categories—Hostile Acts, Verbal Hostilities, and Cooperative Events.

The experimental period for the trouble-spot countries was defined for each country individually as extending from the day the experts began to arrive in the area to the day that they left or to the end of the COPDAB file at the end of 1978, whichever came first. (See above for the dates of the presence of the experts in each area.) For each country, the baseline period was defined as the period of equivalent length immediately preceding the experimental period.

For the trouble-spot countries, the COPDAB Domestic and International Files were combined because the conflicts in each country had both domestic and international components. For example, Lebanon was in the midst of a civil war, thus requiring the use of the Domestic File. In addition, Syria, Israel, and many other nations were involved in the conflict either directly or indirectly, thus requiring the use of the International File. The events used from the International File were all events in which one of the trouble-spot countries was either the initiator or the recipient of the action. Thus, any action of a trouble-spot country directed toward another nation or any action of another nation on a trouble-spot country was included in the analysis. Since there was insufficient data in the COPDAB file to allow reliable statistical analysis of each of the conflict countries separately, the files of Lebanon, Kampuchea, Iran, Rhodesia, and Nicaragua were aggregated together into one analysis.

Thus, the contingency table analysis (chi-square) for the trouble-spot countries was on a 2 by 3 table of two periods, baseline and World
Peace Project, by three Conflict Scale Categories, for the Domestic plus International Files combined for all of the countries.

For the analysis of worldwide events, it was necessary to define a single precise interval as the period of the World Peace Project. From the dates of arrival and departure of the experts given above, it is apparent that in three of the five trouble-spot areas the groups had left by 23 December. This date was therefore considered most suitable as the end of the project period. When choosing a date of onset, it was considered most important to ensure that the baseline period immediately preceding the project period did not include any of the time during which substantial numbers of experts were in any of the trouble-spot areas. This was achieved by defining 8 October as the beginning of the project, thereby ensuring that the COPDAB data for the week including the first arrival date (11 October) were included in the project period. Thus the period of the World Peace Project was defined as the ten-week interval from 8 October to 23 December. The baseline period was defined as the immediately preceding ten-week period from 24 July to 7 October.

All data in the COPDAB International File during these periods were used, and the frequencies of Hostile Acts, Verbal Hostilities, and Cooperative Events were compared between the experimental and baseline periods. This comparison with the baseline in 1978 was used to control for the level of international relations during the same year just prior to the World Peace Project. The frequency data were cast into a 2 by 3 table: the two periods by the three Conflict Scale Categories. Chi-square analysis was performed to give the overall statistical significance of the pattern of change shown in the table.

For worldwide events, another 2 by 3 table was constructed for comparing the period of the World Peace Project with the means of the comparable ten-week period of the prior ten years. Comparison with the mean of the same time of year during the previous ten years controlled for time of year, answered the question whether the changes seen during the World Peace Project could be expected to have occurred anyway at that time of year due to seasonal influences.

The trouble-spot areas were not compared with the prior ten years because they were specifically selected on the basis of the extreme social turbulence in these countries during the second half of 1978. Therefore,
B. Time Series Analysis—Box-Jenkins Autoregressive Integrated Moving Averages (ARIMA) time series analysis was used to further assess the impact of the World Peace Project on international relations worldwide. The time series analysis was not conducted on the COP-DAB data for the trouble-spot countries because in some cases (e.g., Nicaragua and Lebanon) violence increased dramatically in the middle of 1978. Thus, the yearlong data was nonstationary and therefore not appropriate for time series analysis. Consequently, the trouble-spot areas were only analyzed by contingency table analysis comparing the period of the World Peace Project with the prior ten-week baseline in 1978.

Time series analysis of data from the International File controlled for cycles and trends in the world that might have been present within the dependent variable series by mathematically modeling them and removing their effects before assessing the impact of the independent variable, in this case the World Peace Project. This approach thus provided a conservative estimate of the effect of the World Peace Project on worldwide Cooperative Events, Verbal Hostilities, and Hostile Acts.

Three time series analyses on 48 weekly data points were performed for the categories of Hostile Acts, Verbal Hostilities, and Cooperative Events.

For purposes of the time series analyses the weekly raw data were transformed into Freeman-Tukey deviates, which have a similar interpretation to proportions. Freeman-Tukey deviates are the deviations of the observed value from the expected value normalized in such a way that they approximate normal deviates (zs). For example, a Freeman-Tukey deviate of 1.96 would indicate that the observed value in the cell was significantly greater than the expected value at the .05 level (two-tailed test).

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4 ARIMA time series analysis was conducted on BMDP2T, using the conditional least squares method.

Freeman-Tukey deviates are defined as:

\[ d_{ij} = \sqrt{a_{ij}} + \sqrt{a_{ij} + 1} - \sqrt{4e_{ij} + 1} \]

where \( a_{ij} \) and \( e_{ij} \) are the observed and expected frequencies, respectively, for the cell in row \( i \), column \( j \).

Freeman-Tukey deviates were calculated for each cell of a 3 by 48 table of the three conflict scale categories by 48 weeks. The transformation of the data to Freeman-Tukey deviates decreases the variability in the data arising from extreme fluctuations in the total number of events week by week. The similarity in interpretation of these deviates and simple proportions is demonstrated by the high correlation between the two. For example, the simple proportion of Cooperative Events and the Freeman-Tukey deviates of Cooperative Events on a weekly basis are correlated \( r = .81 \). However, the Freeman-Tukey deviates provide a more holistic expression of the data than simple proportions. The number of events in a given category, such as Cooperative Events, is expressed as the normalized deviation of the number of events from its expected value. Since the expected values take into account the row and column marginal totals, use of the Freeman-Tukey deviates normalizes the data with respect to variation in the total weekly events (the row totals) as well as with respect to the overall frequency of each category of events for the whole year (column totals).

The ARIMA time series analysis was conducted on the difference between the Freeman-Tukey deviates for the weeks in 1978 and those for the weekly means of the same time of year during the prior ten years (1978 minus mean 1968–77). This controlled for time of year. An alternative approach would be to string all eleven years into one long time series. Such a series, however, would be expected to have both high and low frequency components, e.g., weekly as well as yearly autocorrelations, respectively. Since it is difficult to capture both high and low frequency components in the same ARIMA model, we used the more direct procedure of controlling for the yearly component by subtracting the same week means for the prior ten years from the weekly data for 1978.

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6 Each month was divided into four periods approximately one week in length and defined as days 1–7, 8–15, 16–23, and 24 to the end of the month. Preliminary analysis showed that weekly aggregations and three categories provided an adequate frequency count per cell for statistical analysis.
The independent variable was a binary variable with “0” representing the weeks before the World Peace Project and “1” representing the weeks during the World Peace Project.

Transfer function methodology was employed in order to directly remove the influence of the total number of events each week on the dependent variables. This was necessary because it was found that the weekly total number of events was highly correlated with both the proportion of events in the three categories and their Freeman-Tukey deviates. Total events were correlated $r = .70, p < .001$ with the proportion of Cooperative Events for 1978, excluding the period of the World Peace Project. Inverse correlations of similar magnitude were found between total events and the proportions of Verbal Hostilities and Hostile Acts for 1978. Similar magnitude correlations were also found using data for the prior ten years for both proportions and Freeman-Tukey deviates.

In addition, the weekly differences in total events between 1978 and the mean of the previous ten years for total events and the Freeman-Tukey deviates for Cooperative Events were also positively correlated ($r = .65$) with similar magnitude inverse correlations for Verbal Hostilities and Hostile Acts. Inspection of the data indicated that the correlation between the total number of events and the proportion of Cooperative Events is primarily due to a rise in the number of Cooperative Events.\(^7\)

Since the total number of events increased during the World Peace Project, it was desirable to control for the effect of this change on the dependent variables in order to assess the independent effects of the project. The series (48 data points) used to control for the effect of total number of events was the weekly total events for 1978 minus the equivalent weekly means of the total events for the prior ten years.

Standard Box-Jenkins transfer function methodology (Box and Jenkins, 1976), used to remove the effects of weekly variability in the total

\(^7\) We consulted representatives of the Center for International Development who compiled the COPDAB file about this finding. They were aware of fluctuations in the frequency of international events and suggested that they may represent naturally occurring fluctuations in the volume of international events. While their sampling procedures may undergo modification over long periods of time, they agreed that it is unlikely that changes in sampling procedure could have accounted for weekly fluctuations in the data. For an interpretation of the positive correlation between the volume of events and proportion of Cooperative Events in terms of naturally occurring fluctuations in the coherence of the world system, see Discussion.
number of events on the dependent variables, entailed the following steps:

1. Prewhitening the independent series, i.e., finding the ARIMA model that accounted for the autocorrelation structure in the total events series; the series was found to be stationary.

2. Using the univariate model from the above analysis (total events series) to filter the dependent series (Hostile Acts, Verbal Hostilities, and Cooperative Events); these series were also found to be stationary.

3. Cross-correlating the residuals from the model for the independent series (total events) and the filtered dependent series to facilitate preliminary identification of the form of the transfer function relationship between the independent and dependent series.

4. Estimating the complete-transfer-function model using the preliminary estimates for the transfer function relationship as determined in the previous step.

Several iterations of the standard Box-Jenkins procedure of identification, estimation, and diagnostic checking yielded the final transfer function model parameter estimates presented in Table 1. Diagnostic checking of skewness, kurtosis, and studentized range showed that the assumption of normally distributed random disturbances which underlies statistical inferences about the model parameters could not be rejected on the basis of these observed residuals.

Part 2: Case Histories of Events and Trends within the Trouble-Spot Areas

Reports were collected for the principal trouble-spot countries of Rhodesia, Nicaragua, Iran, and Lebanon. Some information was also collected for Kampuchea and Thailand. The data were reports of progress toward peace in the news media. Reports were collected from the local press within the countries as well as from the international press (primarily *International Herald Tribune*, *Time*, and *Newsweek*).
Results
Part I: Events for Trouble-Spot Areas and Worldwide as Reported in the COPDAB File

A. Contingency Table Analysis—Trouble-Spot areas—Comparison of the World Peace Project with the baseline period for the same year: In the trouble-spot areas, there was a significant shift in international relations and domestic affairs toward proportionally fewer Hostile Acts and more Cooperative Events (chi-square = 18.81, df = 2, p < .0001). The percentage of events during each period for Hostile Acts, Verbal Hostilities, and Cooperative Events are shown below.

<table>
<thead>
<tr>
<th></th>
<th>Hostile Acts</th>
<th>Verbal Hostilities</th>
<th>Cooperative Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>46.4%</td>
<td>17.6%</td>
<td>36.0%</td>
</tr>
<tr>
<td>World Peace Project</td>
<td>29.7%</td>
<td>21.1%</td>
<td>49.2%</td>
</tr>
</tbody>
</table>

It can be seen that the percentage of Hostile Acts decreased by 16.7 percentage points, the percentage of Verbal Hostilities increased by 3.5 percentage points, and the percentage of Cooperative Events increased by 13.2 percentage points (Figure 1). This indicates a marked proportional reduction in armed conflict, with a smaller increase in verbal conflict, and a substantial increase in cooperation. In terms of absolute frequencies, the greatest change was in the number of Cooperative Events, which increased from 90 during the baseline period to 194 during the World Peace Project, an increase of 115.6%.

There was an increase in the total number of events in the COPDAB file for the trouble-spot countries during the World Peace Project compared with the prior baseline period in 1978. There were 394 total events in the Domestic and International Files for these countries during the World Peace Project, compared with 250 total events during the baseline period, an increase of 57.6%. This is discussed in terms of
an increased flow of communication created by the increased coherence in collective consciousness (see Discussion).

Figure 1. Trouble-spot countries: domestic affairs and international relations during the world peace project compared to the ten-week baseline period immediately prior to the project. Data from the COPDAB Domestic and International Files for the trouble-spot countries combined indicated that during the World Peace Project there was a significant shift toward decreased behavioral hostilities and increased cooperation for these countries. It was also noted that hostilities tended to shift from the behavioral to the verbal level.

Study of the Primary Issue Types showed that during the World Peace Project there was a significant shift toward more Nonmilitary Issues in international relations and domestic affairs for the trouble-spot countries (chi-square = 36.35, \( df = p < .0001 \)). The percentages of Military and Nonmilitary Issues, respectively, are shown below.
This indicates a 21.8-percentage-point increase in Nonmilitary Issues, suggesting that in the trouble-spot countries there was increased cooperation together with a broadening of the focus of international relations from military affairs and hostilities to nonmilitary concerns pertaining to culture, economy, political order, law, human environment, etc.

*Worldwide—Comparison of the World Peace Project with the baseline period for the same year:* Examination of the relative proportion of international events falling into the different Conflict Scale Categories showed a significant shift to proportionally fewer verbal and behavioral hostilities and increased cooperation during the World Peace Project relative to the baseline period (chi-square = 104.46, df = 2, p < .0001). The percentage of events during each period in the different categories for Hostile Acts, Verbal Hostilities, and Cooperative Events are below.

<table>
<thead>
<tr>
<th>Hostile Acts, Verbal Hostilities, and Cooperative Events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Baseline</strong></td>
</tr>
<tr>
<td>Hostile Acts: 14.0%</td>
</tr>
<tr>
<td>Verbal Hostilities: 20.2%</td>
</tr>
<tr>
<td>Cooperative Events: 65.8%</td>
</tr>
<tr>
<td><strong>World Peace Project</strong></td>
</tr>
<tr>
<td>Hostile Acts: 5.6%</td>
</tr>
<tr>
<td>Verbal Hostilities: 14.5%</td>
</tr>
<tr>
<td>Cooperative Events: 79.9%</td>
</tr>
</tbody>
</table>

The overall proportional shift in worldwide international relations from negative to positive during the World Peace Project compared with the baseline period in 1978 can be seen in Figure 2. The changes in percentage points were –8.4 for Hostile Acts, –5.7 for Verbal Hostilities, and a 14.1 increase for Cooperative Events during the World
Peace Project. In terms of absolute frequencies, the greatest change was in the number of Cooperative Events, which increased from 610 during the ten-week baseline period to 2,758 during the World Peace Project, an increase of 352%.

During the World Peace Project, a 3.7-fold increase in the total number of worldwide events was reported in all event categories, Cooperative Events, Verbal Hostilities, and Hostile Acts combined. There were 927 total events during the ten-week baseline period and 3,452 events during the ten weeks of the World Peace Project.

Analysis of the COPDAB data for Primary Issue Types for Nonmilitary and Military Issues revealed that during the World Peace Project the proportion of Military Issues increased (chi-square = 12.24, df = 1, p < .001).

The percent of Primary Issue Types for Military and Nonmilitary Issues are shown below.

<table>
<thead>
<tr>
<th>Primary Issue Types for Military and Nonmilitary Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Baseline</td>
</tr>
<tr>
<td>World Peace Project</td>
</tr>
</tbody>
</table>

Figure 2. Worldwide: international relations during the world peace project compared to the ten-week baseline period immediately prior to the project. Data from the COPDAB International File indicated that during the World Peace Project there was a significant shift toward decreased verbal and behavioral hostilities and increased cooperation worldwide.
Military Issues may either be positive (cease-fires, treaties, etc.) or negative (armed conflict). Since the analysis of Conflict Scale Categories showed a shift to proportionally fewer hostilities and increased cooperative events during the World Peace Project, the proportional increase in Military Issues can only be interpreted as indicating an increase in the positive type of Military Issues, representing increased cooperation in solving military-related problems. This interpretation is borne out by the fact that the ratio of Hostile Acts to Military Issues declined from 82% during the baseline period in 1978 to 25% during the World Peace Project.

**Worldwide—Comparison of the World Peace Project with the prior ten years at the same time of year:** There was a significant proportional shift toward increased cooperation in international relations during the World Peace Project relative to the same weeks of the year during the prior ten years (chi-square = 20.39, $df = 2$, $p < .0001$). The percentages of events falling in the categories of Hostile Acts, Verbal Hostilities, and Cooperative Events for the World Peace Project and for the same weeks during the prior ten years are shown below.

| Hostile Acts, Verbal Hostilities, and Cooperative Events for the World Peace Project |
|----------------------------------------|--------|---------|
|                                       | Acts   | Verbal Hostilities | Cooperative Events |
|                                       |        |                  |                   |
| 1968–77                                | 8.4%   | 15.5%             | 76.1%             |
| World Peace Project                    | 5.6%   | 14.5%             | 79.9%             |

This indicates a 2.8 percentage point decrease in Hostile Acts, a 1.0 percentage point decrease in Verbal Hostilities, and a 3.8 percentage point increase in Cooperative Events. The frequency of Cooperative Events showed the greatest change, from a mean of 1,831 for the prior
ten years during the period comparable to the World Peace Project, to 2,758 during the World Peace Project, an increase of 50.6%.

The mean total number of events for the prior ten years for the ten weeks of the year comparable to the World Peace Project was 2,406.6, compared with 3,452 total events during the project. In contrast, the mean number of Hostile Acts was 203 during the prior ten years compared to 193 during the World Peace Project. Thus, even though there were 43.4% more total events during the World Peace Project than the mean of the prior ten years, there were in fact 4.9% fewer Hostile Acts.

At the same time, Military Issues increased during the World Peace Project compared to the mean of the same time of year during the previous ten years (chi-square = 65.09, df = 1, p < .0001). The percent of Nonmilitary and Military Issues are shown below.

<table>
<thead>
<tr>
<th></th>
<th>Military</th>
<th>Nonmilitary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968–77</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>World Peace Project</td>
<td>22%</td>
<td>78%</td>
</tr>
</tbody>
</table>

This represented a significant 8.0 percentage point shift toward increased Military Issues during the World Peace Project relative to the same time of year in the prior ten years. The ratio of Hostile Acts divided by Military Issues declined from 60% during the prior ten-year period at the comparable time of year to 25% during the World Peace Project, indicating a reduction in Military Issues dealing with hostilities and a rise in cooperative Military Issues worldwide.

Inspection of the data for the prior ten years indicated that the period of the World Peace Project was not a time of year at which international relations generally improved. On the contrary, data indicated that, if anything, international relations usually tend to worsen during the period comparable to the World Peace Project by comparison with the weeks corresponding to the baseline period.

To summarize, contingency table analysis of a large, independent data source, the COPDAB file, showed that there was a significant decline in hostilities and rise in international cooperation in the trouble-spot areas and worldwide during the World Peace Project com-
pared with the immediately preceding baseline period. In addition, worldwide international relations improved during the World Peace Project as compared with the mean of the same weeks of the year for the prior ten years.

**B. Time Series Analysis of the COPDAB File for Worldwide Data**—ARIMA time series analyses indicated that the World Peace Project had a significant impact in the predicted direction on Hostile Acts, Verbal Hostilities, and Cooperative Events in international relations worldwide.

Table 1 (on the next page) shows the results of the time series analysis. In the table, the autoregressive or moving averages parameters (the noise model), if any, are first specified for each of the dependent variables. Then, the total events parameter (the independent series), 1978 minus the mean of 1968–77, and its UP order (lag) are specified. It can be seen that the UP order is zero in all cases, indicating a contemporaneous effect of the total events on the dependent variables. The total events had a highly significant effect but small parameter estimates for all three dependent variables.

The World Peace Project parameter, indicated as WPP in Table 1, had a highly significant effect on the dependent variables (Hostile Acts, $p < .002$; Verbal Hostilities, $p < .01$; and Cooperative Events, $p < .007$). The magnitude of the parameter estimates for the World Peace Project were all relatively large and in the predicted direction (–4.34 for Hostile Acts; –4.05 for Verbal Hostilities; and 2.9 for Cooperative Events) (Figure 3). These models were all statistically adequate, as indicated by the nonsignificant Ljung-Box Q-statistics, which show that the autocorrelations in the residuals were jointly nonsignificant. In addition, there was no overall linear trend in the yearlong series that could have accounted for the improved international relations observed during the World Peace Project.

To summarize, the time series analysis showed that the World Peace Project had a strong and statistically significant effect on international relations after removing the influence of short cycles of a few weeks, yearly cycles, and the effects of the total number of events on the dependent variables.
### Table 1. Parameter Estimates of Time Series Models:
Removing the Effect of Total Events on the Dependent Variables

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hostile Acts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978–68/77 (UPO)</td>
<td>–0.0137</td>
<td>0.0019</td>
<td>–7.13</td>
<td>0.0001</td>
</tr>
<tr>
<td>WPP (UPO)</td>
<td>–4.34</td>
<td>1.43</td>
<td>–3.04</td>
<td>0.002*</td>
</tr>
<tr>
<td>Ljung-Box Q (15)</td>
<td>= 8.8, df = 15, p &gt; .8</td>
<td>One-tailed test (df = 46).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Verbal Hostilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Hostilities AR(5)</td>
<td>–0.25</td>
<td>0.17</td>
<td>–1.47</td>
<td>0.15</td>
</tr>
<tr>
<td>Total Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978–68/77 (UPO)</td>
<td>–0.0144</td>
<td>0.0025</td>
<td>–5.75</td>
<td>0.0001</td>
</tr>
<tr>
<td>WPP (UPO)</td>
<td>–4.05</td>
<td>1.72</td>
<td>–2.34</td>
<td>0.01*</td>
</tr>
<tr>
<td>Ljung-Box Q (15)</td>
<td>= 7.4, df = 14, p &gt; .9</td>
<td>One-tailed test (df = 40).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooperative Events</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative Events MA (1)</td>
<td>–0.36</td>
<td>0.12</td>
<td>–2.98</td>
<td>0.0047</td>
</tr>
<tr>
<td>MA (5)</td>
<td>–0.66</td>
<td>0.12</td>
<td>–5.64</td>
<td>0.0001</td>
</tr>
<tr>
<td>Total Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978–68/77 (UPO)</td>
<td>–0.0096</td>
<td>0.0010</td>
<td>–9.26</td>
<td>0.0001</td>
</tr>
<tr>
<td>WPP (UPO)</td>
<td>2.9</td>
<td>1.12</td>
<td>2.58</td>
<td>0.007*</td>
</tr>
<tr>
<td>Ljung-Box Q (15)</td>
<td>= 9.9, df = 13, p &gt; .7</td>
<td>One-tailed test (df = 44).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part 2: Case Histories of Events and Trends within the Trouble-Spot Areas

In general, there were noticeable decreases in violence and disorder in the trouble-spot areas upon the arrival of the experts in the Maharishi Technology of the Unified Field, as well as progress toward peace during their stay, and a general return of the situation to previous trends when they left.

![Diagram](image)

Figure 3. Parameter estimates for the Box-Jenkins ARIMA time series analysis for worldwide data from the COPDAB international file for the three aggregates of the conflict scale category. It can be seen that the World Peace Project produced a worldwide reduction in Hostile Acts and Verbal Hostilities and an increase in Cooperative Events in international relations. By using the prior ten years as a control, this analysis showed that the results could not be attributed to weekly, monthly, or yearly cycles, or to variability in the size of the weekly data sets.

**Southern Africa (Rhodesia and Zambia)—** In September 1978 over 1,000 people were killed in the Rhodesian war (*Time, 9 October*). The mean number of deaths per day due to the war within Rhodesia, including those sustained by governmental forces, opposition forces, collaborators, and civilians during baseline and experimental periods, were studied. Statistics were obtained from the *Rhodesian Chronicle*. 

420
For purposes of statistical analysis the war death data were compared during four periods: a baseline period from 20 October to 4 November before the experts arrived; experimental period 1 from 5 November until 14 November during which the experts were together as a single group in Salisbury (Harare); experimental period 2 from 15 November to 27 November during which the experts were in two groups in two different cities, approximately half in Salisbury and half in Bulawayo; and the postexperimental period from 28 November to 15 December.

Analysis of variance showed a significant difference between the mean number of war deaths in the four different periods ($F(3, 53) = 2.819, p < .05$). It was found that the number of war deaths during the first intervention period (3.0 per day) was lower than the mean during the other three periods (16.1 per day) ($p < .05$, i-test, Tukey’s procedure). This result suggests that a single concentration of experts in one place was more effective than two smaller groups in different locations. None of the other periods were significantly different from each other.

Inspection of the data showed a decrease in fighting when the experts arrived on 4 November, a time-correlated increase when they split into two groups on 14 November, and an increase again when they departed on 28 November.

During the experts’ stay there was less large-scale fighting even though heavy fighting had been predicted for this period by Rhodesian generals. Bishop Abel Muzorewa, who subsequently became Zimbabwe’s first prime minister, stated that, “peace has at last taken hold of our war-torn society” (International Herald Tribune, 27 November).

Central America (Nicaragua)—In September alone, about 1,200 people died in Nicaragua’s civil war. The first group of experts in the Maharishi Technology of the Unified Field arrived in Nicaragua on 11 October. During the following few days other groups arrived in the neighboring countries of Costa Rica, Honduras, Guatemala, and El Salvador. Soon afterwards, the situation in Nicaragua began to ease.

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8 It was found that the variances for the raw data were not homogeneous for the four periods. Therefore, the statistical tests were performed on log-transformed data (natural log of (x+1)), which produced homogeneity of variance. The means and standard deviations of the log-transformed data for the four periods, respectively, were (1) 1.815, 1.672; (2) 0.806, 1.045; (3) 2.102, 1.283; (4) 2.370, 1.377.
When the World Government of the Age of Enlightenment heard that the U.S. Embassy strongly expected increased violence at the beginning of November, a second group of experts was sent to Nicaragua and the country remained calm.

Toward the end of November, as mediation between President Somoza’s government and the opposition broke down, turbulence was reported in several different parts of the country. The World Government sent more experts to join the group creating coherence in the capital, Managua. It was noticed that, following the arrival of the latest group, violence and tension subsided in the country.

President Somoza suspended the state of military siege, began to eliminate radio and TV censorship, and granted unconditional amnesty to political prisoners and exiles. President Somoza said that, “... due to the tranquility in the country after the events of September, we have been able to stop the censorship of the press, and this has produced a better climate of communication. ...” (*Nove Dades*, 8 December). The President agreed to a plebiscite on whether he should remain in office, saying “I am not afraid of a vote. What I really want is peace for Nicaraguans” (*International Herald Tribune*, 2 December). However, after the experts left in late December, negotiations broke down when President Somoza rejected the plebiscite, and violence once again erupted in the country (*The Europa Yearbook*, 1980, Vol. 2, p. 1063).

**Middle East (Iran and Lebanon)**—On 17 October the first group of experts arrived in Teheran. Four days later, the BBC commented on the sudden peaceful turn in the demonstrations and said this was a remarkable illustration of changed conditions in Teheran.

On 1 November further turbulence occurred. With the subsequent arrival of more experts, the situation stabilized to some degree and remained “calm but not quiet” (*Newsweek*, 27 November). In early December, it was reported that the country was relatively calm; oil strikers had returned to work, and 477 political prisoners were released (*Time*, 4 December). When the experts left Iran in mid-December, extreme social disorder again broke out in the country.

The period of the Lebanese civil war prior to the World Peace Project in 1978 was characterized by almost-continuous armed conflict, interspersed with only brief cease-fires which lasted no more than a
few days. For example, the press described the situation: a “new crisis” (Washington Post, 15 June); “war of vengeance” (Washington Post, 23 June); “tension persists in Lebanon” (Christian Science Monitor, 30 June); “flare-up in Beirut” (Christian Science Monitor, 1 July); “Beirut’s hopes for a normal life fade” (Washington Post, 12 July); “savage battle” (Newsweek, 17 July); “a second ceasefire in as many days exploded into heavy weapons fire” (Boston Herald, 23 July); “artillery barrage in Beirut” (Washington Post, 26 July); “U.N. forces and Lebanese under new gunfire” (New York Times, 3 August); “32–65 reported killed” (Washington Post, 8 August); “fighting erupts in hill country” (UPI, 25 August); “hundreds of deaths” (Washington Post, 31 August); “new fighting flares in Beirut” (Washington Post, 8 September); “220 die in Lebanon before guns still” (Washington Post, 1 October); “truce broken in 24 hours” (Richmond Times Dispatch, 2 October); “barrage intensifies in Lebanon” (Washington Post, 3 October). During this period, which was described as some of the heaviest fighting since 1976 (Washington Star, 2 October), Lebanese leaders were reported to foresee total economic collapse (Christian Science Monitor, 21 August), and many Lebanese merchants were leaving the country.

The first group of experts arrived in the area on 23 October. Soon after, other groups also arrived. During the period of the World Peace Project there was almost continuous calm in Lebanon, broken only by sporadic, relatively minor incidents. The most remarkable fact about the cease-fire of 8 October (America, 8 October) was that it lasted until late December. During this period, refugees began to return to their neighborhoods in Beirut (New York Times, 14 November); the Lebanese army, the Arab League forces, and local security units formulated a security plan, which was subsequently discussed by the Lebanese government (Lebanon News, December); and the Lebanese began to rebuild (New York Times, 6 December).

After the World Peace Project, at the end of December and in early January 1979, heavy fighting erupted again in the “worst onslaught since October” (Lebanon News, February 1979).

The authors wish to thank the personnel of the Lebanese Information and Research Center, 1926 Eye Street, N.W., Washington, D.C., 20006, for graciously making their archival data of news reports on Lebanon available for study.
Southeast Asia (Thailand and Kampuchea)—The arrival of the first group of 150 experts in Thailand on 11 November 1978 came at a time of growing social instability and of great concern that the conflict in neighboring Kampuchea would spread to Thailand and even that the country might be invaded. During the period of the project it was notable that the feared escalation of violence did not occur and that Thailand remained secure.

Discussion

During the World Peace Project there was a shift in international relations toward increased cooperation and decreased hostilities. Contingency table analyses of the largest existing data file on international relations and domestic affairs, the Conflict and Peace Data Bank, indicated an increased proportion of cooperative events and a decreased proportion of behavioral hostilities internationally and domestically for the trouble-spot countries as compared to the baseline period immediately before the project that same year. The decrease in Hostile Acts together with the increase in Verbal Hostilities indicates a shift in aggression from the behavioral level to the verbal level. However, the greatest change in the trouble-spot countries in terms of absolute frequencies was the increase in Cooperative Events (an increase of 115.6%).

For international relations worldwide during the World Peace Project, both Hostile Acts and Verbal Hostilities decreased while Cooperative Events increased as compared to the baseline period immediately before the project that year. International events worldwide were also significantly more positive during the World Peace Project than usual for that time of year as compared to the mean for the same time of year during the previous ten years. Furthermore, the period of the World Peace Project was not a time of year in which international relations typically improve, indicating that the change that occurred could not be accounted for by yearly seasonal trends.

During the World Peace Project, there were 43.4% more total events worldwide in the COPDAB file than the mean of the prior ten years during that period, but there were 4.9% fewer Hostile Acts. This indicates that worldwide Hostile Acts decreased in absolute terms as well as proportionally. The largest change in frequency of events worldwide was in the Cooperative Events category (an increase of 352%).
Increased worldwide progress toward peace was especially indicated by the marked reduction in the ratio of Hostile Acts to Military Issues from 82.3% for the same-year baseline period and 59.8% for the mean of the prior ten years at the same time of year to 25% during the World Peace Project. This suggests that most of the Military Issues in the world before the World Peace Project dealt with behavioral hostility, such as troop mobilization and armed conflict, whereas only 25% or less of the Military Issues during the World Peace Project were concerned with hostility on the behavioral level. It would appear that the other 75% of Military Issues during the World Peace Project were of a peaceful nature, reflecting increased cease-fires, negotiations, treaties, etc. Within the trouble-spot areas, Nonmilitary Issues increased in international relations and domestic affairs indicating a change of focus from the concerns of war to the unlimited possibilities of peace.

The time series analyses rigorously demonstrated that the improvement in world events could not be accounted for by linear trends or by systematic weekly or monthly cycles in the data during the year, nor could it be attributed to yearly seasonal components. Inspection of the data showed that there were no linear trends in the series over the year that could have accounted for the rise in positivity during the World Peace Project. The removal of autoregressive and moving averages components from the yearlong time series eliminated the possibility that cycles with a period of weeks or a few months could have accounted for the increased positivity during the World Peace Project. Yearly seasonal effects were controlled for by using the difference between the weekly data for 1978 and comparable weekly means of the prior ten years in the time series analyses. Any seasonal cycles evident in the data for the prior ten years were eliminated from the 1978 data by this subtraction procedure. Finally, weekly fluctuations in the total number of events were controlled for by removing their influence on each of the dependent variables before assessing the impact of the World Peace Project. Therefore, the worldwide improvements seen during the World Peace Project could not have been forecast on the basis of any cycles or trends in international relations. The data indicate that the shift toward greater harmony and cooperation that occurred during the World Peace Project was new and unexpected.
The magnitude of the effect was substantial. The ARIMA parameter estimates for the impact of the World Peace Project (–4.34 for Hostile Acts, –4.05 for Verbal Hostilities, and 2.9 for Cooperative Events) are approximate $z$-scores and indicate large deviations in the predicted direction in the observed values from the expected values. These approximate $z$s represent standard deviations and, since even two standard deviations would be statistically significant, they represent a large change from the frequency of events expected to occur during that period. The highly significant $p$ values of .002, .01, and .007 for these parameter estimates from the ARIMA analysis are conservative because they represent the impact of the World Peace Project on the dependent series after all of the variances possibly explicable by seasonality, significant autocorrelation structure, and total events have been removed.

Furthermore, the case histories within the trouble-spot areas indicated noticeable improvements within the areas coinciding with the presence of the experts in the Maharishi Technology of the Unified Field, thus supporting the results for the trouble-spot countries from the analysis of international trends and domestic affairs of the COPDAB file.

The world news of that time reflected eased tensions between the superpowers. Soviet Premier Brezhnev strongly emphasized to Secretary of State Vance that the superpowers should work closely together to solve international problems (International Herald Tribune, 17 November). President Carter was quoted as saying: “I think that in recent weeks there has been an alleviation of tension between us (U.S.S.R. and the U.S.A.), and I would like to see it continue. I can’t say why there has been an improvement in U.S.-Soviet relations” (International Herald Tribune, 18 November). Premier Brezhnev, too, observed the reduction in tension (Newsweek, 27 November).

Several other news stories reported improved U.S.-Soviet relations during the World Peace Project. Moscow proposed that the five nuclear powers have talks on banning nuclear weapons (Radio Moscow, 25 November). Premier Brezhnev emphasized to U.S. senators

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10 It is to be expected that President Carter would not know why U.S.-Soviet relations had improved because the effect was being produced on the level of the unseen, underlying field of collective consciousness.
that “what we want is lasting world peace” (Newsweek, 28 November). On 18 December Newsweek commented that “U.S.-Soviet relations have improved substantially since last summer,” and President Carter expressed optimism about the SALT talks: “The remaining differences are minor compared to what they were a year ago” (Newsweek, 18 December).

The new mood that was created between the U.S.A. and U.S.S.R. was summarized in the news as follows: “At the same time that Washington and Moscow are maneuvering against each other at a number of the world’s hot spots, they are also sitting amiably around negotiation tables discussing myriad projects and possibilities” (Time, 22 January). This political analyst perceived that whereas it was natural for the U.S.A. and the U.S.S.R. to continue to be concerned about their strategic position at that time in world history, the scope of interactions between the two nations had begun to broaden from stereotyped polarization to increased cooperation for mutual progress.

Not only did tensions between the U.S.A. and the U.S.S.R. decrease during the period of the World Peace Project, but there were numerous additional indications of growing peace in the world. Notable events in Africa were reports that the fighting in Uganda was virtually over (BBC, 9 December); and nonviolent elections in Namibia which “appeared to be a turning point for Southwest Africa” (International Herald Tribune, 9 December). With reference to the Middle East, it was observed that Israel and the U.S. were optimistic about the Egyptian-Israeli peace negotiations (Newsweek, 16 October, 13 November).

In Asia, Thailand and Malaysia vowed to work for peace in Southeast Asia (Far Eastern Economic Review, 10 November; New Straits Times, 11 November); and Chinese Vice-Premier Deng said there was no likelihood of North Korea starting a war (Far Eastern Economic Review, 10 November). Japan and China ratified a Treaty of Peace and Friendship (Newsweek, 6 November); a Treaty of Friendship was signed between the Soviet Union and Vietnam (Newsweek, 13 November); and China reopened its doors to trade with the West (Newsweek, 20 November). In one of the great diplomatic achievements of modern history, the U.S. announced that full diplomatic relations would be established with China (Newsweek, Time, 25 December).
In Central and South America, Cuba became friendlier toward exiled Cubans in the U.S.A., “something that was unthinkable only a couple of months ago” (International Herald Tribune, 25 October), and promised the release of 3,000 political prisoners (Time, 4 December); and Argentina was optimistic for a peaceful resolution of their dispute with Chile over Cape Horn (International Herald Tribune, 10 November).

The mood of the world at the height of the World Peace Project was reflected in a leading U.S. Midwestern daily newspaper: “... no nations are actively engaged in open warfare at the moment—a historic rarity” (Des Moines Register, 30 November).

These reflections on the world situation by international leaders and political analysts reinforce the conclusions of formal statistical analyses that the last months of 1978 saw a rise of peace throughout the world. As we have seen, this increase was not typical of that time of year and could not have been predicted by the events that preceded it in 1978. Although the groups of experts who went to the trouble-spot areas were relatively small, the positive effect created appears to be due to the fact that increased coherence was produced in the focal points of stress in the world. The weight of the evidence indicates that the group practice of the Maharishi Technology of the Unified Field during the World Peace Project reduced stress in the trouble-spot areas and thereby created balance in the world system, which was reflected in an increased flow of cooperative international relations and in progress toward world peace.

According to the theoretical rationale for the present experiment, the experts in the Maharishi Technology of the Unified Field increased coherence in the collective consciousness of the world. Increased coherence in world consciousness, in turn, brought greater success to ongoing efforts toward peace which are always in progress as the natural expressions of social evolution. In this view, the Maharishi Technology of the Unified Field does not substitute for or supplant traditional means of seeking peace through diplomacy, etc.; rather, it creates a favorable initial condition of coherence in collective consciousness in which such efforts toward peace can thrive and succeed.

There may well be naturally occurring fluctuations in the underlying coherence in the wider social system. Experimental evidence for the existence of such cycles of international coherence is suggested by the
covariation in the volume of international interactions and the proportion of positive interactions observed in the COPDAB file. Assuming that these fluctuations are not a function of variation in the sampling procedures (see footnote 7), it appears that as the number of international events increases, there is a concomitant shift toward proportionally more positive, cooperative events. Such a relationship is familiar from the perspective of smaller-scale social systems. Negativity and stress cause a breakdown and blocking of communication, and therefore result in fewer total interactions along with an increased proportion of hostility. Positivity, on the other hand, increases the flow of communication, resulting in more interactions as well as proportionally more cooperation.

While the COPDAB data suggests that there are naturally occurring fluctuations in world coherence, the time series analyses of the present study indicated that the natural cycles of these fluctuations could not have accounted for the influence of the World Peace Project on improving international relations.

The causes of such normally occurring fluctuations in world coherence are undoubtedly extremely complex and multidimensional, and therefore would be difficult to predict or influence. The striking implication of the present research is that the Maharishi Technology of the Unified Field provides a systematic means for maximizing the inherent capacity of the world system to function coherently and thereby produces an atmosphere in which peace and cooperation can flourish.

Subsequent to the World Peace Project, additional research has also shown that the group practice of the Maharishi Technology of the Unified Field facilitates conflict resolution by creating coherence in collective consciousness. Like the World Peace Project, some of these projects have emphasized the establishment of coherence-creating groups within or near the conflict areas (Nader, Alexander, and Davies, 1984; Orme-Johnson, Alexander, Davies, Chandler, and Larimore, 1984).

The most recent research emphasis, however, has been on observing the impact of large groups in a single location on the creation of coherence for the entire world. When a group constituting the square root of one percent of the world’s population practiced this technology in the United States from 17 December 1983 to 6 January 1984, there was a significant increase in international cooperation in comparison to
the immediately preceding and following periods and the same period during the prior year (Orme-Johnson, Cavanaugh, Alexander, Gelderloos, Dillbeck, Lanford, and Nader, 1987). In all of the above studies, when a coherence-creating group was present, an atmosphere of coherence was created in which positivity was maximized and negativity was minimized. However, in each case, when the groups could no longer be maintained, the underlying basis for coherence was removed and the situations rapidly reverted to their prior level of negativity.

Hence both strategies—sending smaller groups simultaneously to the major conflict areas or congregating a larger group in one place—have been demonstrated to be effective in alleviating international conflict for as long a period as the groups were maintained. From the cumulative evidence collected during the last ten years, it appears that the optimal approach would be to combine both strategies by creating permanent large coherence-generating groups on each continent in order to establish and perpetuate peace in the family of nations.

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The Influence
of the Maharishi Technology of the Unified Field
on World Events and Global Social Indicators:
The Effects of the Taste of Utopia Assembly

David W. Orme-Johnson, Ph.D.
Kenneth L. Cavanaugh, Ph.D.
Charles N. Alexander, Ph.D.
Paul Gelderloos, Ph.D.
Michael Dillbeck, Ph.D.
Audri G. Lanford, Ph.D.
Tony M. Nader, M.D., Ph.D.
ABOUT THE LEAD AUTHOR

David W. Orme-Johnson, Ph.D., was Chairman of the Psychology Department, Director of the Doctoral Program in Psychology, and Director of the Institute of World Peace at Maharishi International University. Dr. Orme-Johnson received his Ph.D. from the University of Maryland in 1969 in experimental psychology. Dr. Orme-Johnson has pioneered research on the Transcendental Meditation and TM-Sidhi programs in several areas, including autonomic stability, EEG coherence, intelligence, field independence, medical care utilization, prison rehabilitation, quality of life, and conflict resolution. His papers have appeared in such journals as *American Psychologist*, *Psychosomatic Medicine*, *International Journal of Neuroscience*, *Personality and Individual Differences*, and *Journal of Conflict Resolution*. Dr. Orme-Johnson was coeditor of Volumes 1 and 5 of *Scientific Research on the Transcendental Meditation and TM-Sidhi Program: Collected Papers*. 
The collective practice of the Maharishi Technology of the Unified Field by one group of 7,000 experts—the square root of one percent of the world’s population—assembled at Maharishi University of Management (previously Maharishi International University, 1971–1995), U.S.A., was found to create coherence in the entire world consciousness, leading to an improved quality of life throughout the world. This was reflected in increased progress by heads of state in reversing negative trends and accelerating positive trends; increased harmony in international affairs; increased worldwide economic prosperity as expressed in the simultaneous rise of stock markets in many different countries; decreased traffic fatalities; decreased air traffic fatalities; increased creativity, as measured by increased numbers of patent applications; decreased incidence of infectious diseases; and decreased crime.—Editors

The systematic accumulation of scientific evidence demonstrating that the Maharishi Technology of the Unified Field improves the quality of life on the city, state, and national levels inspired Maharishi University of Management, located in Fairfield, Iowa, U.S.A., to undertake a global experiment to improve the quality of life in the world. Previous research has shown that the square root of one percent of a large population collectively practicing this technology is sufficient to beneficially influence multiple dimensions of individual and collective life. The square root of one percent of the current world population is approximately 7,000, the minimum size of a group of experts in this technology needed to produce a global influence. From 17 December 1983 to 6 January 1984 a group of over 7,000 of these experts came to Maharishi University of Management from 50 countries for the experiment which was called the Taste of Utopia Assembly.

Changes on nine social indicators during the three-week assembly were statistically compared to the three-week periods immediately before and after the assembly. Seasonality was controlled for by comparing changes during the assembly to the same weeks of the year during prior years, using the prior five years whenever these data were available. The following are the results of all data available at the time of writing.

Newspaper content analysis demonstrated the following changes in world events during the assembly relative to before and after the assembly:
1. Increased progress made by heads of state around the world in reversing negative trends and in accelerating positive trends \((p = .02)\)

2. A significant shift of events in trouble-spot countries towards greater positivity as measured by the International Conflict Scale \((p = .002)\)

3. Increased progress towards peaceful resolution of the Lebanese conflict \((p = .006)\).

4. Increase in the World index, a measure of the major stocks in 19 countries, compared to before and after the assembly \((p = .0001)\), and the simultaneous rise of 19 out of 20 stock markets in different countries, a significantly greater proportion of markets rising together than was seen in the previous five years \((p = .00004)\)

5. Decreased highway fatalities in the U.S.A., Australia, and South Africa compared with the same time of year in previous years \((p = .0001)\)

6. Decreased air traffic fatalities worldwide compared to before and after the assembly and relative to the previous five years \((p = .0001)\)

7. Increased patent applications over the number predicted for that time of year based on data from prior years in the U.S.A., United Kingdom, Australia, and South Africa \((p = .04)\)

8. Decreased notifiable infectious diseases in the U.S.A. and Australia compared to the median of the prior years for the same weeks of the year \((p = .0001)\)

9. Decreased crime in Washington, D.C., U.S.A. and Karachi, Pakistan and in the state of Victoria, Australia compared to before and after the assembly and relative to prior years \((p = .000002)\)

These results are discussed in terms of a recent interpretation of a unified field theory of quantum physics. The unified field, being self-interacting or self-referral, is understood to be the field of consciousness, the Cosmic Psyche. When individual consciousness is identified with this universal value of awareness, the integrative and evolutionary qualities of the unified field are enlivened in the entire collective consciousness, thus raising the quality of life.
Introduction

Research has demonstrated that one percent of a population individually participating in the Transcendental Meditation program, or as little as the square root of one percent of a population collectively participating in the more advanced TM-Sidhi program, is sufficient to improve the quality of life throughout society on the city, state, and national levels (6, 8, 11, 14, 15, 16, 30, 32, 39). Social scientists (6) have named this effect the “Maharishi Effect” in honor of His Holiness Maharishi Mahesh Yogi who predicted it as early as 1960.

The Maharishi Effect has been replicated across numerous measures and is multidimensional, influencing many areas of life at once. For example, reduced crime, automobile accidents, and suicide rates were found in 24 U.S. cities with one percent of their population practicing the Transcendental Meditation technique (15, 24). An experiment conducted in Israel demonstrated decreased conflict in neighboring Lebanon, decreased auto accidents and fires, an increased stock market index, and more positive national mood when the square root of one percent of the national population participated in the Transcendental Meditation and TM-Sidhi programs as a group (32). Other experiments have shown that the Maharishi Effect produces holistic improvement as measured by aggregate quality-of-life indices composed of a number of social indicators (14, 39).

The most recent of these studies tracked the quality of life in the United States over a 24-year period on a composite index of twelve major social indicators: GNP per capita, crime rate, percent of civil cases reaching trial, infectious disease rate, infant mortality rate, suicide rate, cigarette consumption per capita, alcohol consumption per capita, patent application rate, degrees conferred per capita, divorce rate, and traffic fatality rate (39). This study demonstrated that the large increase in Transcendental Meditation participants in 1975 led to a reversal of a prior negative trend in the quality of life in the U.S. The study also showed that group practice of the Transcendental Meditation and TM-Sidhi programs by the square root of one percent of the U.S. population (approximately 1,600) at Maharishi University of Management in Fairfield, Iowa resulted in an increase in the national quality of life greater than at any other time in the prior 24 years. In addition, the effect was
more pronounced in Iowa where Maharishi University of Management is located.

Research on the Maharishi Effect has utilized the most recent and powerful statistical and experimental methodologies to control for the influences of possible confounding demographic variables, seasonality, trends, etc., employing such techniques as cross-lagged panel analysis (16), Box-Jenkins autoregressive integrated moving averages (ARIMA) time series analysis (8, 13, 14, 17, 25, 26), and multivariate state space time series analysis (32, 33). The Maharishi Effect cannot be attributed to selection bias of those parameters which “work” because in many cases the changes were publicly predicted before the research was carried out (2, 14, 25, 33, 36). The international peace study in Israel, for example, formally lodged the specific hypotheses of the experiment well in advance of the experiment with an international review board of scientists independent of the Transcendental Meditation movement (3, 32). In this experiment, as in the others, the data were all obtained from public records that are accessible for review by anyone, and the results of the experiment strongly supported the stated experimental hypotheses.

The development of the research on the Maharishi Effect has been the logical growth of a substantial body of scientific data systematically expanding to larger sample sizes, to a broader variety of measures, and to more powerful statistical designs. In the case of studies on crime rate reduction, for example, a sequence of experiments has expanded from:

1. a study over a two-year period on 11 U.S. cities with population over 25,000 and one percent of their population participating in the Transcendental Meditation program in 1972 (6), to

2. a study over 11 years on 24 “one-percent” cities (including cities in the population range of 10,000–25,000) (15), to

3. a study over 15 years on a random sample of 160 cities and 80 standard metropolitan statistical areas representing the entire urban population of the United States (16).

In addition, reduction in crime rate was publicly predicted for the Washington, D.C. metropolitan area when the Maharishi University of Management College of Natural Law moved there in 1982. Inter-
ruptured time series analyses showed that crime does decrease substantially when the size of the group participating in the Transcendental Meditation and TM-Sidhi programs at the College of Natural Law exceeded the local predicted minimum level of 400 (25). Other research has shown that groups of TM-Sidhi participants can reduce crime on the state level (13, 14) and national level (7, 11, 39).

To give another instance of the systematic development of research on the Maharishi Effect, time series analysis experiments have repeatedly found that the group practice of the Transcendental Meditation and TM-Sidhi programs has a positive effect on economic time series (11, 26, 32, 33). Thus, the research on the Maharishi Effect has been well controlled, highly public, objective, and replicated many times over many measures. It shows the Maharishi Effect to be unprecedented in the social sciences for its power to improve the quality of life in large populations.

**Theory of the Maharishi Effect**—Professor John S. Hagelin (21) has pioneered the theoretical explanation of the Maharishi Effect in terms of the most recent advances in unified field theory of quantum physics. Because the unified field is the fountainhead of natural law, all qualities in the universe have their origin in the unified field. The properties of the unified field have been clearly identified and include the quality of “self-referral” or self-interaction required to create diverse particles and forces from an initially unified structure (10, 12, 21, 22). Maharishi has pointed out that the property of self-referral is precisely the defining attribute of consciousness. Only consciousness has the ability to know itself in a completely self-referral manner and to create from within itself through self-interaction. Since the unified field creates the diversity of the universe from within itself, it is natural to conclude that it is the universal field of consciousness, the Cosmic Psyche (10, 21, 35).

The Transcendental Meditation and TM-Sidhi programs have become known as the applied aspect of the Maharishi Technology of the Unified Field because these programs open human awareness to the direct experience of consciousness in its self-referral state, Transcendental Consciousness, where consciousness is found identified with the unified field of all the laws of nature. This enlivens in individual and collective consciousness all of the evolutionary qualities of the unified
field, which include perfect balance, perfect orderliness, harmonizing, infinite correlation, and infinite organizing power (22).

Central to the theoretical explanation of the sociological research on the Maharishi Effect is the concept of collective consciousness. The individuals in society give rise to a collective consciousness characteristic of the group (e.g., 37). Each individual in society is in turn affected by the abstract influence of collective consciousness. Collective consciousness thus imposes boundary conditions on thought and behavior in society. The social institutions, mores, artistic tastes, etc., characteristic of a culture are, in this view, emergent properties of the collective consciousness of that population.

As individuals enliven the qualities of the unified field in their own consciousness and neurophysiology through the Maharishi Technology of the Unified Field, an evolutionary influence is enlivened in collective consciousness. This influence is coherent because it arises from the most integrated level of natural law. In coherent physical systems, such as laser light, the influence of the coherent elements in the population is proportional to their number squared, whereas the influence of incoherent elements is only proportional to their number. This principle has provided an understanding of the discovery that the collective practice of the Maharishi Technology of the Unified Field by a small fraction of the population is sufficient to enliven coherence throughout society.

Previous research has shown that the Maharishi Technology of the Unified Field does indeed enhance coherence in the individual, as shown by improved functioning within and between all areas of individual physiology and psychology. Since the pioneering physiological research on the Transcendental Meditation technique by R. K. Wallace (42, 43, 44), several hundred experiments have demonstrated such individual benefits as improved mental and physical health and increased creativity, intelligence, moral reasoning, and perceptual ability. Wallace’s recent research on reduction of biological aging very clearly demonstrates the holistic nature of the individual benefits of the Transcendental Meditation technique (45). As the research on the Maharishi Effect demonstrates, these same qualities that are produced in the individual meditators are seen manifest in the larger society; society as a whole becomes healthier, more intelligent, more creative, and more moral.
Maharishi’s theory of collective consciousness (28) has profound ramifications for government and public administration in that it identifies the head of state as the “embodiment” and “innocent mirror” of the national consciousness. In this view, the head of state is the first to feel any change in national consciousness and his or her feeling provides the best gauge of the state of the nation. Furthermore, the effectiveness of government at all levels depends on the collective consciousness. If collective consciousness is incoherent, government becomes shrouded with problems (e.g., 23). On the other hand, if collective consciousness becomes more coherent, government will become more successful on every level of its activities. On the behavioral level one observes the machinery of government functioning, but the hidden intelligence that guides the behavior is the collective consciousness of the people—collective consciousness is the unseen governor of every government.

The theory and research of the Maharishi Effect has been presented on many occasions by the faculty of Maharishi University of Management in the U.S., Maharishi European Research University (MERU) in Switzerland and Germany, and Maharishi University of Natural Law in England, to the United Nations (e.g., 31), to the United States Congress (e.g., 34), and to governments throughout the world as demonstrating the singular effectiveness of the Maharishi Technology of the Unified Field to eliminate all suffering, create world peace, and raise human life to its full dignity.

**Taste of Utopia Assembly**—Based on the success of this technology to solve recalcitrant social problems on the city, state, and national levels, and under the inspiration and guidance of Maharishi and with the leadership of the president of Maharishi University of Management, Dr. Bevan Morris, the University community in November 1983 undertook a global experiment intended to beneficially influence the entire world by bringing together the requisite number of individuals for the collective practice of the Transcendental Meditation and TM-Sidhi programs. From 17 December 1983 to 6 January 1984 over 7,000 people (approximately the square root of one percent of the world’s population) came from 50 countries to Maharishi University of Management in Fairfield, Iowa for the Taste of Utopia Assembly, so named
because it was predicted to produce a worldwide positive effect on the quality of life during this period.

The occurrence of the assembly provided an opportunity to scientifically observe and evaluate its global effects on a wide range of measures of quality of life. Most of the social indicators studied in the present experiment were derived from measures that had been used in previous research on the Maharishi Effect, e.g., stock market indices, highway fatalities, air traffic fatalities, crime rate, and content analysis of international conflicts. The uniqueness of the present research, however, is that these social indicators were studied on a worldwide scale. New measures used in the study were content analysis of newspaper reports of the speech and actions of heads of state, patent applications as a measure of national creativity, and incidence of notifiable infectious diseases. It was hypothesized that during the three-week Taste of Utopia Assembly the following changes would occur relative to the three-week periods before and after the assembly and relative to the same time of year in the previous five years:

1. Increased progress by heads of state in solving problems

2. Increased calming influence in the world’s trouble spots

3. Increased progress toward a peaceful resolution of the Lebanese conflict

4. Significant rise in the World index, an international stock index representing 19 countries, and a simultaneous rise in stock indices in all countries

5. Decreased highway traffic fatalities worldwide

6. Decreased air traffic fatalities worldwide

7. Increased patent applications worldwide

8. Decreased incidences of notifiable infectious diseases worldwide

9. Decreased crime worldwide
These specific predictions, with the exception of 6 and 8, were lodged in advance with an independent national review board of distinguished scientists and the international press. The present report covers all the data available at the time of this writing.

Method

Independent Variable—The 7,000 participants in the Taste of Utopia Assembly met twice a day, in the morning and afternoon, for the collective practice of the Transcendental Meditation and TM-Sidhi program. The programs were held in the two Golden Domes and other facilities of Maharishi University of Management in Fairfield, Iowa. The independent variable was the size of the coherence-creating group each day collectively practicing the Maharishi Technology of the Unified Field for the three-week periods before, during, and after the Taste of Utopia Assembly (26 November–16 December 1983; 17 December 1983–6 January 1984; 7 January–27 January 1984). Its effect was studied on a variety of dependent variables.

Dependent Variables—Since global improvements throughout the world were predicted, as many different social indicators of quality of life as possible were collected in countries that were geographically widely separated. The variables available at the time of this writing were:

1. Content analysis of newspaper articles pertaining to heads of state, international conflicts, and the civil war in Lebanon

2. The World index of stock prices (a composite of major stocks on 19 of the world’s stock markets) and stock indices of 20 countries

3. Highway fatalities in the U.S., Australia, and South Africa

4. Air traffic fatalities worldwide

5. Patent applications in the U.S., Australia, South Africa, and the United Kingdom

6. Infectious diseases in the U.S. and Australia
The goal of data collection was to obtain a consistent data set, including stock prices, traffic fatalities, patents, infectious diseases, and crime from four countries on four different continents—the United States, the United Kingdom, Australia, and South Africa. These countries were selected because statistical data from them is relatively easy to obtain, up-to-date, and reliable.

In order to control for seasonality, data for the same weeks of the year for the prior five years were collected for all variables except those involving newspaper content analysis. For the content analysis variables, data were obtained for the same weeks of the year for the prior year. As an additional control for seasonality for international conflicts, data were obtained for the same weeks of the year for the most recent ten-year period (1968–1977) available from the Conflict and Peace Data Bank (4).

In addition, data were collected for the three-week periods before and after the assembly for all variables for the year of the assembly as well as for prior years. (An exception was U.S. auto fatalities, which covered the Christmas and New Year’s weekends only and therefore pre/post data were not available.) The effects of the Taste of Utopia Assembly were statistically compared with prior years and with the periods before and after the assembly.

All data were analyzed on an 11/780 VAX computer using the Interactive Data Analysis and Forecasting System and the BMDP statistical software. Since all of the hypotheses are directional, one-tailed statistical tests were used in the statistical analyses. However, in the case of control data for prior years, for which there were no directional hypotheses, two-tailed tests were employed.

Newspaper content analysis: The sample for content analysis of newspaper reports of the speech and actions of heads of state and of international conflicts was drawn from the first three pages, News Index, and News Summary of The New York Times for the three weeks before, during, and after the assembly (26 November through 27 January). Only articles on events taking place within the sampling period were used. Articles summarizing long-range trends that extended out-
side the sampling period were excluded. The dates of occurrence of the events were used in the statistical analysis.

1. Heads of State
The first two articles each day on statements and actions of heads of state or the response of others to heads of state were photocopied and the dates covered. The articles from all three periods (before, during, and after) were then shuffled and scored independently by two graduate students in business administration.

Subsequent to scoring, articles which repeated the content of another article were eliminated from the data analysis unless they included new content; for example, a report of the previous event as seen from another point of view, as in the reaction of another interest group, or a change in attitude or behavior of the head of state from what had been previously reported.

The system of categorization of events pertaining to heads of state was based on the assumption that every event occurs in the history of an ongoing process in time. Events were cast into a 2 by 2 contingency table in which one dimension was the prior history of the event or trend, whether positive or negative, and the other dimension was whether the head of state produced a positive or negative change in the trend. Thus, the four categories were:

1. Positive trend, positive event
2. Negative trend, positive event
3. Positive trend, negative event
4. Negative trend, negative event

Criteria and examples used to guide the content analysis of heads of state are found in Appendix A.

If the categorization of an event by the two raters did not match, they discussed the article, reading it again if necessary and in some cases discussing the article with the first author of this paper until a consensus was reached. One or more of these procedures was needed to arrive at a consensus on approximately 20% of the items. Only after all items were categorized were the dates uncovered.
Analysis of the data showed that only one event fell in category 3 (positive trend, negative event) in the three periods. Therefore, for purposes of statistical analysis, categories 1 and 2 were combined and 3 and 4 were combined, according to standard criteria for collapsing contingency tables (41). This gave one category of positive outcomes and a second of negative outcomes, irrespective of prior trend.

In order to control for seasonality, the same sampling and analysis procedure was applied to articles appearing in The New York Times during the same time of year for the previous year. The control data were read from microfilm.

2. International Conflicts
All articles reporting international conflicts in the trouble-spot areas of the world were scored in a random order with respect to date by 12 pairs of business graduate students. Countries in conflict areas included in the sample were Nicaragua, Grenada, Honduras, El Salvador, Colombia, Lebanon, Israel, Syria, Kuwait, Iran, Iraq, Afghanistan, Chad, South Africa, Angola, Zimbabwe, Namibia, Libya, Uganda, Kampuchea, Laos, Vietnam, Northern Ireland, and Spain. The mean of the two raters’ scores was used in the data analysis. In each team of two a reader and listener were designated. The reader knew the date of publication (in order to select papers from a stack without duplication) but the listener did not know the dates. After each article was read, both reader and listener independently made a judgment on the degree of conflict according to a seven-point International Conflict Scale.

The International Conflict Scale was modeled after the 15-point “Conflict Scale Category” developed by Azar and his colleagues which was used to develop the Conflict and Peace Data Bank, 1948–1978 Daily Aggregations (4). The International Conflict Scale used in the present study is described in Appendix B.

Reliability—The International Conflict Scale was found to be reliable and successive scores were found to be unbiased and independent. Reliability was demonstrated by a high correlation between scores of readers and listeners for all periods combined, $r = .91$. The scale values were interpreted similarly for the different pairs of raters which is seen in almost identical means and standard deviations between readers,
M = –.57, S.D. = 1.26; and listeners, M = –.58, S.D. = 1.27. Note that the mean scale score for all periods combined is somewhat negative.

Readers' knowledge of the dates of the events did not bias their scoring. This was demonstrated by a one-way ANOVA showing that the mean difference between readers and listeners during the Taste of Utopia Assembly did not differ significantly from the difference between readers and listeners in the before and after periods, F (2,266) = .40, p = .67.

There were approximately 90 events rated in each three-week period, or approximately 4.3 events per day. When the events were arranged sequentially according to date of occurrence, they were found to be independent from one another as shown by a nonsignificant number of autocorrelations from lags 1–50. The adjusted Box-Pierce statistic (Ljung-Box statistic) was chi-square = 45.05, df = 50, p = .61 showing a nonsignificant autocorrelation structure. In addition, the number of runs of autocorrelations above and below zero was not significantly different from the expected value for a serially uncorrelated series, thus lending further support to the results of the adjusted Box-Pierce test. The assumption of a random, independent process could not be rejected and, therefore, it was appropriate to analyze the data as independent frequencies.

Because of low frequencies in the extreme categories on the International Conflict Scale, the seven-point scale was collapsed to five categories: strongly negative events, –3 to –2; negative events, –1.5 to –0.5; unchanged negative conditions, 0; positive events, 0.5 to 1.5; and strongly positive events, 2 to 3. In addition, the data were collapsed into two categories, Total Negative Events (scale score –3 to 0) and Total Positive Events (0.5 to 3).

As a control for seasonality, the same sampling and scoring procedure was used to analyze international conflicts during the previous year at the same time of year, from 26 November 1982 through 27 January 1983. (Control data were read from microfilm.) These data were collected in order to answer the question of whether international conflicts as reflected in The New York Times sample tended to decrease the prior year during the time of the Taste of Utopia Assembly (17 December to 6 January) compared to the three weeks before and after.
As an additional control for seasonality, data from the Conflict and Peace Data Bank (COPDAB) Conflict Scale Category (4) for a ten-year period, 1968 to 1977, for the same weeks of the year as the three-week periods before, during, and after the Taste of Utopia Assembly, were analyzed for the whole world.\(^1\) In order to make the COPDAB data most comparable to the present data, they were divided into two categories, Total Positive Events (Conflict Scale Category scale 1 through 7) and Total Negative Events (scale 9 through 15). The most recent year available, 1978, was excluded because that year overlapped with Maharishi’s Ideal Province Campaign and World Peace Project which may have had an effect on the COPDAB data (36).

The Conflict Scale Category data were not completely comparable to the present data, not only because they were from eight years earlier, but also because they covered the whole world, whereas the present data selected trouble-spot areas of intense international conflict. The proportion of Total Positive Events during the before-assembly period in the present data was on the order of 20% of all events scored, whereas for the COPDAB data, it was 72% for comparable weeks of the year during 1968 to 1977. However, even though the absolute levels of conflict were quite different between the COPDAB file and the present data, the COPDAB data do provide a control for relative change in the level of conflict at the time of year of the assembly compared to the three-week before and after periods.

In addition, the COPDAB data also were analyzed for major conflict areas in 1968 to 1977 (Middle East, Central America, Southern Africa, and Southeast Asia) so that the sample was more comparable to the conflict areas studied in the present experiment. This analysis indicated that approximately 34% of the events in the conflict areas were positive during 1968 to 1977 at the same time of year as the before-assembly period.

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\(^1\) The principal investigator who originally collected the data for the COPDAB file is Edward E. Azar, University of Maryland, College Park. The COPDAB file is available from the Inter-University Consortium for Political and Social Research, P.O. Box 1248, Ann Arbor, MI 48106. Neither the collector of the original data nor the Consortium bear any responsibility for the analysis or interpretation presented here.
3. Middle East: Lebanese Conflict

A modified version of the International Conflict Scale was also used to score daily levels of conflict in Lebanon from 26 November to 27 January as reported in *Al Nahar*, the major daily newspaper in that nation. *Al Nahar* has the largest circulation of all Lebanese newspapers and is considered objective and neutral. It is read by members of all Lebanese interest groups, regardless of religion or political party. For two days (Christmas and New Year’s), scores were assigned from *The New York Times* because *Al Nahar* was not published for these days. For the last week, 20–27 January, two newspapers were used in addition to *Al Nahar*: *Al Anwar* and *L’Orient*, a major French language newspaper in Beirut.

The scale used in Lebanon differed from the one described above in that it contained four negative categories instead of three. This was the same scale used in previous research on conflict resolution in Lebanon (32). (In collapsing this scale to five categories for statistical analysis, strongly negative events were defined as −4 to −2.)

The rating was done within Lebanon by four raters (three Lebanese and one Palestinian) including representatives of the major groups within the country: Druze, Moslem, and Christian. The raters were unaware of the details of the dates and size of the assembly. The raters were divided into two pairs who reviewed the newspaper for each day and read in full all articles pertaining to the crisis before assigning a score for the day.

For the first five weeks each pair rated each day independently and reported separate scores. If scores between pairs were different, the mean of the two scores was used for data analysis. Reliability between pairs was $r = .82$. For the next three weeks, if the two pairs disagreed on the score for the day, then the events for that day were discussed and a consensus reached. For the last week, only one rater was available; however, because of the prior high reliability, these scores were also included in the analysis.

Autocorrelation analysis of the sequence of 56 mean daily scores showed that the number of significant autocorrelations from lags 1–40 were not more than would be expected by chance; the adjusted Box-Pierce statistic for lag 40 was $41.11, df = 40, p = .42$, and thus was not significant. Therefore, the data points were considered to be indepen-
dent and were analyzed using nonparametric techniques appropriate to the scale.

Control data were obtained for comparable weeks of the previous year using the same newspaper source and scoring procedure.

4. Stock Market

The World Index and the Dow Jones—Daily data during the three weeks before, during, and after the Taste of Utopia Assembly were collected on the World index, an international index of stock prices compiled by Capital International S.A., Geneva. The World index is an arithmetic average weighted by market value of the prices of 1,100 securities listed on the stock exchanges of 19 countries. It comprises approximately 60% of the total market value of all stocks listed on these 19 exchanges in the U.S., Europe, Canada, Mexico, Australia, and the Far East.

The day-to-day changes or first differences of the World index and daily Dow Jones Industrial Average over the same period were analyzed using regression analysis with a simple binary independent variable to compare the mean change in each index during the assembly with its mean during the three weeks before and after.

Eight Major Stock Markets—In addition, the percent change during the three-week periods before, during, and after the Taste of Utopia Assembly was studied for the eight major national stock markets published in The Wall Street Journal: United States, United Kingdom, Canada, Japan, France, Germany, Switzerland, and Australia. Percent changes were calculated for the current year as well as for the four previous years, which comprise all the years in which The Wall Street Journal has published daily data on the eight indices. The percent change was defined as the difference in the closing price between the first and last day of each three-week period, that is the closest day, allowing for weekends and holidays, to 16 December minus 28 November (before), 6 January minus 16 December (during), and 27 January minus 6 January (after). The mean percent change for the four previous years was used to control for time of year (seasonal trends) in assessing change during the assembly.
Twenty Major Stock Markets—In order to increase the number of the stock markets sampled to represent as much of the market activity in the world as possible, weekly data on 19 markets published in *Bar-
ron’s National Business and Financial Weekly* were also analyzed. Change over each of the three-week periods was calculated as before. The mar-
kets included in this sample were Australia, Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, Japan, Mexico, Neth-
erlands, Norway, Singapore, Spain, Sweden, Switzerland, the United States, and the United Kingdom. In addition, data were obtained from
the Johannesburg Stock Exchange (JSE), the Rand Daily Mail 100, bringing the number of indices studied to 20. The JSE index, which
was used in the present research, removed stocks pertaining to mining since these stocks largely represent gold prices, which generally have a different dynamics from other stocks. Percent change was calculated for the periods most closely corresponding to the dates of the before, during, and after periods of the Taste of Utopia Assembly for the current year, as well as the five previous years.

The mean percent changes for comparable periods for the previous five years were used to control for time of year to assess change in the market behavior during the assembly.

5. Traffic Fatalities
Data on the number of traffic fatalities for the Christmas and New Year’s weekends, the number of miles driven on these holiday week-
ends, and the length of each weekend in days were collected from 1976 to 1983 (see Appendix C for data sources). The number of fatalities per day per billion miles driven in the U.S. for the holiday weekends during the Taste of Utopia Assembly were statistically compared with the same measure for the previous 16 years.

During 1974 the 55-mile-per-hour speed limit was introduced in the U.S. It was found that the number of fatalities per day per billion miles driven (f/d/m) during Christmas and New Year holiday weekends decreased significantly since the 1974/75 holiday season. The mean f/d/m from 1967 to 1973 was 59.35 but was 40.99 for 1974 to 1982, a decrease of 31% (\(t = 4.0, p = .002\)). This shows that the 55-mph speed limit in the U.S. did have a significant effect in decreasing traffic fatalities over the Christmas and New Year holiday weekends. Therefore, in
order to take the effects of the 55-mph speed limit into account, the
data were adjusted for the speed limit change in 1974 by subtracting
the difference between the means (18.36) from all the values from 1967
to 1973.

In order to assess the level of f/d/m during the 1983/84 Taste of
Utopia Assembly, a confidence interval was constructed based on the
adjusted prior 16 years of data. The assumption of independent data
points was shown to be met by a normal probability plot on adjusted
series of 16 years data, which showed it to be normally distributed,
with a studentized range of 3.48. The runs test, a nonparametric test
of autocorrelation, showed that the observed number of runs (10) did
not differ significantly from the expected number (8.9), S.D. = 1.90. In
addition, correlation analysis showed that there was no significant lin-
ear trend in the adjusted f/d/m data for the prior 16 years (r = −.12, NS).
Therefore, since the data were normally distributed, independent, and
without a linear trend, a confidence interval was judged to be an appro-
priate means of assessing the effects of the Taste of Utopia Assembly.

Traffic fatality data were also obtained for Australia and South Africa
for the entire period of the Taste of Utopia Assembly (see Appendix C
for data sources). The effects of the Taste of Utopia Assembly on traf-
fic fatalities in Australia and South Africa were assessed by comparing
the actual number of fatalities during the assembly with the number
predicted for that period by prior trends. The number of fatalities dur-
ing the assembly was compared with the predicted number because one
country (South Africa) had a significant trend of increasing fatalities
this time of year over the prior five years.

The predicted values were projected by linear regression on the num-
ber of fatalities at that time of year for the previous five years. For com-
parative purposes, the U.S. data were also analyzed this way as well
as by the method described above. For the U.S., the prior 16 years,
adjusted for the effects of the 55-mph speed limit, were used in the
regression. Since the number of days in the holiday weekends has been
defined differently for different years, the regression was computed for
fatalities per day. The predicted number of fatalities per day in 1983/84
was then converted into the predicted number of fatalities during the
three-day long weekends and compared to the actual number of fatali-
ties as was done for the Australian and South African data.
Australia held a World Peace Assembly (similar to the Taste of Utopia Assembly but on a national scale) in January 1983 with a group of over 400 experts in the Maharishi Technology of the Unified Field. Since the effect of this World Peace Assembly could have confounded the outcomes using January 1983 as one of the control years, the predicted value of fatalities for the Taste of Utopia Assembly for Australia was projected from a linear regression on data from 1978/79 to 1981/82, excluding 1982/83. The effects of the January 1983 Australia World Peace Assembly on traffic fatalities, patents, and the Australian stock market are presented separately in this paper (see Appendix D).

6. Air Traffic Fatalities

Accident statistics outside the U.S. were available only for “serious accidents,” those involving planes over 2,250 kg. For the U.S., data were available on “fatal accidents,” which were defined as accidents in which at least one person was killed. Usually these accidents concerned small planes, under 2,250 kg. Therefore, the data on numbers of accidents within the U.S. were not comparable with data for accidents outside the U.S.

A second statistic on the number of fatalities was used, which included all non-U.S. fatalities for larger planes and all U.S. fatalities for large and small planes. This provided a worldwide figure for air traffic fatalities for all countries which participate in the International Civil Aviation Organization’s data collection. (See Appendix C for data sources.)

The number of air traffic fatalities in the world (U.S. and non-U.S. combined) was statistically analyzed by putting the data into a 2 by 6 table (two periods, the three weeks corresponding to the assembly and the mean of the before and after periods combined, by the six years, five previous years and the present year). The expected value for each cell was calculated (the product of the marginal totals divided by the grand total), and the relative frequency of fatalities in the cell corresponding to the Taste of Utopia Assembly was assessed by examining the Freeman-Tukey deviate for that cell (18).
7. Patents
Patent applications were collected as a measure of national creativity. For the U.S., monthly data on the expected and actual patent applications were obtained, as well as data for six approximately two-week periods before the assembly and one two-week period after the assembly. The closest dates corresponding to the assembly covered patent applications postmarked 21 December to 3 January.

Monthly patent data, defined by pay periods, were also obtained from the U.S. Patent Office. The number of patent applications per month predicted by the U.S. Patent Office was quite accurate, with a mean deviation of 0.75% ($S.D. = 3.98$) between the actual and predicted number of applications for the 27 one-month periods from 30 October 1981 to 24 December 1983. This is excluding the effect of a fee increase on 1 December 1982, which increased the number of patent applications by 132% the month before and decreased the patent applications by 43% and 22% for the two following months. Analysis of the 27 months of data showed that the percent error in prediction was not autocorrelated and therefore could be statistically treated as independent frequencies.

Data on the number of patent applications for 1983/84 and the five prior years were also obtained for the United Kingdom, Australia, and South Africa. For each country, patent data were obtained for the three weeks before, during, and after the assembly. (See Appendix C for data sources.)

Analysis of the effects of the Taste of Utopia Assembly on all four countries was based on comparison of the predicted number of patent applications for that period with the actual number. The forecast made by the U.S. Patent Office was used as the predicted number of patents for the U.S., while for the U.K., Australia, and South Africa, the predicted number of patents was based on a linear regression on the five previous years. This was deemed the most appropriate way to compare 1983/84 with the five previous years because more elaborate forecasting models were not possible due to the relatively short data sets.

For Australia, data for 1982/83 were again excluded from the linear regression because of the January 1983 World Peace Assembly in Australia (see Appendix D).
8. Infectious Diseases
Weekly data on the number of cases of specified notifiable infectious diseases in the U.S. were obtained for the three-week periods before, during, and after the Taste of Utopia Assembly. The periods covered the 48th week of 1983 through the 4th week of 1984. Three measures were provided: the number of cases per week, the number of cases for the same week of the previous year, and the median number of cases for the same week of the previous five years.

Figure 1. Number of Experts in the Maharishi Technology of the Unified Field. Beginning on 17 December, the size of the coherence-creating group at Maharishi University of Management began to increase, exceeding 6,900, the square root of one percent of the world’s population, on 28 December. On 6 January, the Taste of Utopia Assembly ended and the number of experts participating in the collective practice of the Maharishi Technology of the Unified Field fell far below the number needed to maintain coherence and positivity in world consciousness.

The incidence of infectious diseases in the U.S. during the Taste of Utopia Assembly was compared with the three-week periods before and after the assembly, as well as with the same weeks for the previous
year and the median for the same weeks of the previous five years. For most diseases, the frequency of cases in the prior year was similar to the five-year median. Thus, in the absence of any substantial change in recent years, the 1983/84 data were compared with the five-year median. However, for two diseases, measles and rubella, the number of diseases reported in the prior year was substantially lower than the five-year median, showing a decline in these diseases most recently due to inoculation programs. For these two diseases, the 1983/84 levels were compared with the prior year only as the most conservative estimate of the effect of the assembly. The data were also analyzed separately for diseases with shorter incubation periods (usually less than ten days) and diseases with longer incubation periods (usually two to three weeks or more).

Data on infectious diseases were also obtained from Australia for 1983/84 and four previous years. Only the higher frequency diseases which allow reliable statistical analysis were studied. These were hepatitis type A, gonorrhea, salmonella, syphilis, and tuberculosis. The three next most frequent diseases, pertussis, meningococcal disease, and malaria, were combined into a sixth category. Data were collapsed for each three-week period corresponding most closely with the dates of periods before, during, and after the assembly and are reported as incidence per week. (See Appendix C for data sources.)

9. Crime
Letters were sent to the Chief of Police of each of the 165 largest metropolitan areas in the world, requesting daily crime totals from 1 July 1983 to 31 January 1984 and weekly crime totals for the months of December and January for the years 1972 to 1983. This data was requested in order to allow for rigorous time series analysis of crime changes, even though it was anticipated that few cities might respond with the extensive data requested. At the time of this writing, city data were received from Karachi, Pakistan and Washington, D.C., U.S.A. and state data were received from Melbourne for Victoria, Australia. Several other agencies promised data which have not yet been received. Crime data were analyzed using Box-Jenkins ARIMA time series analysis.
Results

Figure 1 shows the size of the coherence-creating group (afternoon session only) for three weeks before, during, and after the Taste of Utopia Assembly. During the first 11 days of the assembly, as people arrived from all over the world, the size of the group rose from 1,634 on 17 December to over 6,900, the square root of one percent of the world’s population, on 28 December. For nine days, from 28 December through 4 January, the size of the group consistently exceeded 6,900, reaching a maximum of approximately 8,000 on 30 December. On 6 January the size of the group dropped to approximately 4,000 as people began to leave the assembly to return home, and declined to about 2,000 over the three-week period after the assembly.

The data supported all of the hypotheses of the experiment; the results of each will be presented and discussed in turn.

1. Heads of State

Content analysis of newspaper reports of news events pertaining to heads of state showed a significant shift toward more positive outcomes during the Taste of Utopia Assembly compared with the periods before and after the assembly, which supports hypothesis 1.

For all periods combined, 73.5% of the events had a prior negative trend.

Figure 2 shows the shift toward more positive outcomes during the Taste of Utopia Assembly for the group of events with prior negative trends, comparing before and during, chi-square = 2.69, df = 1, p = .05; comparing during and after, chi-square = 7.11, df = .004. It is, therefore, concluded that during the Taste of Utopia Assembly, heads of state were significantly more successful in reversing prior negative trends. After the assembly the public statements and actions of heads of state reverted back toward less positive outcomes.

A test of independent proportions (29, p. 58) showed that there was a significant difference in the overall proportion of positive outcomes (for all cases irrespective of whether prior trends were negative or positive) during the assembly (0.75) compared with the proportion during the before and after periods combined (0.50), S.D. = .12, z = 2.00, p = .02. The level of significance for a chi-square comparison corrected
Figure 2. Content Analysis of the Statements and Actions of Heads of State. During the Taste of Utopia Assembly there was a proportional increase in progress by heads of state toward reversal of prior negative trends. During the assembly heads of state tended to direct public attention towards constructive solutions of national problems rather than toward an “external enemy” as the source of problems. After the assembly the quality of the statements and actions of heads of state and the support they received reverted toward less positivity.
**Table 1. Heads of State: Frequency and Percent of Positive and Negative Outcomes Before, During, and After the Taste of Utopia Assembly**

<table>
<thead>
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<td>6</td>
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Chi-square = 1.46, \(df = 1, p = .11\)

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<td>55</td>
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<td><strong>Positive Outcomes</strong></td>
<td>18</td>
<td>75</td>
<td>9</td>
<td>45</td>
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<td>20</td>
<td>100</td>
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</tr>
</tbody>
</table>

Chi-square = 2.97, \(df = 1, p = .05\)

**Table 1A. Control Period (82/83) Heads of State: Frequency and Percent of Positive and Negative Outcomes Before, During, and After the Taste of Utopia Assembly**

<table>
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<td>%</td>
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<td><strong>Negative Outcomes</strong></td>
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<td><strong>Positive Outcomes</strong></td>
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Chi-square = .17, \(df = 1, p = .15\) (opposite direction)

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<td>N</td>
<td>%</td>
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<tr>
<td><strong>Negative Outcomes</strong></td>
<td>8</td>
<td>44</td>
<td>3</td>
<td>12</td>
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<td></td>
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<tr>
<td><strong>Positive Outcomes</strong></td>
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<tr>
<td><strong>Total</strong></td>
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<td>100</td>
<td>26</td>
<td>100</td>
<td>44</td>
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</table>

Chi-square = 6.14, \(df = 1, p = .01\) (opposite direction)
for continuity (41) of before and during the assembly was chi-square = 1.46, \( df = 1, p = .11 \) (trend); comparing during and after the assembly it was chi-square = 2.97, \( df = 1, p = .05 \) (Table 1).

A general pattern was observed in the public statements and actions of heads of state indicating an increased tendency to direct public attention toward constructive solutions of the country’s own internal problems rather than diverting public attention towards external sources of problems (see Discussion).

Control data for the same time of year of the previous year (1982/83) indicated that the proportion of positive outcomes in the three-week periods comparable to before, during, and after the assembly were 0.69, 0.56, and 0.88 respectively (Table 1A). Statistical comparison of the periods equivalent to before and during the assembly was not significant (chi-square=.87, \( df = 1, p =.35 \)). However, the comparison of periods equivalent to during and after was significant (chi-square = 6.14, \( df = 1, p =.01 \)), indicating the “during” period of the prior year had a lower level of positive outcomes than the “after” period. Thus, the control data show that there was no tendency in the prior year for events pertaining to heads of state to become more positive at the same time of year as the assembly.

2. International Conflicts
During the Taste of Utopia Assembly, events pertaining to international conflicts reported in the news shifted significantly toward greater positivity, indicating increased progress toward normalizing international relationships through peaceful means.

When five categories were used (strongly negative events, negative events, unchanged negative conditions, positive events, and strongly positive events), expected values in two of the cells were less than 2. Therefore, adjacent categories were combined. Strongly negative events, negative events, and unchanged negative conditions were combined. There was a significant increase in Total Positive Events and decrease in Total Negative Events during the assembly compared with before and after the assembly (chi-square = 12.32, \( df = 2, p = .002 \)). Figure 3 shows the percent of Total Positive Events as the offset portion of the pie chart. It also shows the percent of events in each of the five categories during each of the periods. The shift to more positive events was sig-
into one category called “Total Negative Events,” and positive events
and strongly positive events were combined into a second category,
“Total Positive Events.” For the purpose of analysis the data were put
into a 2 by 3 contingency table of Total Positive and Total Negative
Events by the three periods (before, during, and after the assembly).

**International Conflicts:**
Percent of Total Events
As Rated for Degree of Conflict

![Pie charts showing changes in international conflicts](image)

Figure 3. Content Analysis Of International Conflicts. During the Taste of Utopia Assembly the balance of negative to positive events in trouble-spot areas of the world shifted significantly towards greater positivity. Positivity is defined as increased progress towards peaceful resolution of conflict. After the assembly the balance of events reverted towards greater negativity.
significant during the assembly compared with before (chi-square = 5.87, df = 1, p = .015) and during compared with after (chi-square = 10.74, df = 1, p = .001). There was no significant difference between before and after periods, chi-square = .84, df = 1, p = .36).

The percentage of Total Positive Events in the conflict areas of the world shifted from 19.8% in the before period to 36.0% during the assembly, an increase of 16.2 percentage points. Freeman-Tukey deviates were calculated for each cell of the 2 by 3 table. These deviates are similar to z-scores when the data are from a Poisson distribution, and they indicated a significant increase in Total Positive Events during the Taste of Utopia Assembly over the expected value (Freeman-Tukey deviate = 2.2, p = .01). The Freeman-Tukey deviate for decreased Total Negative Events during the assembly was –1.4, p = .08 (trend).

Table 2 shows the results for the five categories uncombined. It can be seen that there was a significant shift in the frequency distribution toward more positive events during the Taste of Utopia Assembly, then a shift back in the negative direction after the assembly. The chi-square for the overall table was 16.77, df = 8, p = .03. Comparison of the before and during periods yielded a chi-square = 7.16, df = 4, p = .13 (trend); for the comparison of during and after, chi-square = 11.64, df = 4, p = .02; comparing before and after was not significant, chi-square = 4.23, df = 4, p = .38.

As a control for seasonality, the same analysis applied to a comparable data set for the previous year showed that international conflicts did not improve in the previous year at the same time of year as the Taste of Utopia Assembly. Negative events did not change significantly, chi-square = 4.75, df = 8, p = .78 (Table 2A). Comparison of before and during yields a chi-square = 1.49, df = 4, p = .83, and comparison of during and after yields a chi-square = 4.29, df = 4, p = .37, both not significant.
<table>
<thead>
<tr>
<th>Period</th>
<th>Strongly Negative Events</th>
<th>Negative Events</th>
<th>Unchanged Negative Conditions</th>
<th>Positive Events</th>
<th>Strongly Positive Events</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Before</td>
<td>26</td>
<td>28.6</td>
<td>21</td>
<td>23.1</td>
<td>26</td>
<td>28.6</td>
</tr>
<tr>
<td>During</td>
<td>20</td>
<td>22.5</td>
<td>20</td>
<td>22.5</td>
<td>17</td>
<td>19.1</td>
</tr>
<tr>
<td>After</td>
<td>25</td>
<td>28.1</td>
<td>32</td>
<td>36.0</td>
<td>19</td>
<td>21.3</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>28.1</td>
<td>73</td>
<td>36.0</td>
<td>62</td>
<td>21.3</td>
</tr>
</tbody>
</table>

Chi-square = 16.77, df = 8, p = .03
Table 2A. Control Period (1982/1983) International Conflicts: Joint Frequency Distribution and Percentage of Row Totals across Five Event Categories for Control Periods Matched to Before, During, and After the Taste of Utopia Assembly

<table>
<thead>
<tr>
<th>Event Categories</th>
<th>Period</th>
<th>Strongly Negative Events</th>
<th>Negative Events</th>
<th>Unchanged Negative Conditions</th>
<th>Positive Events</th>
<th>Strongly Positive Events</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Before</td>
<td>11</td>
<td>16.9</td>
<td>12</td>
<td>18.5</td>
<td>31</td>
<td>47.7</td>
<td>6</td>
</tr>
<tr>
<td>During</td>
<td>12</td>
<td>21.4</td>
<td>12</td>
<td>21.4</td>
<td>28</td>
<td>17.5</td>
<td>7</td>
</tr>
<tr>
<td>After</td>
<td>3</td>
<td>1.7</td>
<td>7</td>
<td>17.9</td>
<td>28</td>
<td>33.8</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>31</td>
<td>73</td>
<td>18</td>
<td>6</td>
<td>160</td>
<td></td>
</tr>
</tbody>
</table>

Chi-square = , $df$ = 8, $p$ = .03
When collapsed into two categories, the percentage of Total Positive Events for the three periods of the prior year comparable to before, during, and after the assembly were 16.9%, 19.6%, and 20.5% respectively (chi-square = .25, \( df = 2, p = .88 \)). Note that the percentage of Total Positive Events in the previous year was approximately the same as the baseline period for the Taste of Utopia Assembly, that is, 19.8% in the before period. These control data show that there was no evidence from the previous year of increased positive trends in international conflict areas in the year prior to the Taste of Utopia Assembly.

The Conflict and Peace Data Bank Conflict Scale Category (4) divided into a comparable binary variable of Total Positive and Total Negative Events for the same weeks of the year for the ten-year period 1968 to 1977 showed that Total Positive Events increased only 6.3% from the before to during period for these years; the during period was not significantly different from the before and after periods (e.g., Freeman-Tukey deviate = 0.0, not significant, for Total Positive Events in the during period).

Additional control data from the COPDAB file for major trouble-spot areas from 1968 to 1977 showed no evidence of positive change during the time of year of the Taste of Utopia Assembly. In these trouble-spot areas, the percentage of Total Positive Events for the three periods comparable to before, during, and after the assembly were 34%, 37%, and 40% respectively; Freeman-Tukey deviate = .59, not significant, for Total Positive Events in the during period. This provides additional evidence that the increased positivity seen during the Taste of Utopia Assembly cannot be accounted for by a seasonal effect.

3. Middle East: Lebanese Conflict
As with international conflicts, events in Lebanon were analyzed by collapsing the five event categories into two categories: Total Negative Events and Total Positive Events. It is recommended that contingency tables greater than 2 by 2 should be collapsed when a cell has an expected value less than 1, or when 20% of the cells have expected values less than 5 (18, p. 157). Prior to collapsing the table, 6 of 15 expected values were less than 2; after collapsing, the lowest value was 5.3.

The overall significance of the table of two event categories by three periods was chi-square = 16.76, \( df = 2, p = .0002 \). The increase in Total Positive Events during the assembly relative to the before period was
highly significant, chi-square = 10.71, \( df = 1, \ p = .001 \); the reversion to an increased proportion of negative events after the assembly was also statistically significant, chi-square = 10.71, \( df = 1, \ p = .001 \). The before and after period comparison was not significantly different. The Freeman-Tukey deviates for during the Taste of Utopia Assembly from a 2 by 3 table (two events by three periods) were 2.4, \( p = .008 \) for increased Total Positive Events and –1.8, \( p = .04 \) for decreased Total Negative Events in Lebanon.

Figure 4 shows Total Positive and Total Negative Events separated in the pie charts, as well as showing the percent occurrence in the five event categories.

**Lebanese Conflict: Percent of Days in Each Period as Rated for Degree of Conflict**

![Pie charts showing percent occurrence in the five event categories.](image)

Figure 4. Content Analysis of Events in Lebanese Conflict. During the Taste of Utopia Assembly positive events in Lebanon substantially increased as principally seen in the rapid evolution of an agreement on a national security plan. After the assembly the situation quickly deteriorated.
Table 3 shows that, for the five event categories, events in Lebanon shifted in the positive direction during the Taste of Utopia Assembly. The significance of the overall table is chi-square = 21.45, df = 8, p = .006. Comparison of during with before is chi-square = 11.31, df = 4, p = .02, and the comparison of during with after is chi-square = 13.87, df = 4, p = .008.

Control data for the previous year did not show an improvement in the Lebanese civil war at the same time of year. The 2 by 3 contingency table of Total Positive and Total Negative Events by the three periods had a chi-square = 2.02, df = 2, p = .34, not significant.

Table 3A shows the control data cast into a 3 by 5 table of three periods by five event categories. The table shows that strongly negative events increased in the prior year during the period equivalent to the Taste of Utopia Assembly. However, because four expected values were less than 2, a chi-square on the table was not appropriate.

The central positive development that occurred within Lebanon during the Taste of Utopia Assembly was the surprisingly rapid evolution of agreement by all parties on a national security plan. On 20 December the PLO left the country, and there was growing agreement among the different factions to stop fighting (e.g., 22 December, 29 December), leading to the final stages of an agreement on a security plan by the end of the year.

On 1 January a Christian religious leader met with the Moslem prime minister and informed him about the results of his meetings with the different parties; the media were optimistic, writing that “the talks accomplished a positive improvement.” On 2 January an agreement was reached on a program to remove all armed forces and militias from Tripoli. On 4 January the media stated that the government definitively approved the security plan on which the opposition had agreed and stated that the agreement “will be in force soon.” On 5 and 6 January the media reported that mediations on agreements and treaties continued within a positive atmosphere of hopes for solutions. On the morning of 7 January, an article about the previous day’s events (the last day of the Taste of Utopia Assembly) stated: “All parties definitely approved the [comprehensive Lebanese] security plan, and its proclamation [for implementation] is only a question of hours.” The day after the Taste of Utopia Assembly ended (7 January) the situation quickly
Table 3

Middle East Lebanese Conflict
Joint Frequency Distributions and Percentages of Row Totals across Five Event Categories for Periods Before, During, and After Taste of Utopia Course

<table>
<thead>
<tr>
<th>Event Categories</th>
<th>Period</th>
<th>Strong Negative Events</th>
<th>Negative Events</th>
<th>Unchanged Negative Events</th>
<th>Positive Events</th>
<th>Strong Positive Events</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Days</td>
<td>%</td>
<td>Days</td>
<td>%</td>
<td>Days</td>
<td>%</td>
<td>Days</td>
</tr>
<tr>
<td>Before</td>
<td>9</td>
<td>42.9</td>
<td>9</td>
<td>42.9</td>
<td>1</td>
<td>4.8</td>
<td>1</td>
</tr>
<tr>
<td>During</td>
<td>4</td>
<td>19.0</td>
<td>5</td>
<td>23.8</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>After</td>
<td>11</td>
<td>52.4</td>
<td>5</td>
<td>23.8</td>
<td>3</td>
<td>14.3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>19</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

Chi-square = 21.45, df = 8, p = .006

deteriorated. Fighting resumed in Beirut and the Lebanese mountains, which the newspaper described as “mountains in flames,” and the security plans broke down as the fighting continued.
4. Stock Market

**World Index**—Figure 5 shows the marked reversal of a prior negative trend for the World index of international stock prices (Capital International, S.A.) during the Taste of Utopia Assembly, and the resumption of a downward trend after the assembly. The series of 43 observations was first differenced and then analyzed using regression analysis with a binary dummy variable for the period of the assembly as the sole independent variable. This procedure is analytically equivalent to a one-way analysis of variance. This analysis tested whether there was any change in the day-to-day level of fluctuations in the World index during the assembly relative to before and after periods combined.

Regression analysis showed that during the assembly the World index rose 0.77 points per day (the regression coefficient for the binary variable) compared with the mean change for the before and after periods which was -0.14 points per day (the constant coefficient). That is, the estimate from regression analysis indicates that the World index rose 0.63 points per day during the assembly. This rise in the World index during the assembly was highly significant, \( t(41) = 4.07, p = .0001 \). The residual standard deviation was 0.57.

Diagnostic checks indicated that the regression analysis procedure was valid by showing that the underlying assumption of independent and identically distributed disturbances was met. The runs test statistic, the Wald-Wolfowitz one-sample runs test for randomness (a non-parametric test of autocorrelation) was \( z = -.15 \), not significant. The Ljung-Box test of joint significance of a group of autocorrelations also was not significant for lags 1–10 (\( Q = 8.17, df = 9, p = .52 \)). A plot of the residuals was symmetrical and stationary with no outliers. The distribution appeared to be approximately normal as suggested by a normal probability plot, as well as by the studentized range test, skewness, and kurtosis.

The adjusted \( r^2 \) was .27, showing that the assembly “explained” 27% of the variance in the World index. This is an impressive result because economic research has shown that it is very difficult to statistically explain the movement of first-differenced financial variables such as stock prices.
Figure 5. World Stock Index. During the Taste of Utopia Assembly the prior downward trend in the World index of stock prices was reversed. The index rose markedly until the end of the assembly after which it resumed a downward trend.

Thus, it is concluded that the increase in the World index seen in Figure 5 was highly statistically significant compared with the three weeks before and after the assembly. A Box-Jenkins time series analysis performed by Cavanaugh, Orme-Johnson, and Gelderloos has shown that the effect of the assembly was highly significant taking into account the markets’ dynamics over 151 days covering five months before and approximately two months after the assembly (8). The effect of the assembly was also shown to be highly significant even after explicitly
allowing for the effect of long-term interest rates on international stock prices.

To investigate whether the increase in the World index during the assembly could plausibly be attributed to a tendency of the index to increase at this time of year, the increase in the index during the assembly was compared to its mean change during the same period in the four previous years. The World index increased by 8.1 points during the assembly (4.5%) compared with a mean change of 4.2 points (2.9%) for the previous five years, as reported in *The Wall Street Journal* and *Baron’s National Business and Financial Weekly*.

**The Dow Jones Industrial Average**—The Dow Jones showed an even more dramatic reversal of a prior negative trend than did the World index (Figure 6). It was analyzed in a way comparable to the World index and the increase during the assembly was also highly significant. Regression analysis was conducted on the 42 observations of the first-differenced Dow Jones using a binary indicator variable set equal to “1” for each day of the assembly and “0” for each day before and after the assembly.

The regression coefficient describing the impact of the assembly was 6.32 and the constant term –2.9. Thus, the mean change in the Dow Jones Industrial Average during the assembly was 3.42 points per day or 6.32 points greater than its mean of –2.9 points per day for the period before and after the assembly. The effect of the assembly was highly significant with *t*-statistic *t*(40) = 2.67, *p* = .006. The residual standard deviation was 7.13.

Diagnostic checks on the regression residuals suggested that the model was satisfactory. Only 1 of 20 individual residual autocorrelations (at lag 12) was significant at the 5% level, the expected value for an uncorrelated process. The Ljung-Box test was not significant for lags 1-10 (*Q* = 7.78, *df* = 9, *p* = .56), and the runs-about-the-mean test was also not significant (*z* = .33, *p* = .74). The normal probability plot for the residuals suggested that the residuals were approximately normally distributed. The hypothesis of normality could not be rejected at the 5% level using tests based on the studentized range, skewness, and kurtosis. Thus, the diagnostic checks on the model residuals suggested that the assumptions underlying inferences concerning the regression
parameter estimates were satisfactorily met. Thus, it is concluded that the regression analysis was statistically appropriate, and the effect of the assembly on the Dow Jones was highly significant.

Figure 6. Dow Jones Industrial Average. The Dow Jones Industrial Average showed a marked increase during the Taste of Utopia Assembly, reversing a prior, steep downward trend. After the assembly the Dow Jones immediately reversed to a downward slide.

Eight Major Stock Markets—Figure 7 shows that the eight major national stock markets reported daily in *The Wall Street Journal* increased during the Taste of Utopia Assembly, whereas in the three weeks before the assembly, three of the markets were increasing and five were decreasing. After the assembly, these stock markets reverted to a pattern similar to that seen prior to the assembly, with some increasing and some decreasing. A one-way ANOVA using the before, during, and after periods as repeated measures and the eight markets as “subjects” was significant, $F(2,14) = 7.99, p = .01$. (The Greenhouse-Geisser
probability was used which reduces the degrees of freedom to adjust for repeated measures over time (20)."

**Twenty Major Stock Markets**—Weekly data for 19 stock markets reported in *Barron's National Business and Financial Weekly* and data on the Johannesburg Stock Exchange showed that 19 out of 20 markets increased by more than 1% during the Taste of Utopia Assembly. (Spain was the only exception, and it decreased less than its mean change in the previous five years during this period.) During the same time of year in other years, only 14, 6, 10, 8, and 11 of the markets increased by more than 1% for 82/83, 81/82, 80/81, 79/80, and 78/79, respectively.

During the Taste of Utopia Assembly the number of world stock markets which increased was nearly double the mean (9.8) for the comparable time of year in the previous five years. A chi-square test was performed to determine if the observed proportion of markets which increased during the assembly was significantly different from the hypothesized proportion, where the hypothesized proportion of markets was taken to be the average proportion of markets which increased over the comparable period in the previous five years. The difference was highly significant (chi-square = 16.94, $df = 1$, $p = .00004$). Equivalently, this test, based on a 2 by 2 table, may be viewed as a test of whether there was a significant shift of the distribution of changes in the stock market indices during the assembly toward a distribution with a higher number of rising markets as compared with the average for the same period in the previous five years.

It is clear even on a simple descriptive level that the simultaneous rise in almost all of the world’s stock markets seen during the Taste of Utopia Assembly was different from the pattern seen at this time of year during the past five years. In addition, such a simultaneous increase was not seen either before or after the Taste of Utopia Assembly. In the three weeks prior to the assembly, 12 markets increased by 1% or more and 8 stayed the same or decreased. In the three weeks after the assembly, only 11 markets increased and 9 stayed the same or decreased. This indicates that the simultaneous rise of the stock markets seen during the Taste of Utopia Assembly was quite specific to the dates of the assembly.

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Figure 7. Major Stock Market Indices. During the Taste of Utopia Assembly, the major stock markets of the world increased simultaneously. After the assembly these stock markets reversed to a pattern similar to that seen prior to the assembly with some indices increasing and some decreasing.

5. Highway Traffic Fatalities
It was found that for the Christmas and New Year’s holiday weekends during the Taste of Utopia Assembly the number of highway fatalities in the United States dropped to an all-time low (238 during the three-day Christmas weekend and 270 during the three-day New Year’s weekend) whereas the number of miles driven reached an all-time high (10.4 and 10.8 billion miles, respectively), compared with the previous 16 years.

The mean and standard deviation of the number of fatalities per day per billion miles (f/d/m) driven for the prior 16 years, adjusted for the effects of the introduction of the 55-mph speed limit (see Method sec-
tion), was $M = 40.99$, $S.D. = 9.05$. During the Taste of Utopia Assembly there were only 23.96 f/d/m which was 41.6% fewer than the mean for the prior 16 years. Using a standard error $S.E. = S.D. \sqrt{\left(1 + 1 / N\right)}$ in order to adjust for the small sample size, $S.E. = 9.33$ and the $t$-statistic was $t(15) = 1.83$, $p = .04$. Thus, the level of traffic fatalities in the U.S. during the Christmas and New Year holidays was significantly less than in the prior 16 years, controlling for the 55-mph speed limit and controlling for the number of miles driven.

Traffic fatalities were also found to be substantially lower than predicted at the same time of year for other countries for which data were available, Australia and South Africa. Figure 8 shows the percent decrease in the number of traffic fatalities in the three countries during the period of the Taste of Utopia Assembly compared with the predicted number of fatalities based on linear regression on the previous five years (previous 16 years for the U.S.). The predicted vs. actual numbers of traffic fatalities were, for the U.S., 742.1 and 508; for Australia, 131.1 and 117; and for South Africa, 577.3 and 463. Chi-square of goodness of fit was $\chi^2 = 98.0$, $df = 2$, $p = .0001$.

U.S., 742.1 and 508; for Australia, 131.1 and 117; and for South Africa, 577.3 and 463. Chi-square of goodness of fit was $\chi^2 = 98.0$, $df = 2$, $p = .0001$.

An additional analysis was conducted which took into account the standard error of prediction of the expected value from the regression analysis. The number of standard deviations below the predicted value for the U.S., Australia, and South Africa were 1.38, 0.44, and 2.38 respectively, with associated $p$ values of .08, .33, and .008. Fisher (19) has shown that the combined probability of $k$ independent tests of a hypothesis which have shown a consistent direction can be calculated by the expression

$$-2 \sum \ln (\rho_i),$$

that is, minus two times the sum of the natural logarithm (ln) of the probability values ($\rho_i$). The results of this expression have a chi-square distribution with $2k$ degrees of freedom. Applying this formula to the highway fatality results for the three countries gives the chi-square $= 16.71$, $df = 6$, $p = .01$.  

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This result suggests a global reduction in traffic fatalities during the Taste of Utopia Assembly. It also provides an additional control for weather factors in the U.S., since both Australia and South Africa are in the southern hemisphere.

Linear regression on previous years showed that South Africa had a significant trend of increasing fatalities during this time of year; the correlation of number of fatalities with year was $r = .92$, $p = .01$, the increase was approximately 7% per year. There was no significant linear trend for the U.S. or Australia.

![Figure 8: Road Traffic Fatalities](image)

Figure 8. Road Traffic Fatalities. During the Taste of Utopia Assembly, traffic fatalities decreased significantly from the number of fatalities expected from prior years for the same weeks of the year in the countries studied. In the U.S.A., traffic fatalities over the Christmas and New Year’s weekends were at an all-time low, even though miles driven per day were at an all-time high, eliminating the possibility that the decrease was a consequence of fewer miles driven due to cold weather.

6. Air Traffic Fatalities
There were only 62 air traffic fatalities worldwide (U.S. and non-U.S. combined) during the Taste of Utopia Assembly, compared with a mean of 133.8 during the equivalent three-week period for the prior
five years. The least number of fatalities at this time of year in any of the prior five years was 87.

For the purpose of statistical analysis, the worldwide air traffic fatality data were cast into a 2 by 6 contingency table representing the during period and the mean of the before and after periods by the six years (the current year and the previous five years). The observed value of 62 in the cell representing the Taste of Utopia Assembly was approximately one half of the expected value of 121.9; the Freeman-Tukey deviate for this cell was -6.3, $p = .0001$, indicating a highly statistically significant decrease in air traffic fatalities during the Taste of Utopia Assembly relative to the prior five years and to the mean of the three-week periods before and after the assembly (Figure 9).

![Figure 9. Air Traffic Fatalities. During the Taste of Utopia Assembly, the number of air traffic fatalities in the world was 49% lower than the expected number based on the prior five years for the same time of year. It was also 29% lower than the lowest number during the equivalent three-week periods in the prior five years.](image)
The number of fatal air accidents outside the U.S. during the assembly was 11 compared with a median of 13 (range 9–20) in the five previous years. The number of accidents within the U.S. in which at least one fatality occurred was 30, tied for the lowest level in five years (range 30–41). These results show that whereas decrease in the number of accidents was small, the number of fatalities declined markedly, indicating a marked reduction in fatalities per accident. This is in strong contrast with before and after the assembly. For outside the U.S., for example, there were 19.42 fatalities per serious accident during the before and after periods whereas during the assembly there were only 0.45 fatalities per serious accident.

Figure 10. Patent Applications. During the Taste of Utopia Assembly, the number of patent applications in the countries studied increased significantly over the number predicted to occur at that time of year based on data for prior years.
7. Patents
Figure 10 shows the percent difference between the actual number of patents and the predicted number for before, during, and after the Taste of Utopia Assembly for four countries. It can be seen that, as with the stock markets, during the assembly there was a simultaneous rise in patent applications in all countries relative to the predicted number and relative to the percent difference between actual and predicted applications in the three-week periods before and after the assembly. After the assembly, the pattern was similar to before the assembly, with more than the predicted number of applications for two countries and less than predicted for the other two.

Patent applications in the United States, the United Kingdom, Australia, and South Africa increased by 15.3%, 6.5%, 33.2%, and 21%, respectively, over the number of applications predicted for the period during the assembly. The predicted and actual numbers of patent applications during the assembly were, for the U.S., 3,543 and 4,085; for the U.K., 1,286 and 1,369; for Australia, 483.6 and 644; and for South Africa, 414.2 and 501. A 2 by 4 chi-square of goodness of fit of predicted and actual number of patent applications by the four countries was 156.5, \( df = 3, p = .0001 \).

These data were also analyzed using a repeated measures one-way ANOVA, with the four different countries as the “subjects” with repeated measures over the before, during, and after periods; \( F(2,6) = 7.70, p = .04 \) (Greenhouse-Geisser probability). Thus, patent applications in the four countries increased significantly during the Taste of Utopia Assembly over the number predicted from prior years and relative to the periods before and after the assembly.

Patent applications in the U.K. showed a significant decreasing linear trend during this time of year (7 December to 6 January) over the prior five years \( (r = -.91) \) with a decrease of approximately 2.7% per year. Even though the number of patent applications for the U.K. during the assembly was less than the previous year, it was 6.5% more than predicted for during the assembly based on linear regression from prior years. There was no significant linear trend in the number of patent applications over the prior five years for the other countries.
8. Infectious Diseases
The incidence of notifiable infectious diseases in the United States decreased markedly during the Taste of Utopia Assembly compared with the median of the previous five years for the same time of year. Figure 11 shows the overall results for the U.S. for all diseases combined. It can be seen in this figure that during the Taste of Utopia Assembly the total number of cases of infectious diseases decreased by 32% compared to the median number of cases in the previous five years for the same weeks of the year. During the three one-week periods before the assembly the incidence of disease was 10% to 20% less in 1983 relative to the prior five-year median. After the assembly, the number of cases relative to previous years increased to levels comparable to those prior to the assembly.

Figure 11. Notifiable Infectious Diseases: U.S.A. During the Taste of Utopia Assembly, the incidence of all categories of notifiably infectious diseases per week in the U.S.A. decreased significantly compared with the median of the previous five years for the same weeks of the year. After the assembly, the incidence of infectious diseases began to rise again toward levels comparable in previous years.
The statistical significance of the overall result was assessed by the randomization test (41) on the percent decrease from the prior five-year median during the Taste of Utopia Assembly compared with the mean percent decrease of the three-week before and after periods combined. All 13 diseases decreased more compared with the five-year median during the assembly than during the pre/post period \( (p = .0001) \). This result shows that the decrease in reported infectious diseases during the Taste of Utopia Assembly cannot be explained by either the usual reduction over the holidays (17 December to 6 January) or by lower levels in the before and after periods compared with the same-week five-year median.

The median number of cases of infectious diseases for the prior five years during the same time of year as the assembly was 58,218 compared with 39,598 during the assembly, a decrease of 18,620 cases (−32%).

Table 4 shows the dramatic reduction in notifiable infectious diseases in the U.S. during the Taste of Utopia Assembly compared with immediately before and after the assembly or compared with the prior five-year median. It can be seen in Table 4 that there were decreases during the assembly not only in diseases with short incubation periods of approximately one week (aseptic meningitis, encephalitis, gonorrhea, meningococcal infections, and pertussis) but also decreases in diseases with longer incubation periods (hepatitis, measles, mumps, rubella, syphilis, rabies, and tuberculosis). In addition, the effect of the assembly seemed to be immediate. This can be seen in Figure 11 by the sharp reduction in the incidence of infectious diseases in the first week of the assembly. These facts raise questions about the mechanism of the effect, which are addressed in the Discussion section of this paper.
## Table 4. Number of Cases of Major Notifiable Infectious Diseases in the U.S. Before, During, and After the Taste of Utopia Assembly in 1983/1984 Compared with the Median of the Five Previous Years for the Same Periods

<table>
<thead>
<tr>
<th>Disease</th>
<th>Period</th>
<th>Before Nov 27–Dec 17</th>
<th>During Dec 18–Jan 7</th>
<th>After Jan 8–Jan 28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1. Aseptic Meningitis</td>
<td>1983/84</td>
<td>584</td>
<td>29.2</td>
<td>272</td>
</tr>
<tr>
<td>(1–6 days)</td>
<td>Median</td>
<td>452</td>
<td>351</td>
<td>205</td>
</tr>
<tr>
<td>2. Encephalitis</td>
<td>1983/84</td>
<td>77</td>
<td>20.3</td>
<td>40</td>
</tr>
<tr>
<td>(4–21 days)</td>
<td>Median</td>
<td>64</td>
<td>54</td>
<td>48</td>
</tr>
<tr>
<td>3. Gonorrhea Civilian</td>
<td>1983/84</td>
<td>51,609</td>
<td>−13.5</td>
<td>35,438</td>
</tr>
<tr>
<td>(1–8 days)</td>
<td>Median</td>
<td>59,671</td>
<td>50,898</td>
<td>55,946</td>
</tr>
<tr>
<td>4. Gonorrhea Military</td>
<td>1983/84</td>
<td>1,104</td>
<td>35.4</td>
<td>665</td>
</tr>
<tr>
<td>(1–8 days)</td>
<td>Median</td>
<td>1,710</td>
<td>1,252</td>
<td>1,710</td>
</tr>
<tr>
<td>5. Meningoccal Infections</td>
<td>1983/84</td>
<td>136</td>
<td>−8.0</td>
<td>97</td>
</tr>
<tr>
<td>(2–10 days)</td>
<td>Median</td>
<td>148</td>
<td>75</td>
<td>48</td>
</tr>
<tr>
<td>6. Pertussis</td>
<td>1983/84</td>
<td>94</td>
<td>−12.1</td>
<td>77</td>
</tr>
<tr>
<td>(usually 5–10 days)</td>
<td>Median</td>
<td>107</td>
<td>75</td>
<td>48</td>
</tr>
<tr>
<td>7. Hepatitis</td>
<td>1983/84</td>
<td>1,246</td>
<td>−29.7</td>
<td>701</td>
</tr>
<tr>
<td>(15–35 days)</td>
<td>Median</td>
<td>1,773</td>
<td>1,524</td>
<td>1,436</td>
</tr>
<tr>
<td>8. Measles³</td>
<td>1983/84</td>
<td>15</td>
<td>−77.9</td>
<td>15</td>
</tr>
<tr>
<td>(10–15 days)</td>
<td>1982/83</td>
<td>68</td>
<td>98</td>
<td>26</td>
</tr>
<tr>
<td>Case</td>
<td>1983/84</td>
<td>% Change</td>
<td>Prior</td>
<td>% Change</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>9. Mumps (usually 18-21 days)</td>
<td>228</td>
<td>-53.1</td>
<td>337</td>
<td>-65.3</td>
</tr>
<tr>
<td>10. Rubella2 (10-15 days)</td>
<td>27</td>
<td>-65.8</td>
<td>15</td>
<td>-57.1</td>
</tr>
<tr>
<td>11. Syphilis (1-6 weeks)</td>
<td>1,720</td>
<td>-2.1</td>
<td>1,505</td>
<td>-14.7</td>
</tr>
<tr>
<td>12. Rabies (10 days to 6 months)</td>
<td>194</td>
<td>-20.2</td>
<td>136</td>
<td>-47.7</td>
</tr>
<tr>
<td>13. Tuberculosis variable</td>
<td>1,608</td>
<td>-7.8</td>
<td>916</td>
<td>-28.1</td>
</tr>
<tr>
<td>Total</td>
<td>58,642</td>
<td>-14.1</td>
<td>51,470</td>
<td>-18.7</td>
</tr>
</tbody>
</table>

\( p = .0001, \) randomization test

1. Percentages refer to the percent change in 1983/84 compared with the median of the prior five years.

2. Measles and rubellas were compared with the previous year because the number of cases had been decreasing dramatically in recent years due to inoculation program.
Figure 12 also shows essentially the same result for Australia as for the U.S. During the Taste of Utopia Assembly, the incidence of major infectious diseases decreased to 17.2% below the median of the same weeks for the previous four years of available data. Using Fisher’s formula, the combined probability of decreased infectious diseases in the U.S. and Australia is $p = .0001$. In the three weeks before the assembly, the frequency of infectious diseases was 16.3% above the median of the same weeks for the previous four years. After the assembly, the incidence rose again to 22.7% above the four-year median for that time of year. Table 5 shows the consistency of the results for different major diseases for Australia.

![Figure 12. Notifiable Infectious Diseases: U.S.A. and Australia. During the Taste of Utopia Assembly, the incidence in all categories of notifiable infectious diseases decreased significantly compared to the median for the same weeks of prior years in Australia as well as the U.S.A., indicating that the decrease was not due to local conditions on the North American continent (Number of previous years considered—four years for Australia, five years for U.S.A.).](image-url)
### Table 5. Average Number of Cases per Week of Major Notifiable Infectious Diseases in Australia Before, During and After the Taste of Utopia Assembly in 1983/84 Compared with the Median of the Four Previous Years for the Same Periods

<table>
<thead>
<tr>
<th>Period</th>
<th>Disease</th>
<th>Before (Nov 26–Dec 16)</th>
<th>During (Dec 17–Jan 7)</th>
<th>After (Jan 8–Jan 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1 Hepatitis</td>
<td>1983/84</td>
<td>20.0</td>
<td>9.0</td>
<td>22.3</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>21.0</td>
<td>148.5</td>
<td>222.0</td>
</tr>
<tr>
<td>2 Tuberculosis</td>
<td>1983/84</td>
<td>35.3</td>
<td>17.7</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>25.0</td>
<td>148.5</td>
<td>222.0</td>
</tr>
<tr>
<td>3 Gonorrhea</td>
<td>1983/84</td>
<td>207.0</td>
<td>109.7</td>
<td>264.0</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>205.0</td>
<td>148.5</td>
<td>222.0</td>
</tr>
<tr>
<td>4 Salmonella</td>
<td>1983/84</td>
<td>44.7</td>
<td>43.0</td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>29.0</td>
<td>31.0</td>
<td>45.5</td>
</tr>
<tr>
<td>5 Syphilis</td>
<td>1983/84</td>
<td>56.3</td>
<td>23.7</td>
<td>56.0</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>40.05</td>
<td>31.0</td>
<td>57.5</td>
</tr>
<tr>
<td>6 Meningococcal Infections, Malaria, and Pertussis</td>
<td>1983/84</td>
<td>22.7</td>
<td>16.0</td>
<td>22.3</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>11.5</td>
<td>10.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Total</td>
<td>1983/84</td>
<td>386.0</td>
<td>219.1</td>
<td>459.6</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>332.0</td>
<td>264.5</td>
<td>380.5</td>
</tr>
</tbody>
</table>

\( p = .008 \), randomization test

1. Percentages refer to the percent change in 1983/1984 compared with the median of the prior four years.
9. Crime

The incidence of crime decreased significantly during the Taste of Utopia Assembly in Washington, D.C., U.S.A., in Karachi, Pakistan, and in the state of Victoria, Australia. (At the time of writing these were the only data available. See Method section.)

Time series analysis of the crime data from July 1983 to January 1984 was performed on weekly totals in two of the three locations (Karachi and Victoria), while for the Washington, D.C. area daily figures were analyzed. While daily figures were preferred, weekly totals were used for Victoria and Karachi to improve the stability of the series. In the case of Victoria, the daily totals represented the day on which the statistics office recorded the reported offense rather than the day of occurrence. The office was closed on weekends, causing a very large number of recorded offenses on Monday, and in general a several-day lag was common. In this case it was felt that weekly totals represented a more stable figure. For Karachi, the daily figures were quite small and weekly totals were used to increase reliability.

The model tested is the zero-order transfer function model

\[ Y_t = \omega_D I_t + N_t, \]

where \( Y_t \) is the observed time series, \( I_t \) is an intervention step function which is “0” prior to the assembly, and “1” during the assembly, \( \omega_D \) is the assembly parameter showing the effect of the assembly, and \( N_t \) is a stochastic noise component to be modeled by autoregressive integrated moving average (ARIMA) models.

The daily data for Washington, D.C. had a somewhat complex stochastic structure. Differencing of the data at a seven-day lag was required to make the series stationary. In addition, moving average parameters at lags one, four, and seven days were required to prewhiten the time series, as well as a constant trend component indicating a trend of increasing crime over time. This model was able to successfully transform the series into a random disturbance around a zero value, removing any predictable ARIMA structure within the series prior to testing the intervention effect. The joint estimation of the intervention component and noise model yielded a highly significant intervention parameter \( \hat{\tau}(202) = -3.60, p = .0002 \), indicating a decrease in crime during the assembly. Table 6 lists each of the parameter estimates and their
significance level. The Ljung-Box diagnostic statistic (chi-square = 28, $df = 31$, $p > .50$) indicated a lack of residual autocorrelation structure and adequate fit of the ARIMA model.

The two time series for Karachi, Pakistan and the state of Victoria, Australia consisted of 30 and 31 weekly data points, respectively. Both series were already random noise series, lacking any significant autocorrelations to lag 29. In both cases, a constant value and the assembly parameter were estimated, as listed in Table 6. For Karachi, the assembly parameter of $–41.8$ indicated a significant decrease of 42 crimes per week during the assembly, $t(28) = –2.40$, $p = .03$. For the state of Victoria, there was a highly significant decrease of 538 crimes per week, $t(29) = –3.36$, $p = .002$. In both analyses, the Ljung-Box test for the joint significance of residual autocorrelations was nonsignificant, indicating the appropriateness of the model (for each, chi-square = 25, $df = 26$, $p > .50$).

<table>
<thead>
<tr>
<th>Table 6. Parameter Estimates and Significance Tests for Time Series Analysis of Crime Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Washington, D.C., U.S.A.$^a$</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Karachi, Pakistan$^b$</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Victoria, Australia</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

$^*$ 202 degrees of freedom, $^†$ 28 degrees of freedom, $^‡$ degrees of freedom

a) Daily data, b) Weekly data
Figure 13 displays the results for all three locations in terms of percentage change of daily (Washington, D.C.) or weekly (Karachi and Victoria) crime totals during the assembly period from the average crime totals during all other periods from July 1983 through January 1984. Combining the results of the independent tests of the effects of the assembly at all three locations by Fisher’s formula yields chi-square = 36.84, \( df = 6 \), \( p = 2 \times 10^{-6} \) (19).

![Figure 13. Crime Totals. Using time series analysis, it was found that during the Taste of Utopia Assembly significant decreases occurred in daily or weekly crime totals, in locations on three continents, in comparison with the average daily or weekly totals for the twenty-four weeks prior to and three weeks after the assembly.](image)

In order to assess whether similar decreases in crime occurred during the same season in prior years, weekly crime totals for the months of December and January for the 11 years 1972/1973 to 1982/1983 were analyzed. For Karachi and Victoria, the independence of the weekly figures was already established by the time series analysis previously
described. Therefore, t-tests were used to compare the three weeks equivalent to the assembly period (the last two weeks in December and the first week in January) to the weeks falling either before or after the assembly (the first two weeks of December and the last three weeks of January). Neither of the t-tests for Karachi or Victoria approached statistical significance (for Karachi, \( t(86) = .76 \); for Victoria, \( t(86) = -1.22 \)).

The daily data for Washington, D.C. from July 1983 to January 1984 were also aggregated into weekly totals and found to have no significant autocorrelations to lag 28. This indicated that the same procedure was appropriate to test for yearly seasonality in Washington as for the other two locations. Weekly data were only available for Washington from December 1980 to January 1983 (the three prior years). The \( t \)-test for this data did not approach significance (\( t(22) = .88 \)), indicating that the crime results could not be attributed to yearly seasonal changes.

**Discussion**

The results support the hypotheses of the experiment that the Taste of Utopia Assembly would:

1. Facilitate the progress of heads of state in solving problems

2. Create a calming influence in the world’s trouble-spot areas

3. Ease the conflict in Lebanon

4. Cause a rise in the World index and a simultaneous rise in different stock indices around the world

5. Decrease highway traffic fatalities worldwide

6. Decrease air traffic fatalities worldwide

7. Increase patent applications worldwide

8. Decrease incidence of notifiable infectious diseases worldwide

9. Decrease crime worldwide

491
The measures sampled such widely different behaviors throughout the world that it would be highly unparsimonious to explain them by local influences. Even such large-scale phenomena as continental weather conditions are too geographically localized to explain the results. For example, whereas it was unseasonably cold in North America, it was warm in Europe and midsummer in the southern hemisphere where similar effects were measured.

The most serious alternative explanation to be addressed was seasonality. Seasonality was controlled for by showing that the changes during the assembly were statistically significant compared to the same weeks of the year in prior years. This comparison showed that the results cannot be attributed to December 1983 and January 1984 being generally better than previous years.

Comparison of change during the assembly with before and after the assembly showed that the improvement in quality of life in the world was greater during the specific three-week period of the Taste of Utopia Assembly compared to the three weeks before and after the assembly. The rapid onset of positive effects coincident with the beginning of the assembly and the immediate reversion to prior levels after the assembly is compelling experimental evidence of a unified coordinating influence throughout the world that was enlivened by the group of 7,000 experts in the Maharishi Technology of the Unified Field at MIU (MUM).

The support of the specific research hypotheses by the present experiment lends credence to the general theoretical perspective presented by Maharishi’s theory of collective consciousness that:

1. There is a collective consciousness that is generated by the individuals in society and which reciprocally affects the thought and behavior of each individual in society.
2. Collective practice of the Maharishi Technology of the Unified Field by the square root of one percent of the world’s population enlivens the evolutionary qualities of the unified field throughout world consciousness.

**Heads of State**

The beneficial effect of the Taste of Utopia Assembly on statements and actions of heads of state supports an important aspect of Maharishi’s theory of collective consciousness which states that the feeling and behav-
ior of the head of state innocently mirrors national consciousness and therefore provide the best assessment of how much positive effect from the Taste of Utopia Assembly reached his or her country (28). In this view, a change in the feeling and behavior of the head of state is not an isolated phenomenon; it reflects a change in the entire population. Thus the improvements in the statements and actions of heads of state during the Taste of Utopia Assembly indicate that the world population began to function at a higher level of maturity, reflecting greater coherence and positivity in national and world consciousness at that time.

Control data from the previous year indicated that events pertaining to heads of state did not become more positive in the prior year at the same time of year in which the Taste of Utopia Assembly was held. This suggests that the rise in positivity during the assembly was not merely due to a “holiday spirit.”

Inspection of the data suggests that not only was there a statistically significant quantitative shift in the behavior of heads of state during the assembly but there also appeared to be a qualitative change. Before and after the assembly, the dominant tendency of heads of state appeared to be to direct public attention toward negative stereotyping of antagonists within or outside their countries and to perceive the antagonist as the source of the countries’ problems. By contrast, during the assembly heads of state showed a greater tendency to accept responsibility for the national condition and an increased emphasis on strengthening the nation from within as the solution to problems.

Some examples are:

—U.S. President Reagan’s acceptance of responsibility for the “bad as well as the good,” with regards to the events in the Middle East (*The New York Times*, 28 December 1983, p. 1)


—Poland’s Chairman Jablonski’s appeal for national reconciliation as amnesty expired for political dissidents and underground Solidarity activists (*The New York Times*, 1 January 1984, p. 4)
—President Reagan’s feeling that the time was right to establish a constructive working relationship with the U.S.S.R. after an extremely cold period in U.S.-Soviet relations (The New York Times, 7 January 1984, p. 3)

In the months prior to the Taste of Utopia Assembly, U.S.-Soviet relations had seriously deteriorated; following the Korean airline incident, the deployment of American missiles in Europe, and the Soviet walkout from the arms talks, there had been no top-level diplomatic communication between the two superpowers. During the assembly relations began to thaw, as evidenced by an agreement that U.S.S.R. Foreign Secretary Gromyko and U.S. Secretary of State Schultz would meet in Stockholm.

These changes are parallel to stage changes in level of consciousness that occur in individuals as their physiology matures to support broader comprehension in resolving moral dilemmas (40). Since these changes in heads of state reflect changes in the population they represent, it would seem that nations and even the world have “collective physiologies” with corresponding levels of consciousness. The reduction of infectious diseases during the Taste of Utopia Assembly suggests an improvement in the functioning of the collective physiology. Broader comprehension in solving conflicts is not only demonstrated by the effect of the Taste of Utopia Assembly on heads of state, but also by reduced crime and international conflicts in the world. These results demonstrate that the level of moral behavior of collective consciousness can be immediately raised by coherence-creating groups of the requisite size practicing the Maharishi Technology of the Unified Field.

International Conflicts
The reduced conflict in the world observed in the present experiment was not due to a “holiday spirit.” Control data from the previous year for international conflicts worldwide and for the civil war in Lebanon and control data from the Conflict and Peace Data Bank file (4) for worldwide events and for trouble-spot areas all indicated that there is not a tendency toward reduced armed conflicts during the Christmas and New Year season. In addition, analysis of ten years of data from the COPDAB file showed that conflicts do not typically decrease during the Christmas and New Year season relative to the three weeks before and after the season. Furthermore, other research using the Maharishi
Technology of the Unified Field has demonstrated reduced international conflicts during other times of year than Christmas and New Year: November (34, 36), August and September (32), and April and July (2). Therefore, the shift to increased progress toward peaceful resolution of international conflicts observed during the Taste of Utopia Assembly could not be attributed to a seasonal effect.

The present study is the first research to demonstrate that a calming effect on international conflicts can be achieved on a global level by a single group situated in one place. Previous research has demonstrated this phenomenon on the city, provincial, and national levels. These experiments used the same or similar measures of international conflict that were used in the present research. In 1983, international conflicts were found to decrease in Lebanon when the size of a coherence-creating group in Jerusalem rose toward one percent of the square root of Israel’s population (32). This suggests that, when there is intense interaction between two systems of collective consciousness, creating coherence in one strongly and beneficially influences the other. The Lebanese conflict also subsided during a World Peace Assembly when 2,300 experts in the Maharishi Technology of the Unified Field gathered in Yugoslavia in April 1984 (2).

Previous research has demonstrated that international conflicts decreased in the autumn of 1978 when teams of experts in the Maharishi Technology of the Unified Field went to the five major trouble-spot areas of the world (34, 36). In another experiment during the civil war in Lebanon, introduction of this technology directly into a Lebanese village resulted in a dramatic attenuation of fighting in the village in contrast to continued fighting in surrounding villages (1).

The strategy in these previous experiments was to send “fire fighting brigades” to an area proximate to the vicinity of the conflict. The present research demonstrated an easier method of producing the influence. Whereas the World Peace Project of 1978 and the study in Lebanese villages showed that a coherent influence could be created in conflict areas by a group of experts in the Maharishi Technology of the Unified Field being in the area, and whereas the Israel Project (32) showed that placing such a group in an adjoining country could calm the area, the present research has demonstrated that coherence in collective con-
consciousness can be produced on one side of the globe and influence the other, e.g., from Fairfield, Iowa, U.S.A. to Beirut, Lebanon.

These coherence-creating groups can be viewed as neutralizing the accumulation of stress in collective consciousness by raising life to be more in accordance with natural law. In Maharishi’s analysis, violation of natural law by individuals is the source of stress in society (28). Violation of natural law means behavior that is damaging to the well-being and evolution of the individual himself as well as to others in society. The atmosphere or collective consciousness has a great deal of flexibility in sustaining the buildup of stress, but when its elastic limits are exceeded, accumulated collective stress erupts in the outbreak of collective disasters, such as war. The process of neutralizing stress through such violent phase transitions is not a lasting solution because it sows the seeds for the future accumulation of stress which will become the next generation’s war. Wars and other collective disasters can only be prevented by enlivening the unified field, the source of natural law, in collective consciousness so that life in society grows in accordance with all the laws of nature.

**Stock Markets**

The effects of the Taste of Utopia Assembly on stock markets replicate on a world level what previous research had shown on national and local levels in the United States (11, 26, 33), the United Kingdom (5), and Israel (32). Stock market data is unique in being an easily obtainable, accurate daily index of collective behavior that can be studied by sophisticated time series analytical techniques. In another paper we report the use of Box-Jenkins models to analyze the impact of the assembly on the World index of international stock prices (8). This study shows that the changes during the Taste of Utopia Assembly could not be accounted for by trends or cycles characterizing the series’ own dynamics. Indeed, the ARIMA model of the World index forecast virtually no change during the assembly, whereas the assembly actually produced a large increase above the forecast level. After the assembly, the World index declined over the period of a month back to its forecast level.

The stock market is highly sensitive to the situation in the world since large investors closely monitor international events and modu-
late their investment strategies accordingly. The simultaneous rise in stock markets around the world can thus be interpreted as indicating a wave of optimism within the business sector of the nations of the world. Although the stock markets are a measure of activity within the capitalist economic system, we believe that the influence of increased coherence in collective consciousness is equally beneficial to all economic and governmental systems, and will provide the ultimate means to bring together all socioeconomic systems into a mutually beneficial relationship.

Traffic Fatalities
The reduction of road and air traffic fatalities during the Taste of Utopia Assembly replicates the results of previous research in Holland (7) and the U.S. (11, 17) and extends these results to a global scale.

Patent Applications
In order to explain the increased number of patent applications during the Taste of Utopia Assembly over the expected number for that time of year, we first consider that at any time there must be thousands of inventors in the final stages of the process of preparing an application. The present theory of collective consciousness predicts that, if the coherence in collective consciousness increases, the process of evolution would be enlivened on all levels of life. This would naturally be reflected in increased creativity, confidence, liveliness, and efficiency in those working on patents, resulting in more applications completed and mailed.

Infectious Diseases
The reduction in the incidence of notifiable infectious diseases needs consideration. Firstly, the reduction was apparently not just due to a seasonal consideration of people putting off going to the doctor or because of lower availability of doctors during the holidays, because during the Taste of Utopia Assembly the number of reported cases fell to more than 30% below the median level for the same time of year of previous years.

Nor was the reduction due to people putting off going to the doctor because of the cold weather that occurred in North America; the
reduction was also seen in Australia, which was in its summer season. In addition, if people were delaying going to the doctor for whatever reason during the period of the assembly, one would expect a compensatory increase in the number of cases in the weeks following the assembly. This was not observed. Furthermore, some of the diseases that decreased, such as aseptic meningitis, have acute, severe symptoms which do not warrant delaying treatment. The data, therefore, lead to the conclusion that the incidence of virtually all infectious diseases substantially decreased during the assembly.

There are two mechanisms that may explain this result. The first is decreased contact with the etiologic agent and the second is increased resistance of the host. Decreased contact with the etiologic agent could explain the observed decrease in rapidly incubating diseases. This explanation would posit that when coherence increases in collective consciousness, lifestyles in the population become more health promoting and therefore less contact would be made with etiologic agents. The result would be a decrease in the incidence of disease which would be observed after a lag period equal to the incubation time. Since the different varieties of infectious diseases studied have different means of transmission, that is, contact with objects, insects, animals, other humans, etc., the reduction during the assembly points to an increase in a broad spectrum of health-promoting behaviors in the population. The second explanation, strengthening the host, could explain the reduction of diseases with long as well as short incubation periods. This view suggests that under usual conditions (not during epidemics) some proportion of the population contacts various etiologic agents and those who cannot resist the agent fall ill. If increased coherence in collective consciousness increases the efficiency of the immune system by producing greater overall balance in physiological systems, then a proportion of those individuals who had contracted a disorder but who had not yet manifested symptoms by the time of the assembly would, owing to increased host resistance, successfully resist the disease before manifestation. As a result, a reduction of the incidence even of long-incubation disorders would occur shortly after the assembly began.

It is well-known that stress affects the immune system (27). And it has been established that the Transcendental Meditation and TM-Sidhi programs, which are technologies of consciousness, can profoundly
reduce stress and improve physiological health (9, 38). Similarly, the present results indicate that physiological functioning of individuals in a population is affected by the collective consciousness of the population as well as by the individual’s own consciousness. Thus, increased coherence in collective consciousness produces profound and immediate improvements in the physiological functioning of individuals throughout society, resulting in the better health of the entire population.

Crime
The reduction of crime totals during the Taste of Utopia Assembly replicates the results of previous research on the collective effects of the Maharishi Technology of the Unified Field on the city, provincial, and national levels (6, 7, 13, 14, 15, 16, 25). The results of the present time series analysis indicate that the effects found here are not attributable to seasonal variation or to the prior history of the crime trends, and extend the prior findings of crime reduction to locations on several continents simultaneously through the collective practice of the Maharishi Technology of the unified field by the square root of one percent of the world’s population from one place on earth.

Conclusion
Virtually all previous attempts to improve the quality of life in any country have operated on a superficial level of behavior and therefore have not substantially altered the underlying collective consciousness of the nation. This explains why efforts to create world peace through diplomatic means and through institutions created for this purpose, such as the United Nations, have not succeeded. The requisite technology for fundamentally improving the individual’s neurophysiology and consciousness and, through the individual, improving the nation’s collective consciousness has been lacking.

Through the Maharishi Technology of the Unified Field, the individual directly taps the unified field of all the laws of nature which, being self-referral, is a field of consciousness, the Cosmic Psyche (35). This enlivens the evolutionary qualities of the unified field in individual and collective life, as has been demonstrated by over 340 physiological, psychological, and sociological experiments (9, 38). As the individual becomes more in tune with natural law, so does the larger society in
which he or she lives; individual consciousness, collective consciousness, and thus government and education all grow in accordance with natural law.

The scientific reality of the Maharishi Effect is substantiated by strong and convincing evidence on the city, provincial, national, and now world level. Based on this evidence, Maharishi University of Management is dedicated to establishing a permanent coherence-creating group of 7,000 experts in the Maharishi Technology of the Unified Field to ensure world peace and to serve as the foundation of a unified field-based civilization. Having seen the worldwide beneficial effects of the Taste of Utopia Assembly, now it is the responsibility of the people and governments of all nations to create Utopia in their countries.

Appendix A

Criteria and Examples Used to Guide Categorization of Events in Content Analysis of Newspaper Reports of the Speech and Action of Heads of State

1. Positive Trend, Positive Event—This category contains events in which the prior trend was positive and the event pertaining to the head of state was a continuation or increase of the positive trend. Judgment of whether or not a prior trend was positive was based on knowledge of the world events and background information either given in the articles or gained from other media sources.

Examples:

a. It may be generally known that the head of state has been healthy and vital in office. This would qualify as a positive prior trend. If the event was indicative of support of his or her continuation in office, it would be a continuation of the positive trend, and rated positive trend, positive event.

b. Relations between two countries have been warming up for a number of years. The head of state of one country visits the other and the outcome is positive.
c. The head of state has been popular and the news event reports a national celebration honoring him.

2. **Negative Trend, Positive Event**—This category contains events which show progress toward reversal of a prior negative trend.

   Examples:
   
   a. Head of state known to be sick is a prior negative trend. If he recovers, or if there is evidence of his vitality seen as an ability to lead and direct government effectively, then this is a positive event on the background of a negative trend.

   b. Head of state takes the lead in correcting problems facing the country. For example, corruption in government (prior negative trend) has been exposed and head of state does something to purify situation (positive event).

3. **Positive Trend, Negative Event**—This category contains prior positive trends that become negative or negative events on the background of positive trends. Any trend that goes from good to bad fits into this category.

   Example:
   
   a. Head of state visits second nation with which his nation has had prior friendly relations. Head of state makes disparaging remarks about the future of the two nations.

4. **Negative Trend, Negative Event**—This category contains prior negative trends continuing to be negative or becoming worse.

   Examples:
   
   a. On the background of the existence of a prior negative trend, the head of state’s action promotes a continuation of the trend.

   b. The head of state, for political or other purposes, ignores and does not act to correct a problem facing the country.
Appendix B

International Conflict Scale

+ 3 Strong Positivity—Major progress toward voluntary resolution of conflict and creation of a stable peace with all parties involved apparently attaining objectives; dignity maintained by all.

+ 2 Moderate Positivity—Concluding agreements on disarmament; arbitration; forced resolution.

+ 1 Slight Positivity—Mediation; negotiations with cease-fire in force.

0 Unchanged Negative Conditions—Neutral or nonsignificant acts; rhetorical policy statements; indifference or no comment statements; temporary cease-fire.

- 1 Mild Negativity—Hostile verbal attack; giving sanctuary to terrorists; guerrilla activities on limited basis; only minor isolated incidents reported such as sniper fire.

- 2 Moderate Negativity—Limited air, sea, or border skirmishes; annexation of occupied territory; imposition of blockades; assassination attempt on leaders; major material support for subversive activities; terrorist acts; intermittent shelling or clashes; sporadic bombing of military and/or industrial areas; small-scale interception or shelling of ships; mining territorial waters.

- 3 Strong Negativity—Full-scale air, naval, or land battles; major bombing of military and civilian targets; occupation or invasion of territory; assassination of national leader or key political figure.
Appendix C

Data Sources for Stock Indices, Traffic Fatalities, Air Traffic Fatalities, Patents, and Infectious Diseases

Stock Indices—Daily closing prices of the World index of Capital International S.A., Geneva, the Dow Jones Industrial Average, and major stock indices were obtained from The Wall Street Journal. Weekly data on 19 markets were obtained from Barron's National Business and Financial Weekly. Data for the Johannesburg Stock Exchange were obtained from the Rand Daily Mail 100.

Traffic Fatalities—U.S. traffic fatality data were provided by telephone from the statistics department of the National Safety Council in Chicago.

For Australia, data on traffic fatalities for the period 17 December to 6 January or the nearest equivalent for 1978/79 to 1983/84 were provided for Western Australia by the Police Department, Traffic Licensing and Services Centre in Perth. Data for 17 December to 6 January for the years 1978/79 to 1983/84 were provided for New South Wales, Australia by the Traffic Accident Research Unit of the State Police Department in Sydney. Traffic fatalities data for Victoria for 17 December to 6 January for 1978/79 to 1983/84 were provided by the Road Traffic Authority, Hawthorn, Victoria. The figures for Western Australia, New South Wales, and Victoria were added together to provide an estimate for all of Australia.

Traffic fatality data for South Africa for 17 December to 6 January for the years 1978/79 to 1983/84 were provided by the National Road Safety Council of the Republic of South Africa.

Air Traffic Fatalities—The International Civil Aviation Organization data on the number of serious air traffic accidents involving planes over 2,250 kg and the number of fatalities for non-U.S. countries were provided by the National Transportation and Safety Board in Washington, D.C., U.S.A. The ICAO statistics are based on voluntary reports from cooperating countries.
Air traffic fatalities for the U.S. were provided by the National Transportation Safety Board. The U.S. statistics include all air traffic fatalities, most of which are for aircraft under 2,250 kg.

**Patents**—Data on the actual as well as expected patent applications filed in the U.S. were provided by the U.S. Patent Office in Arlington, Virginia. Patent application figures for the United Kingdom were provided by the U.K. Patent Office. The number of standard patent applications lodged in Australia was provided by the information officer, Australian Patent Information Service, Patent, Trade Marks and Designs Office, Woden. The number of patent applications in South Africa was provided by the Government Patent Office in Pretoria.

**Infectious Diseases**—For the U.S., data were provided by the Center for Disease Control in Atlanta, Table 1 of Morbidity and Mortality Weekly Report. For Australia, data were provided by the Department of Health, Commonwealth of Australia.

### Appendix D

**The Australian 1983 World Peace Assembly**

In the context of using the prior five years as a control period for the Taste of Utopia Assembly, it was discussed above that Australia held a World Peace Assembly in January 1983. Approximately 400 expert participants in the group practice of the Maharishi Technology of the Unified Field gathered in Australia. This number exceeds the square root of one percent of the national population. Since the time of the course overlapped with the data available from 7–27 January 1983 for traffic fatalities, patents, infectious diseases, and the stock market, the effects of this World Peace Assembly on Australia were also assessed.

To control for the time of the year, the predicted value for January 1983 was computed from linear regression on same-week data for prior years. For traffic fatalities, ten years of data were available for the whole month for all of Australia. The slope of the linear regression coefficient for the ten years was virtually 0, thus the mean was used as the best estimate of the expected value for January 1983.
It was found that the World Peace Assembly influenced all measures in the predicted direction. The following is a summary of results:

1. Traffic fatalities, Western Australia and New South Wales:
predicted = 99
actual = 63 (–36.4%, lowest in five years)
2. Traffic fatalities, whole country, all of January:
nine-year mean for January = 272 (S.D. = 19.64); January 1983 = 204
(–23.9%, lowest in ten years)
3. Patent applications:
predicted = 580
actual = 742 (+28.9%, highest in five years)
4. Stock market:
prior four-year mean = –2.46% (median = –.91%)
actual = 6.35% (2nd highest in five years)
5. Infectious diseases (per week):
prior three-year mean = 414.2 (median = 441.7); actual = 318 (–28% from prior three-year mean)

By considering each measure as a separate replication, the combined probability of the pattern of results seen during the Australian World Peace Assembly can be conservatively estimated as \( \frac{1}{10} \times \frac{1}{5} \times \frac{2}{5} \times \frac{1}{4} = 0.002 \) (for traffic fatalities, patents, stocks, and infectious diseases, respectively; e.g., lowest traffic fatalities in ten years = \( \frac{1}{10} \), etc.). This shows that the Australian World Peace Assembly produced a significant improvement in the quality of life in the nation.

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Part V

Appendices
Modern Science and *Vedic Science*:

An Introduction

Kenneth Chandler, Ph.D.
ABOUT THE AUTHOR

Kenneth Chandler holds a Ph.D. in Philosophy from the University of Texas at Austin. He served as Head of the Department of the Science of Creative Intelligence at Maharishi International University (today, Maharishi University of Management). Dr. Chandler continues his research into consciousness and is currently at work on a book on descriptions of the experience of transcending and pure consciousness in the mainstream classics of philosophy, science, religion, and the arts. It will be a three-volume set covering from the Vedic tradition to the present.
Modern Science and *Vedic Science*: An Introduction

This journal (*Modern Science and Vedic Science*) provides a forum for research on the forefront of mankind’s expanding knowledge of the universe. It is devoted to exploration of the unified field of all the laws of nature through the combined approaches of modern science and ancient Vedic science, as brought to light by Maharishi Mahesh Yogi. The identification of the unified field by modern physics is only the first glimpse of a new area of investigation that underlies all disciplines of knowledge, and which can be explored not only through objective science but through a new technology of consciousness developed by Maharishi.

The unified field is now beginning to be understood through modern physics as the unified source of the entire universe, as a unified state of all the laws of nature from which all force and matter fields sequentially emerge according to exact dynamical principles. As each science and each academic discipline progresses to uncover its own most basic laws and foundational principles, each is beginning to discover that the roots of these laws and principles can be traced to the unified field.

This journal recognizes a new method of gaining knowledge of the unified field that combines the approach of the modern sciences with that of the most ancient of sciences, the ancient tradition of Vedic science. Many thousands of years ago, the seers of the Himalayas discovered, through exploration of their silent levels of awareness, a unified field where all the laws of nature are found together in a state of wholeness. This unity of nature was directly experienced to be a self-referral state of consciousness which is unbounded, all-pervading, unchanging, and the self-sufficient source of all existing things. They experienced and gave expression to the self-interacting dynamics through which this unified field sequentially gives rise to the diversity of all laws of nature. That experience is expressed in the ancient Vedic literature.
In our own time, Maharishi has brought to light the knowledge of this ancient science and integrated it with the modern sciences in such a way that Vedic science and modern science are now seen as complementary methods of gaining knowledge of the same reality—the unified field of all the laws of nature. The knowledge of this ancient science that Maharishi has brought to light is known as Maharishi Vedic Science.

Maharishi Vedic Science is to be understood, first of all, as a reliable method of gaining knowledge, as a science in the most complete sense of the term. It relies upon experience as the sole basis of knowledge, not experience gained through the senses only, but experience gained when the mind, becoming completely quiet, is identified with the unified field. This method, examined in relation to the modern sciences, proves to be an effective means of exploring the unified field of all the laws of nature. On the basis of this method, complete knowledge of the unified field becomes possible. It is possible to know the unified field both subjectively on the level of direct experience through exploration of consciousness and objectively through the investigative methods of modern science. Maharishi Vedic Science gives complete knowledge of consciousness, or the knower, complete knowledge of the object known, and complete knowledge of the process of knowing. In knowing the unified field, all three—knower, known, and process of knowing—are united in a single unified state of knowledge in which the three are one and the same.

Maharishi has developed and made available a technology for the systematic exploration of the unified field. This technology is a means by which anyone can gain access to the unified field and explore it through experience of the simplest and most unified state of consciousness. As this domain of experience becomes universally accessible, the unified field becomes available as a direct experience that is a basis for universal knowledge. The technology for gaining access to the unified field is called the Transcendental Meditation technique and its advanced programs, and the science based on this experience, which links modern science and Maharishi Vedic Science in a single unified body of knowledge, is called the Science of Creative Intelligence.

Maharishi is deeply committed to applying the knowledge and technology of the unified field for the practical benefit of life. He has
developed programs to apply this knowledge to every major area of human concern, including the fields of health, education, rehabilitation, and world peace. These applications of Maharishi’s technologies of consciousness have laid it open to empirical verification and demonstrated its practical benefit to mankind. Hundreds of scientific studies have already established its usefulness. From these results, it is clear that Maharishi’s technologies of consciousness are far more beneficial than technologies based on present day empirical science; they promise to reduce and even eliminate war, terrorism, crime, ill health, and all forms of human suffering.

These technologies, which are the applied value of Maharishi Vedic Science, represent a great advance in methods for gaining knowledge. Past science was based on a limited range of knowledge gained through the senses. This new technology opens to mankind a domain of experience of a deeper and more far-reaching import. It places within our grasp a new source of discovery of laws of nature that far exceeds the methods of modern science, yet remains complementary to these methods.

Modern science and Maharishi Vedic Science, explored together, constitute a radically new frontier of knowledge in the contemporary world, opening out vistas of what it is possible for mankind to know and to achieve, which extend far beyond present conceptions, and which demand a re-evaluation of current paradigms of reality and a reassessment of old conceptions of the sources and limits of human knowledge.

This introductory essay will provide a preliminary understanding of what the unified field is, what Maharishi Vedic Science is, and how Maharishi Vedic Science and modern science are related. It also defines fundamental concepts and terminology that will be frequently used in this journal and surveys the practical applications of this new technology. We begin with a description of the unified field as understood in modern science.

**The Unified Field of Modern Science**

Within the last few years, modern theoretical physics has identified and mathematically described a unified field at the basis of all observable states of physical nature. Einstein’s hope of finding a unified field theory to unite the electromagnetic, gravitational, and other known
force fields has now been virtually realized in the form of unified quantum field theories. Instead of having several irreducible and distinct force fields, physics can now mathematically derive all four known force fields from a single supersymmetric field located at the Planck scale \(10^{-33}\text{cm or } 10^{-43}\text{sec.}\), the most fundamental time-distance scale in nature. This field constitutes an unbounded continuum of non-changing unity pervading the entire universe. All matter and energy in the universe are now understood to be just excitations of this one, all-pervading field.

Physics now has the capacity to describe accurately the sequence by which the unified field of natural law systematically gives rise, through its own self-interacting dynamics, to the diverse force and matter fields that constitute the universe. With a precision almost undreamed of a few years ago, the modern science of cosmology can now account for the exact sequence of dynamical symmetry breaking by which the unified field, the singularity at the moment of cosmogenesis, sequentially gave rise to the diverse force fields and matter fields. It is now possible to determine the time and sequence in which each force and matter field decoupled from the unified field, often to within a precision of minute fractions of a second. This gives us a clear understanding of how all aspects of the physical universe emerge from the unified field of natural law.

Mathematics, physiology, and other sciences have also located a unified source and basis of all the laws of nature in their respective disciplines. In mathematics, the foundational area of set theory provides an account of the sequential emergence of all of mathematics out of the single concept of a set and the relationship of set membership. The iterative mechanics of set formation at the foundation of set theory directly present the mechanics of an underlying unified field of intelligence that is self-sufficient, self-referral, and infinitely dynamic in its nature. Investigations into the foundations of set theory are ultimately investigations of this unified field of intelligence from which all diversity of the discipline emerge in a rigorous and sequential fashion. In physiology, it is the DNA molecule that contains, either explicitly or implicitly, the information specifying all structures and functions of the individual physiology. In this sense, therefore, it is DNA that unifies the discipline by serving as a unified source to which the diversity of physiological functioning can be traced.
Each of the modern sciences may indeed be said to have glimpsed a unified state of complete knowledge in which all laws of nature are contained in seed form. Each has gained some knowledge of how the unified field of natural law sequentially unfolds into the diverse expressions of natural law constituting its field of study. Modern science is now discovering and exploring the fundamental unity of all laws of nature.

**Maharishi Vedic Science**

Maharishi Vedic Science is based upon the ancient Vedic tradition of gaining knowledge through exploration of consciousness, developed by the great masters in the Himalayas who first expressed this knowledge and passed it on over many thousands of years in what is now the oldest continuous tradition of knowledge in existence. Maharishi’s work in founding Maharishi Vedic Science is very much steeped in that ancient tradition, but his work is also very much imbued with the spirit of modern science and shares its commitment to direct experience and empirical testing as the foundation and criterion of all knowledge. For this reason, and other reasons to be considered below, it is also appropriately called a science. The name “Maharishi Vedic Science” thus indicates both the ancient traditional origins of this body of knowledge and the modern commitment to experience, system, testability, and the demand that knowledge be useful in improving the quality of human life.

The founders of the ancient Vedic tradition discovered the capability of the human mind to settle into a state of deep silence while remaining awake, and therein to experience a completely unified, simple, and unbounded state of awareness, called pure consciousness, which is quite distinct from our ordinary waking, sleeping, or dreaming states of consciousness. In that deep silence, they discovered the capability of the mind to become identified with a boundless, all-pervading, unified field that is experienced as an eternal continuum underlying all existence. They gave expression to the self-sufficient, infinitely dynamic, self-interacting qualities of this unified state of awareness; and they articulated the dynamics by which it sequentially gives rise, through its own self-interacting dynamics, to the field of space-time geometry, and subsequently to all the distinct forms and phenomena that constitute the universe. They perceived the fine fabric of activity, as Maharishi explains it, through which this unity of pure consciousness, in the pro-
cess of knowing itself, gives rise sequentially to the diversity of natural law and ultimately to the whole of nature.

This experience was not, Maharishi asserts, on the level of thinking, or theoretical conjecture, or imagination, but on the level of direct experience, which is more vivid, distinct, clear, and orderly than sensory experience, perhaps much in the same way that Newton or Einstein, when they discovered the laws of universal gravitation or special relativity, enjoyed a vivid experience of sudden understanding or a kind of direct “insight” into these laws. The experience of the unified field of all the laws of nature appears to be a direct experience of this sort, except that it includes all laws of nature at one time as a unified totality at the basis of all existence—an experience obviously far outside the range of average waking state experience.

The ancient Vedic literature, as Maharishi interprets it, expresses, in the sequence of its flow and the structure of its organization, the sequence of the unfoldment of the diversity of all laws of nature out of the unified field of natural law. The Veda is thus to be understood as the sequential flow of this process of the oneness of pure consciousness giving rise to diversity; and Maharishi Vedic Science is to be understood as a body of knowledge based on the direct experience of the sequential unfoldment of the unified field into the diversity of nature. It is an account, according to Maharishi, of the origin of the universe from the unified field of natural law, an account that is open to verification through direct experience, and is thus to be understood as a systematic science.

These ancient seers of the Vedic tradition developed techniques to refine the human physiology so that it can produce this level of experience, techniques that were passed on over many generations, but were eventually lost. Maharishi’s revival and reinterpretation of ancient Vedic science is based on his revival of these techniques which have now been made widely accessible through the training of thousands of teachers of the Transcendental Meditation program. He has thus provided a reliable method of access to this field of direct experience where the oneness of pure consciousness gives rise to the diversity of the laws of nature; and he has also developed applications of this technology that render it open to experimental testing. These applications will be considered below.
Maharishi describes the experience of this unified field of consciousness as an experience of a completely unchanging, unbounded unity of consciousness, silently awake within itself. Gaining intimate familiarity with the silence of pure consciousness, Maharishi holds, one gains the ability to experience within that silence an eternal “fabric” or “blueprint” of all laws of nature that govern the universe, existing at the unmanifest basis of all existence. This unmanifest basis of life, where all laws of nature eternally reside in a collected unity, is experienced as the fabric of the silent field of consciousness itself, which is not in space and time, but lies at the unmanifest basis of all manifest activity in space and time. Through Maharishi’s work, this experience comes to be understood (as we see below) as a normal state of consciousness that arises in the natural course of human development.

Glimpses of this universal domain of experience, where all possibilities reside together in an eternally unified state, have been reported in almost every culture and historical epoch, from Plato to Plotinus and Augustine, and from Leibniz to Hegel and Whitehead. Scientists like Kepler, Descartes, Cantor, and Einstein also appear to have written of it and seemingly drew their insights into the laws of nature from this experience. Descartes (1908) writes, for example, of an experience that he had as a young man of “penetrating to the very heart of the kingdom of knowledge” and there comprehending all the sciences, not in sequence, but “all at once.” Scientists and writers from many traditions have described this experience of unity, which confirms that it is completely universal, and not a product of a particular cultural tradition. Just as the Vedic tradition has been misunderstood, however, so have those descriptions of consciousness found in these different cultural traditions; for without a technique that makes the experience systematically accessible to everyone, the understanding that this is a universal experience of the most fundamental level of nature’s activity has been obscured, and has not before now emerged into the light of universal science.

According to Maharishi Vedic Science, it is not only possible to gain direct experience of the unity of natural law at the basis of the manifest universe, but one can also directly experience the unity of nature sequentially giving rise to the diversity of natural law through its own self-interacting dynamics. Maharishi’s most recent research has
centered on delving deeply into the analysis of these self-interacting dynamics of consciousness.

The Self-Interacting Dynamics of Consciousness
When one gains the capability, through practice of the Transcendental Meditation technique, of remaining awake while becoming perfectly settled and still, one gains the ability to experience a completely simple, unified, undifferentiated, self-referral state of pure consciousness, which is called Saṁhitā in the Vedic literature, in which knower, known, and process of knowing are one and the same. Consciousness is simply awake to itself, knowing its own nature as simple, unified pure consciousness. Yet in knowing itself, the state of pure consciousness creates an intellectually conceived distinction between itself as knower, itself as known, and itself as process of knowing. In Vedic literature, this is reflected in the distinction between Ṛishi (knower), Devatā (process of knowing), and Chhandas (object of knowledge). According to Maharishi, from the various interactions and transformations of these three intellectually conceived values in the unified state of pure consciousness, all diverse forms of knowledge, all diverse laws of nature, and ultimately all diversity in material nature itself sequentially emerge.

The conscious mind, awake at this totally settled and still level of awareness, can witness the mechanics by which this diversification of the many out of the unity of pure consciousness takes place. The mechanics of Ṛishi, Devatā, and Chhandas transforming themselves into Saṁhitā, Saṁhitā transforming itself into Ṛishi, Devatā, and Chhandas, and Ṛishi, Devatā, and Chhandas transforming themselves into each other are the mechanics by which the unity of pure consciousness gives rise to the diversity of natural law. These mechanics are expressed in the sequential unfoldment of Vedic literature. These are the self-interacting dynamics of consciousness knowing itself, which, Maharishi asserts, sequentially give rise to all diversity in nature.

Maharishi (1986) describes this self-referral state of consciousness as the basis of all creative processes in nature:

This self-referral state of consciousness is that one element in nature on the ground of which the infinite variety of creation is continuously emerging, growing, and dissolving. The whole field of change emerges from this field of non-change, from this self-referral, immortal state of
consciousness. The interaction of the different intellectually conceived components of this unified self-referral state of consciousness is that all-powerful activity at the most elementary level of nature. That activity is responsible for the innumerable varieties of life in the world, the innumerable streams of intelligence in creation. (pp. 25–26)

The Structure of Maharishi Vedic Science
One of Maharishi’s most important contributions to Vedic scholarship has been his discovery of the *Apaurusheya Bhashyā*, the “uncreated commentary” of the *Ṛk Veda*, which brings to light the dynamics by which the Veda emerges sequentially from the self-interacting dynamics of consciousness. According to Maharishi’s analysis, the Veda unfolds through its own commentary on itself, through the sequential unfoldment, in different-sized packets of knowledge, of its own knowledge of itself. All knowledge of the Veda is contained implicitly even in the first syllable “Ak” of the *Ṛk Veda*, and each subsequent expression of knowledge elaborates the meaning inherent in that packet of knowledge through an expanded commentary. The phonology of that syllable, as analyzed by Maharishi, expresses the self-interacting dynamics of consciousness knowing itself. As pure consciousness interacts with itself, at every stage of creation a new level of wholeness emerges to express the same self-interacting dynamics of Ṛishi, Devatā, and Chhandas.

Thus the body of Vedic literature reflects, in its very organization and structure, the sequential emergence of all structures of natural law from the unity of pure consciousness. Each unit of Vedic literature—*Ṛk Veda*, *Sāma Veda*, *Yajur-Veda*, *Atharva Veda*, *Upanishad*, *Āraṇyakas*, Brāhmaṇa, Vedāṅga, Upānga, Itihās, Purāṇ, Smṛiti, and Upaveda—expresses one aspect or level of the process. As Maharishi (1986) describes it:

The whole of Vedic literature is beautifully organized in its sequential development to present complete knowledge of the reality at the unmanifest basis of creation and complete knowledge of all of its manifest values. (p. 28)

Veda, Maharishi asserts, is the self-interaction of consciousness that ultimately gives rise to the diversity of nature. The diversity of creation sequentially unfolding from the unity of consciousness is the result of
distinctions being created within the wholeness of consciousness, as consciousness knows itself. Thus from the perspective of Maharishi Vedic Science, the entire universe is just an expression of consciousness moving within itself: All activity in nature is just activity within the unchanging continuum of the wholeness of consciousness.

Through the texts of ancient Vedic science, as interpreted by Maharishi, we possess a rich account of the emergence of diversity out of the unity of natural law. On the basis of this account, it becomes feasible to compare the Vedic description of the origin of the universe with that of the modern sciences.

Modern Science and Maharishi Vedic Science

When Maharishi heard from major scientists of the recent advances of unified field theory in physics, he asserted that modern science had glimpsed the unified field described in ancient Vedic science. “The knowledge of the unified field,” he said (1986, p. 29), “has been discovered by modern science during just the last few years, but the complete knowledge of the unified field has always been available in the Vedic literature.” Modern science, he proposed, had now arrived at the edge of comprehending, through unified quantum field theories, what Vedic science had described on the basis of exploration of the least excited state of consciousness since ancient times: that all diversity in nature sequentially emerges from a unified source through a precise self-interacting dynamics. Modern experimental science and Maharishi Vedic Science could now be seen as two diverse yet mutually complementary approaches to knowing the same underlying reality—one through the empirical method, the other through the exploration of the least excited state of consciousness. Through Maharishi’s inspiration, this has become a major research program that has engaged the attention of many scientists and that has yielded very rich results.

Over the past decade, Maharishi has participated in numerous symposia with major scientists on the theme of exploring modern science and Vedic science to discover detailed structural similarities in their descriptions of the unified field. These symposia have attracted eminent unified field theorists, mathematicians, and physiologists, including a number of Nobel laureates, as well as many of the most highly recognized Pandits of the Vedic tradition. Out of these interactions has come
a meeting of two traditions, East and West, on the ground of their common theme: the investigation of the unified field. Those who have followed these symposia have recognized a deep and impressive structure of knowledge common to both traditions. Both identify a boundless, all-pervading field underlying all states of matter and energy in the universe; both locate it on the most fundamental time-distance scale of nature; both assign to it the same properties of self-sufficiency, self-interaction, infinite dynamism, unboundedness, and unity, among many other common attributes; both identify a threefold structure at the basis of all nature; and both describe a dynamics by which the diversity of nature sequentially emerges from this unified field according to precise laws. The result of these symposia has been that many scientists, following Maharishi’s lead, now feel confident to assert that the unified field described by physics and the unified field of consciousness described by Vedic science are one and the same.

In the first issue of Modern Science and Vedic Science, the lead article by John Hagelin explored many of the deep connections between contemporary unified field theory in physics and Maharishi Vedic Science from the standpoint of an active field theorist. His work brought these two diverse methods of inquiry into close relation, drawing upon both the latest developments of unified field theories and the direct experience of the unified field.

Dr. Hagelin presented evidence for Maharishi’s assertion that the unified field of consciousness and the unified field of physics are the same. His main empirical evidence for this new paradigm was drawn from experimental research in the social sciences on the “Maharishi Effect”—the measurable effects on society resulting from the practice of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying. As further evidence for the identity of consciousness and the unified field, he cited deep parallels between the descriptions of the unified field found in physics and Maharishi Vedic Science. These strikingly similar descriptions support the conclusion that modern science and Maharishi Vedic Science are two complementary methods of approach to the same underlying unity of nature.
The New Paradigm of the Unity of Nature

It is a common belief that the unified field of physics is an objective reality of nature and that consciousness is a subjective experience, and that the two belong, consequently, to different categories of existence. According to this understanding, one is purely material, the other is purely mental, and the two cannot, therefore, be equated.

Through the experience of pure consciousness described in Maharishi Vedic Science, that unified level of intelligence is experienced, not as a mere subjective and localized phenomenon of thought or sensation, but as a non-changing, unbounded field of Being, pervading all forms and phenomena in the universe on a non-active, silent, unmanifest level. Objective and subjective aspects of nature are seen as but two manifest modes of this unified field at the unmanifest basis of existence. A thorough examination of the nature of the unified field in physics and the descriptions of unbounded consciousness brought to light by Maharishi support the thesis that they are but two complementary modes of apprehending a single underlying reality.

The view of nature as consisting of billiard-ball-type objects, each separate, discrete, and isolated from the other, belongs to the old classical Newtonian view of the world. Quantum field theory in modern physics no longer views nature in this way, but provides a new understanding in which the primary reality is that of quantum fields. All forms of matter and energy are understood to be excitations of these underlying fields. In the last year and a half, the apparently different fields of gravity, electromagnetism, and the weak and strong interactions have been theoretically unified as different levels of expression of one single underlying field. All forms and phenomena in the universe are just modes of vibratory excitation of this one all-pervading unified field.

Today, the success of modern physics in unifying our understanding of physical nature is mirrored in the success of Maharishi Vedic Science in unifying our understanding of consciousness. When the unbounded level of pure consciousness is gained as a direct experience, all activity in nature is experienced as an excited state of that one all-pervading field. Since quantum field theory also describes all activity in the universe as excitations of one underlying field, the simplest interpretation is that there is a single unified field which can be known both
through direct experience and through the objective sciences. In this new understanding of the unity of nature, mind and matter cease to be viewed as ultimately different and come to be seen as expressions of a deeper unity of unbounded consciousness.

The unity of nature is not merely a hypothetical unity, nor a unity of intellectual understanding or interpretation. It is a unity of direct experience that has been described in almost every tradition and every historical epoch. Maharishi Vedic Science only brings to light what has been the experience of many of the greatest minds throughout history. What is radically new is that Maharishi has provided a systematic and reliable method by which anyone can gain access to this level of experience. This method of access is the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying.

The Transcendental Meditation and TM-Sidhi Programs, including Yogic Flying

The Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, have been introduced by Maharishi as an effective means for opening the unified field to all as a direct experience. In this way, the unified field becomes universally accessible to systematic exploration.

The key component of these programs is the Transcendental Meditation technique, which provides a systematic procedure by which the mind is allowed to settle naturally into a state of restful alertness, the self-referral state of pure consciousness, in which the mind is completely silent and yet awake. In this way, the state of pure consciousness, which has been the subject of philosophical speculation throughout the centuries, can now be investigated on the basis of direct experience. Maharishi’s immensely important contribution to the clarification and elucidation of this experience of pure consciousness will be a theme for analysis in future issues of this journal.

This quiet, still level of consciousness has rarely been experienced in the past because no systematic and effective technique has been available for providing that experience. The Transcendental Meditation technique is a simple, natural, and effortless procedure for allowing the awareness to settle into a state of deep silence while remaining awake. It has proved to be uniquely effective in making this level of experience widely accessible. Through the deep rest gained during the
practice of the technique, balance is systematically created on all levels of physiological functioning, and the nervous system is habituated to a more settled, coherent, and alert style of functioning. In time, a state of completely integrated functioning is gained, in which pure consciousness is spontaneously and permanently maintained. Once this state is established, the silent, self-referral field of awareness is always present as a stable, non-changing ground underlying all changing states of awareness. This integrated state of consciousness, Maharishi holds, is the basis of all excellence in life and provides the foundation for the further development of higher states of consciousness through the practice of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying.

**Maharishi’s Programs for the Development of Higher States of Consciousness**

The ultimate purpose of all aspects of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, and Vedic Science is the development of consciousness, the unfoldment of the full human potential to live life in enlightenment. Enlightenment is that fully developed state of life in which one enjoys complete knowledge and lives in total fulfillment. In this state, one lives in harmony with all the laws of nature, enjoying the full support of natural law to achieve any desire without making mistakes.

Maharishi has identified a specific sequence of higher states of consciousness, each distinct from waking, dreaming, and sleeping, which, he asserts, arise in the normal full course of human development. Each state of consciousness unfolds on the basis of a concrete shift in the mode of the individual’s neurophysiological functioning. These states can be distinguished from waking, dreaming, and sleeping on the basis of their distinct physiological correlates. The higher states of consciousness that arise in this developmental sequence are, Maharishi asserts, a source of greater joy, knowledge, and fulfillment than ordinary waking state life.

The attainment of these higher states of consciousness is the basis for fully understanding and applying the theoretical assertions of Maharishi Vedic Science. Maharishi Vedic Science is just the exposition of the full range of direct experience that unfolds during the course of the natural
development of human consciousness. These states of consciousness are universal stages of human development accessible to everyone through the practice of Maharishi’s technologies of consciousness. What before was shrouded in the veil of mysticism is now scientifically understood as a normal, natural stage of human life available to anyone.

An article in the first issue of Modern Science and Vedic Science, by Dr. Charles Alexander and others (1987) examined the empirical evidence, drawn from behavioral and neurophysiological research, for the existence of these higher stages of human development. This article unfolded the scientific basis for understanding and verifying higher states of consciousness from the standpoint of a developmental psychologist, and laid the basis for a new paradigm of human development.

**Research on the Relation between Modern Science and Maharishi Vedic Science**

Each individual nervous system, when refined through Maharishi’s technologies of consciousness, is an instrument through which the silent field of pure unbounded consciousness becomes accessible as a field of inquiry. Since the unified field is all-pervading and everywhere the same, a nervous system finely enough attuned in its functioning can gain the ability, according to Maharishi, to experience and identify itself with that unbounded, undifferentiated, and unified field underlying all activity in nature. By taking one’s awareness from the gross level of sensory objects to perception of finer levels of activity, one gains the ability to experience that level of nature’s functioning at which the unity of pure consciousness gives rise to diversity. Gaining this unified state of consciousness is the means by which anyone can experience and confirm the structure of knowledge and reality described in Maharishi Vedic Science. This is partly what makes Maharishi Vedic Science a precise, verifiable science: All theoretical structures of the science can be verified through a reliable, systematic, effective technology. Other foundational aspects of this science will be considered below.

Maharishi’s technologies of consciousness become, in the modern world, a method for the investigation of the unified field and the most refined level of nature’s activity through direct experience. Modern physics, through its objective method of inquiry, has glimpsed a unified field underlying all of nature, but physics has reached a fundamental
impasse in its ability to experimentally investigate the unified field, because the energies required to probe these finer scales exceed those attainable by any conceivable particle accelerator technology. When physics can go no further, Maharishi’s technologies of consciousness, facilitate inquiry beyond the limitations of the objective approach by providing an effective means of exploring the unified field on the level of direct experience.

This exploration of the unified field through the subjective experience of consciousness is a well-structured program of research. It is guided by the knowledge of Maharishi Vedic Science set forth by Maharishi in conjunction with the modern sciences. When descriptions of the unified field from the standpoint of modern science, of Maharishi Vedic Science, and of direct experience coalesce, the three together provide a basis for complete knowledge. This program of research is based on Maharishi’s exposition of the Vedic literature as a complete and detailed expression of the unified field.

According to Maharishi’s exposition of the Veda, the sequential emergence of the diverse laws of nature from the unified field can be directly experienced in the field of consciousness as a sequence of sounds; these are presented in the sequential emergence of phonological structures of the Vedic texts. Veda is just the structure of the self-interacting dynamics through which the unified field gives rise to the diverse expressions of natural law. Fundamental theoretical concepts in physics and other disciplines, insofar as they are valid descriptions of nature, should therefore correspond to different aspects of Vedic literature that describe these realities from the standpoint of direct experience.

The basic program of research of modern science and Maharishi Vedic Science, as conceived by Maharishi, thus has three major goals: (1) to develop an integrated structure of knowledge by fathoming the depth of correspondence between the principles of modern science and Vedic Science; (2) to provide, from Maharishi Vedic Science, a foundation in direct experience for the most profound theoretical concepts of modern science; and (3) to resolve the impasse faced by the objective approach of modern science through the addition of the subjective approach of Maharishi Vedic Science, which provides complete knowledge of nature on the basis of the complete development of the knower.
In another issue of *Modern Science and Vedic Science* [see Vol. 5, Pt. 1 of this series], Dr. M.H. Weinless (1987) explored set theory and other foundational areas of modern mathematics in relation to Maharishi Vedic Science. In a proposed issue, Drs. R.K. Wallace, D.S. Pasco, and J.B. Fagan (1988) explore the fundamental relationship between Maharishi Vedic Science and the foundational areas of modern physiology, such as molecular biology. Their paper also discusses the extent to which fundamental principles of Maharishi Vedic Science can be used to further investigation of DNA structure and function.

The discovery of deep structures of knowledge and principles common to Maharishi Vedic Science and modern science represents such a profound contribution to our understanding of nature that this journal was founded to foster continued scholarly investigation of the interrelations between these complementary methods of gaining knowledge. Knowledge gained by direct experience of the fine fabrics of nature’s activity, and knowledge gained by the experimental methods of modern science coalesce in a new integrated method of inquiry that offers both the fundamental principles of modern science and the expressions of direct experience in Maharishi Vedic Science as two facets of one reality of nature’s functioning.

Maharishi (1986) sums up the relation between Maharishi Vedic Science, modern science, and his technologies of consciousness:

Maharishi Vedic Science is applied through the Technology of the Unified Field. We speak of the unified field in connection with Maharishi Vedic Science because of the similarity of what has been discovered by physics and what exists in the self-referral state of human consciousness. The Technology of the Unified Field [That is, Transcendental Meditation and TM-Sidhi programs, including Yogic Flying—Eds.] is a purely scientific procedure for the total development of the human psyche, the total development of the race. This is a time when objective, science-based progress in the world is being enriched by the possibility of total development of human life on earth, and this is the reason why we anticipate the creation of a unified field-based civilization. (p. 35)

On the basis of the universal availability of this domain of experience, an empirical science of consciousness becomes possible for the first time.
The Science of Creative Intelligence: Foundations of a New Science of Consciousness

The unified science that links the objective method of modern science and the subjective method of Maharishi Vedic Science, while preserving the integrity of each, is called the Science of Creative Intelligence (SCI). Maharishi himself has laid the foundations of this new science by showing, first, how a precise subjective science of consciousness is established on the basis of the direct experience of consciousness in its pure form; and second, how the experimental method can be used to test empirically the assertions of the subjective science. Through Maharishi’s work, for the first time in history, the full potential of human consciousness can be investigated both through direct experience and through the objective methods of modern science. The foundations of this new science linking the subjective and objective method will now be considered.

Experiential Foundations

Prior to Maharishi’s work, the term consciousness was considered too vague and indefinite to be allowed into scientific discussion. It was excluded from science as a metaphysical term because consciousness was not objectively observable, and therefore apparently not amenable to scientific investigation. Through Maharishi’s work, the concept of consciousness has been given a precise, well-defined meaning on the basis of direct experience, and its relation to the objective framework of science has been precisely specified.

The experience of pure consciousness, available to anyone through regular practice of the Transcendental Meditation technique, is a basis for precise experiential knowledge of consciousness in its simplest, most fundamental, and most unified state. Even though consciousness can never be an object of experience, when the conscious mind becomes completely settled in a wakeful state, it experiences its own nature as pure wakefulness, pure consciousness, without any activity or objective content. Through the repeatable, systematic experience of this silent but wakeful state of mind, the concept of pure consciousness, which has been subject to conjecture and debate throughout the centuries, is now available to direct experience.
Having laid the basis for introducing consciousness into science as a precise concept, it remained for Maharishi to develop a program of applied research to test theoretical predictions of Maharishi Vedic Science. Identifying consciousness with the unified field provides a precise understanding of where consciousness is located in the framework of the sciences. To create an empirical science of consciousness, however, it was also necessary to account for how consciousness could be investigated through experimental research.

**Empirical Foundations**

Maharishi’s work has laid the foundation for an experimental investigation of consciousness. He has led the way in drawing out predictions of Vedic science that are open to testing, translating discussions of consciousness, derived from experience of higher states of consciousness, into predictions of experimentally observable phenomena. Three examples will illustrate this principle.

Pure consciousness, as was noted above, is experienced during the practice of the Transcendental Meditation technique as a state of pure restful alertness. This purely subjective experience does not, however, establish objectively whether it is in fact a state of deep rest and alertness, or only seems to be. If a person is in a deep state of rest and alertness, Maharishi has asserted, then physiological evidence of deep rest and alertness should be observable. Reduced levels of oxygen consumption, reduced breath rate, and other measures of more refined physiological activity would be predicted. Patterns of EEG coherence in the alpha range, indicative of restful alertness, should also be observed. Early pioneering research by Dr. R.K. Wallace (1986) found that these changes do indeed occur. In this way, statements about the subjective experience of consciousness were translated into empirically verifiable assertions. The basis of this correlation between consciousness and physiology is a principle, fundamental to Maharishi’s thinking, that for every state of consciousness there is a corresponding state of physiological functioning. The range of physiological correlates of the experience of pure consciousness is a subject of continuing research.

Consider a second example. Pure consciousness is understood in Maharishi Vedic Science as a clear and settled state of awareness. Anyone who gains this state is said to have a mind like a placid lake, unrippled
by waves, and thus able to reflect the world in a precise, non-agitated manner. Maharishi drew from this several predictions. One is that a person growing in the ability to experience pure consciousness would experience more stable and orderly physiological functioning. This can be translated into the testable prediction that subjects regularly practicing the Transcendental Meditation program display increased stability of the autonomic nervous system. Another prediction is that the practice of the Transcendental Meditation program will produce greater perceptual clarity and greater orderliness of thinking. Translated into specific terms, this leads to the prediction that practicing the Transcendental Meditation program will produce measurable increases on such scales as auditory discrimination, brain wave coherence, and problem solving ability. Research has been designed, carried out, and reported in the literature which measures the growth of these parameters in groups practicing the Transcendental Meditation program by comparison to control groups, thus providing objective verification of the predicted correlates of the subjective experience of pure consciousness.

A third example of how assertions of Maharishi Vedic Science can be translated into testable form is found in the sociological experiments on the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying. The hypothesis is that a group of people practicing this technology in one place, by bringing their awareness to the level of perfect orderliness in the unified field, will enliven qualities of harmony and orderliness in collective consciousness, thus producing measurable positive changes in the quality of societal life. Many experiments have been designed by Maharishi and carried out, demonstrating the power of this technology to produce significant changes in the level of coherence, positivity, balance, and stability in society, even on a global scale. (See Experimental Research, below.) The results of these experiments strongly support Maharishi’s assertion that consciousness is identical with the unified field.

**Experimental Research**

Over 600 hundred experimental studies in the areas of physiology, psychology, and sociology provide substantial confirmation of many basic assertions of Maharishi Vedic Science in the arena of empirical science. Many of these studies, now published in major scientific jour-
nals throughout the world, have been collected in the volumes called Scientific Research on the Transcendental Meditation Programme: Collected Papers, Vols. 1–6 (1977–1991). This research provides experimental validation of the efficacy of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying. Because this research—from over 600 scientific studies at over 300 universities and research institutions in 33 countries, published in more than 100 scientific journals—is too extensive to summarize here, the reader is referred to the Collected Papers for articles cited in this and other professional journals. Overall, this research probably represents the most concerted, well-designed research program on a potential means to benefit mankind ever conceived. Its present standing is that, taken together as a body of research, it is one of the most impressive confirmations of a theory of human potential ever executed.

Although it is beyond the scope of this introduction to go into the details of this research, it is worthwhile to mention some of the broad categories of scientific investigation that have evolved to guide the research program of the Science of Creative Intelligence. The main areas of research include studies on the individual and society. Research on benefits to the individual may be further subdivided into studies of physiological changes (both during and after the practice); cognitive, psychological, and behavioral changes; benefits to health and social behavior; and benefits to athletic performance, performance in business, and academic performance. Research on social benefits through collective practice may be further grouped into research on families, city populations, national populations, and global population. These research studies fall into the categories of crime prevention, accident prevention, benefits to economy, health, violence reduction, and world peace.

On the basis of this research, basic assertions of Maharishi Vedic Science become verifiable through empirical science. There is, moreover, a unity of theory underlying these diverse predictions and tests. These studies, taken as a whole, constitute a coherent research program that tests the prediction that repeated experience of the unified field results in greater orderliness, coherence, and positivity, in both individual and social life. Research on these changes not only tests fundamental theory, but demonstrates the practical benefits of this new
technology. Maharishi’s technologies of consciousness become open to experimental testing precisely because they have significant practical applications in improving every area of human life.

**Practical Applications of the Transcendental Meditation and TM-Sidhi Programs, including Yogic Flying**

Maharishi has frequently asserted that the purpose of Maharishi Vedic Science is to benefit life, not merely to give knowledge for its own sake. Knowledge, he holds, is for action, action for achievement, and achievement for fulfillment. The ultimate purpose of Maharishi Vedic Science and its applied technology is, therefore, to bring human life to fulfillment.

Maharishi’s technologies of consciousness bring fulfillment to individual life by unfolding the full potential of consciousness. When higher states of consciousness are realized, Maharishi emphasized, life is lived in “twenty-four-hour bliss.” Gaining contact with the unified field, one enjoys spontaneous right action, lives life in total accord with all the laws of nature, and accomplishes any life-supporting desire. Violations of natural law cease, and all suffering, which is caused by violation of natural law, comes to an end. Life is lived free from mistakes, in inner and outer fulfillment. Such is the fundamental purpose of the technologies Maharishi has created.

**Perfect Health**

Maharishi’s technologies of consciousness have important practical applications in the area of health. According to Maharishi, sickness arises from imbalance. Perfect health means wholeness, balance on all levels of life. When individual life is established in the unified field of all the laws of nature, all actions are spontaneously in accord with natural law. In terms of physiological functioning, this means perfect integration and balance, from the biochemical and molecular levels to the macroscopic, organismic levels.

Maharishi Ayurveda is an integral part of Maharishi Vedic Science. It is a revitalized form of the ancient ayurvedic science of life and health, restored to its original purity and effectiveness by Maharishi.
According to Maharishi, the cornerstone of Ayurveda is the development of consciousness. Perfect health in mind, body, and behavior is the result of perfect balance in consciousness and physiology. This develops through the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, when the mind identifies itself with the unified field, the field of perfect balance and wholeness.

Maharishi Ayurveda combines Maharishi’s technologies of consciousness with specific procedures to treat and prevent illness and promote longevity. Maharishi Ayurveda Medical Centers have been established in many countries to eliminate the basis of sickness, create perfect health, and reverse the aging process. Over the last fifteen years, research into the effects of Maharishi’s technologies of consciousness, on health have been carried out at research institutions all over the world, and Maharishi’s recent emphasis on Ayurveda provides many new research opportunities for investigating the applications of Vedic Science in the area of health.

Maharishi’s technologies of consciousness also include technologies to accomplish specific goals of individual and social life. The TM-Sidhi program has been founded by Maharishi to utilize the knowledge and the organizing power of the unified field for improving achievements in every area of human endeavor.

**Unfolding Full Human Potential through the Transcendental Meditation and TM-Sidhi programs**

When one gains the level of experience of the self-interacting dynamics of consciousness, Maharishi holds, one gains command over all the laws of nature. Stationed at the source of all the laws of nature, at the “central switchboard” of nature’s activity, human consciousness can command all the laws of nature to create any desirable effect in the material world. Maharishi has brought forth a program for gaining mastery over all the laws of nature, based on the formulations found in the ancient *Yoga Sūtras* of Patanjali, one of the principal books of Vedic literature. This is the TM-Sidhi program, in which the mind gains the ability to function from the level of the self-interacting dynamics of the unified field. Once established in pure self-referral awareness through the practice of the Transcendental Meditation program, an individual
gains the ability to draw upon the organizing power of the unified field to accomplish anything. Since the unified field is the source of all existence, its organizing power is infinite, and one who functions from this level has unlimited organizing ability. Established in that unified field of all possibilities on the unmanifest level of existence before consciousness assumes the form of matter, all possibilities open to one’s awareness and one can govern the expressions of the unified field as it transforms itself into matter. As Maharishi (1986) expresses it:

In this program, human awareness identifies itself with that most powerful level of nature’s functioning and starts to function from there. The purpose of the TM-Sidhi program is to consciously create activity from that level from where nature performs. (p. 74)

Through the practice of the TM-Sidhi program, Maharishi predicts, it will become possible to achieve levels of body-mind coordination hitherto deemed impossible. It will be possible, he asserts, to realize the ancient dream of flying through the air, and to develop highly enhanced powers of hearing, seeing, and intuition that extend the senses far beyond the limits currently conceived to be possible. In the Yogic Flying technique, which Maharishi developed from the Yoga Sūtras, the silent state of self-referral consciousness is integrated most fully with outer activity as the body lifts in spontaneous hops, generating inner bliss and maximum coherence in brain functioning. Other Vedic texts describe the ability to move through the air at will as a result of perfection of this Yogic Flying technique. By activating laws of nature that are now hidden to ordinary methods of scientific investigation, the TM-Sidhi program provides a research methodology to explore what is possible for mankind to achieve on the basis of functioning from that level where the conscious mind has become identified with the unified field. This is the basis of a technological revolution more powerful and beneficial to life than any conceived through empirical science.

The Maharishi Effect

The TM-Sidhi program, when practiced in groups, is even more powerful than the TM-Sidhi program practiced alone. The collective practice of the TM-Sidhi program can produce an influence that affects the entire world in measurable ways. This global influence of coherence
generated through the group practice of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, has been called the “Maharishi Effect.”

As early as 1960, Maharishi predicted that when individuals practice the Transcendental Meditation and TM-Sidhi programs in sufficiently large groups, a measurable increase in orderliness, coherence, and positive trends would be observed in society. By enlivening the life-supporting and evolutionary qualities of the unified field, such as perfect orderliness, infinite dynamism, and self-sufficiency, Maharishi held, these qualities would be enlivened in collective consciousness and this would have positive, measurable effects on a wide social scale.

Over the years, social scientists developed formulas for predicting the size of the group necessary to create a “phase transition” in society to a measurably higher quality of life. These formulas, calculated on the basis of analogous phase transitions, from disorder to orderliness, studied in physics, came out to be approximately one percent of a population practicing the Transcendental Meditation program, and a much smaller percentage, on the order of the square root of one percent, practicing the TM-Sidhi program.

Since 1978, many experimental studies have been performed to measure the effect of large groups practicing the TM-Sidhi program. Experimental confirmation of the principle has been the consistent result. The Maharishi Effect is now as well documented as any principle of modern social science. In creating this technology, Maharishi has provided an effective method of social change that operates from the silent, harmonizing level of the unified field to produce a transformation in the quality of collective consciousness, thereby effortlessly creating coherence on a global scale. Maharishi (1986) describes how this effect is produced:

The transcendental level of nature’s functioning is the level of infinite correlation. When the group awareness is brought in attunement with that level, then a very intensified influence of coherence radiates, and a great richness is created. Infinite correlation is a quality of the transcendental level of nature’s functioning from where orderliness governs the universe. (p. 75)

D. Orme-Johnson and M. Dillbeck (1987) have summarized the empirical research on the Maharishi Effect. They surveyed
experimental studies documenting the sociological improvements resulting from the group practice of the TM-Sidhi program. Based on these results Maharishi asserts that the collective practice of the TM-Sidhi program in groups of 8000 (the square root of one percent of the world’s population) would produce coherence in the collective consciousness of the entire world. Statistically significant reductions in crime, accidents, fatalities, and disease, and other positive benefits on a global scale observed during experimental periods have established this as an effective means of changing collective consciousness and thereby changing the quality of life in the world—simply by enlivening the source of order and coherence at the basis of nature, from the level of the unified field.

**Maharishi’s Program to Create World Peace**

The most dramatic application of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, is Maharishi’s program to create world peace through the creation of a permanent group of 8000 collectively practicing Maharishi’s technologies of consciousness. These technologies are a basis for eliminating negativity and destructive tendencies throughout the world. Large groups of experts in the TM-Sidhi program, creating coherence, during experimental periods, have provided ample opportunity for scientific research. During these experimental periods, conflict and violence have been reduced in war-torn areas and negative trends have been reversed. Over thirty studies have established the efficacy of this technology to eliminate conflict and promote life-supporting, positive trends throughout the world.

Maharishi clearly lays out the basis of his program to create world peace. Stress, he holds, is the basic cause of all negativity, violence, terrorism, and national and international conflicts. Stress generated by the violation of natural law causes strained trends and tendencies in the environment. Through the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, human intelligence can be identified with the unified field, and violations of natural law will cease. “Reinforcement of evolutionary power in world consciousness is the only effective way,” Maharishi holds, “to neutralize all kinds of negative
trends in the world and maintain world consciousness on a high level of purity” (*Maharishi’s Program to Create World Peace*, 1986, p. 7).

The global applications of this new science and technology are almost beyond present levels of imagination. Yet scientific research has found measurable reductions in levels of violence, crime, and other indications of negativity during the practice of the TM-Sidhi program in sufficiently large groups during experimental trial periods. Here for the first time in history is a scientific basis for creating world peace, ending terrorism, and reducing the negative trends of society.

On the basis of these studies, Maharishi holds that world peace can be guaranteed now, within a few years, through the establishment of groups of 8000; he holds that perfect health and unlimited longevity can be achieved for individual life, and that balance, coherence and health in society can be established in our generation. War, crime, poverty, and all problems that bring unhappiness to the family of man can be entirely eliminated. Life, he holds, can be lived in absolute abundance and fulfillment. Maharishi has called upon every significant individual in the world to act now to adopt this program for world peace by creating groups of 8000 collectively practicing the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, to establish world peace and guarantee its perpetuation.

The practical benefits that Maharishi foresees through these new technologies are far greater than those achieved by the technology based on present science. As science has investigated deeper levels of nature, from microbes to molecules to atoms, new technologies have emerged which apply the knowledge in areas such as medicine and nuclear power. In drawing upon the deepest and most powerful level of natural law, the level of the unified field, Maharishi Vedic Science lays the basis for much more powerful technologies still. Where modern medicine has been able to eliminate some diseases by drawing upon microscopic levels, Maharishi Vedic Science lays the basis for the elimination of all disease, and more importantly, for the creation of perfect health and reversal of aging. While modern science has produced nuclear technology but no technology for peaceful resolution of conflict, Maharishi Vedic Science draws upon the infinite organizing power of the unified field at the basis of nature to create social harmony.
and world peace while preserving cultural integrity and stimulating prosperity and progress.

**Maharishi’s Technologies of Consciousness as a New Method of Gaining Knowledge**

The bold assertions about what is practically possible through the application of Maharishi’s technologies of consciousness must be understood in the context of the new method of gaining knowledge that Maharishi has founded. The history of science testifies that as new methods of gaining knowledge of deeper and more unified levels of natural law become available, more powerful and useful technologies become available. Maharishi’s technologies of consciousness are based on the deepest and most unified level of knowledge of nature. It should not be surprising, therefore, that this technology provides a radically new source of organizing power to fulfill the highest goals of mankind.

These technologies of consciousness offer a fundamentally new approach to knowledge that has not been available before. In asserting that it is possible for one individual to know all the laws of nature and the entirety of the universe within his or her own consciousness, Maharishi is well aware that he is introducing an account of human potential that goes well beyond the concept of the limits of knowledge that has dominated in the scientific era. This new paradigm of knowledge must be examined in a new light.

It is a widespread belief in the modern age that the only valid method of gaining knowledge is by moving outward through the senses, that is, through the methods of the empirical sciences. It is, however, only the historical failure of subjective approaches that has led to this belief. It cannot be thought that the senses are the only way of gaining knowledge, and those who cling to the belief that it is, only allow old habits to stand in the way of exploring new possible sources of knowledge.

Subjective approaches to knowledge in the past failed to bear fruit because they failed to provide an effective and reliable method of access to an invariant and universal domain of direct experience. They thus failed to establish independent standards of knowledge, they failed to produce methods of distinguishing truth from error, they failed to produce consensus even among those practicing the same method, and
they failed to produce practical technological benefits through the practice of the method.

Maharishi’s technologies of consciousness are different from subjective approaches in the past, and must therefore be considered on separate grounds. They provide an effective, reliable method of opening the mind to an invariant and universal level of nature which is everywhere, and yet not ordinarily open to experience because the mind usually functions on more active levels. By providing a technology to make this non-active level of nature available as a direct experience, Maharishi has made this domain available to all as a new field of inquiry; and, where there is a new source of experience of something universal, unchanging, and objectively verifiable, a new source of knowledge is available.

The Science of Creative Intelligence gives a new account of how complete knowledge is possible. When the mind becomes completely settled and still, according to this account, it gains the ability to perceive on the most refined levels of nature’s functioning—the all-pervading unified field where all laws reside in a collective totality. It not only experiences this unified field, it becomes identified with it; it is the unified field and thus knows the unified field as its own universal Self. On this level of knowledge, there is no separation of knower from the known. Nothing lies outside the range of the knower. All laws of nature and everything in the universe can be known as intimately as one’s own Self. Mind and body cease to be seen as separate realities. Maharishi (1986) says:

In reality our self-referral state of consciousness is the unified field—not an object of knowledge as a rose is when we say, “I see that rose.” The unified field is not an object in this way; it is the subject itself. The unified field is a self-referral state of awareness that knows itself, and in knowing itself is the knower and the known, both together. (p. 96)

On this account, there is no distinction between the knower and the reality that it knows. Since it is the Self that knows itself, there is nothing ultimately outside the consciousness of the knower, and there are therefore no limits on what can be known. [This unbounded value of the Self is written with an uppercase “S” to distinguish it from the ordinary, localized self we typically experience.] If true, this account of knowledge provides a fundamentally new source of discovery of the
laws of nature, like the empirical sciences, in that it relies on experience as a source of knowledge, but distinct from these sciences in that it draws upon a wider range of experience. As a new source of discovery, it extends the power of scientific investigation; yet it remains within the scope of empirical science by being subject to procedures of objective verification.

**Maharishi University of Management**

Maharishi University of Management, formerly Maharishi International University, was founded by Maharishi in 1971, based on the principles of the Science of Creative Intelligence. One of the major functions of this University is to show how each discipline and each level of natural law arises from the unified field of pure consciousness. The specialty of Maharishi University of Management is the knowledge of the unified field of pure consciousness from the standpoint of each academic discipline. At Maharishi University of Management, each modern discipline traces the diversity of laws back to a unified source in the unified field of pure consciousness and shows how the diversity of laws emerge from this unified field through the self-interacting dynamics of consciousness. Just as physics and mathematics have discovered increasingly unified levels of natural law at the basis of their discipline, thus tracing the diversity of its laws to their source in the unified field, so every academic discipline can ultimately show how its laws derive sequentially from the unified field. This project of unification of knowledge, a long sought goal throughout Western intellectual history, is now being systematically pursued and completed at Maharishi University of Management.

This enterprise includes developing charts to show how each modern discipline arises from the unified field of pure consciousness. For each discipline, a Unified Field Chart has been constructed to show how the discipline sequentially emerges from the unified field through the self-interacting dynamics of knower, known, and process of knowing. These Unified Field Charts constitute a major unification of knowledge, showing at a glance how all the diversity of knowledge emerges from a unified source.

Since the unified field is understood as a field of consciousness, and consciousness is the most fundamental level of each student’s own Self,
the study of the unified field at Maharishi University of Management constitutes a method of systematically relating all knowledge to the student’s Self. The success of Maharishi University of Management’s Consciousness-Based education is due in part to this program of relating all knowledge to the unified field and the unified field to the Self. Because all students and faculty at Maharishi University of Management collectively practice the Transcendental Meditation technique, regularly gaining the direct experience of the unified field of pure consciousness, this unified field increasingly becomes a living reality. This unified field ceases to be an abstract concept and becomes as intimate as the Self. The experience of faculty and students has been that learning and inquiry is joyful and most fulfilling in this environment of Consciousness-Based education.

[The reader is referred to other issues of the journal *Modern Science and Vedic Science* as well as to other volumes in this book series *Consciousness-Based Education: A Foundation for Teaching and Learning in the Academic Disciplines* for articles illustrating how Maharishi Vedic Science is transforming our understanding of modern academic disciplines. —Eds.]

**Maharishi’s Work in Historical Perspective:**

**An Appreciation**

Maharishi has created a major watershed in world intellectual history. He has laid the foundation for a fundamental change both in intellectual history and in the history of technology and civilization itself. His work has created a new paradigm of the unity of human knowledge, and, we may expect, will unify the sciences and humanities in a more integrated way than ever before. He has, moreover, brought to an end the old notion that man is born to suffer and that life is a struggle. The practical programs he has founded provide a scientifically validated basis for reducing and even eliminating crime, war, terrorism, poverty, and other problems that beset mankind; more importantly, his discoveries make it possible to live life in the fulfillment of pure knowledge and permanent bliss consciousness and to achieve the highest goals of human endeavor. He has laid the basis for a new civilization, founded on new principles of complete, reliable, useful, fulfilling knowledge—
the knowledge of the unified field of pure consciousness as the perfectly orderly, unified source of nature.

Maharishi is unique in the world today. He has not offered conjectures and hypotheses about reality and human potential, nor does he set himself up as a final authority on matters of knowledge when he speaks rather of experience as the ultimate basis of knowledge. The experience of which he has spoken is derived from a new source, from the level of fully developed human life gained when one’s awareness is open to the unified field of pure consciousness. Maharishi’s life is an example of that which he taught. Unlike those whose teaching is based solely on the personal authority of the individual, Maharishi has founded universities, sciences, technologies, and other institutions based on universal principles through which any individual can gain the direct experience of the fully unfolded nature of life and validate the truth of what is described in the science. Because of this, Maharishi is held in highest esteem by millions of people around the world.

Maharishi has provided the means of unfolding the dormant creative genius within everyone, and he has established institutions through which the knowledge of how to unfold this potential will be perpetuated generation after generation. He has, moreover, used this knowledge to found programs to create perfect health, progress, prosperity, and permanent peace for the world—programs to end suffering and allow life to be lived in spontaneous accord with natural law. These institutions are not just ideals, but functioning institutions whose practical achievements are now well documented and available for all to examine.

Everyone now has the ability, with the availability of the Transcendental Meditation and TM-Sidhi programs, including Yogic Flying, to engage in this great experiment of identifying one’s awareness with the total potential of natural law and to spontaneously live in accord with all the laws of nature while established in the awareness of the unified field of pure consciousness. The experience of approximately three million people who have learned the Transcendental Meditation technique testifies to its practicality and its effortlessness and ease of practice. Experimental studies have shown that its benefits are real and concrete. On this basis, Maharishi has foreseen the creation of a new era of civilization—Heaven on Earth—in which life will be lived
in fullness and abundance without suffering. Maharishi’s work eliminates the very basis of stress and suffering and lays the ground for a new civilization, a unified field-based, ideal civilization that draws on the infinite organizing power of the unified field of pure consciousness to bring human life to fulfillment.

References


Maharishi’s program to create world peace: Removing the basis of terrorism and war. (1986). Washington, DC: Age of Enlightenment Press.


Wallace, R. K., Orme-Johnson, D. W., & Dillbeck, M. C. (Eds.).


Kenneth Chandler’s “Modern Science Vedic Science: An Introduction,” here revised/updated, was originally published in Modern Science and Vedic Science, 1(2), p. v–xxvi. It is reprinted with permission of the publisher.
**Electronic Resources and Publications**

**LINKS**

**Education**

Maharishi University of Management: www.mum.edu
Maharishi School of the Age of Enlightenment:
  www.maharishischooliowa.org
Maharishi’s Consciousness-Based Education: www.CBEprograms.org
International Foundation of Consciousness-Based Education:
  www.CBEfoundation@ifcbe.org
David Lynch Foundation for Consciousness-Based Education and World Peace: www.davidlynchfoundation.org

**Transcendental Meditation Program**

Maharishi’s Technologies of Consciousness: www.tm.org
Maharishi Channel: www.maharishichannel.in
Maharishi Lectures and Interviews (film clips): www.tm.org/maharishi
Invincible America Assembly: www.invincibleamerica.org
Global Country of World Peace: www.globalcountry.org
Global Good News Site: www.globalgoodnews.com
Fortune Creating Homes: www.FortuneCreatingHomes.com
Sthapatya Veda: www.sthapathyaveda.com

**Research**

Center for Brain, Consciousness, and Cognition: www.drfredtravis.com
Truth about TM: www.truthabouttm.org

**PHONE NUMBERS**

1-888-LEARN TM (1-888-532-7686)
Maharishi University of Management (1-641-472-7000)
CONSCIOUSNESS-BASED EDUCATION AND WORLD PEACE

PUBLICATIONS

These publications are available from Maharishi University of Management Press: http://mumpress.com and at the MUM Bookstore.

Books by Maharishi Mahesh Yogi

Science of Being and Art of Living
Bhagavad-Gita: A New Translation and Commentary, Chapters 1–6
Celebrating Perfection of Education
Celebrating Perfection in Administration
Vedic Knowledge for Everyone
Inaugurating Maharishi Vedic University

Consciousness-Based Books Imprint from MUM Press

The series Consciousness-Based Education: A Foundation for Teaching and Learning in the Academic Disciplines contains 12 volumes, available in 2011.

Maharishi Vedic Science                  Education
Physiology and Health                   Physics
Mathematics                             Literature
Art                                     Management
Government                             Computer Science
Sustainable Living                      World Peace

Each volume includes a paper introducing the Consciousness-Based understanding of the discipline and a Unified Field Chart that conceptually maps all branches of the discipline, illustrating how the discipline emerges from the field of pure consciousness, the Self of every individual. These charts connect the “parts” of knowledge to the “wholeness” of knowledge and the wholeness of knowledge to the Self of the student.

Subsequent papers show how a Consciousness-Based approach may be applied in various branches of the discipline; these papers include occasional examples of student work. Each volume ends with an appendix describing Maharishi Vedic Science and Technologies of Consciousness in detail.