

Ascent of Acupuncture

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By

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PREFACE

FRONTIERS OF HEALING: A JOURNEY WITH ACUPUNCTURE

In the past fifty years, acupuncture has undergone a remarkable ascent within the United States, transitioning from a peripheral practice to a leading modality within the realm of complementary medicine. This journey, unfolding in a landscape traditionally dominated by scientific medicine, has been both complex and fascinating. We have had the privilege of not only witnessing this transformative era but also actively participating in it. Through our writings, we have sought to chronicle the multifaceted evolution of acupuncture in the US, capturing its rise against a backdrop of scientific inquiry, educational advancements, legislative developments, and the practical application of this ancient practice.

The path of acupuncture toward mainstream acceptance has not been without its challenges. Front-page controversies, dramatic debates, and legal skirmishes have figured in the forward momentum of acupuncture acceptance. Yet, akin to many other phenomena that have captured the American imagination, acupuncture has maintained its upward trajectory, resisting dismissal as a fleeting trend or ephemeral fad. This steadfast growth underscores the importance of documenting and understanding the process by which acupuncture has carved its niche within American healthcare.

The impetus behind this book, *Ascent of Acupuncture*, is twofold: to document this extraordinary journey and to reflect on the historical significance of acupuncture's integration into the American medical landscape. It notes the enduring appeal and efficacy of acupuncture, and considers acupuncture's future in the United States and in the broader context of global health.

When we traveled to New Mexico in 1995, we were surprised by the first line of Santa Fe's tourist guidebook, which claimed that Santa Fe had the most acupuncturists per capita of any city in the world. Keep in mind that

Santa Fe had a resident population of just 60,000 at that point. This statement marked a significant point in our observation of acupuncture's remarkable growth in the United States since the early 1990s. In the greater metropolitan area of Minneapolis and St. Paul, this growth trajectory has been particularly intense. From a modest presence of merely a dozen acupuncture clinics in 1995, the region has seen a meteoric rise to over a thousand sites providing acupuncture services today. Writing this preface, I reflect on recent conversations with some former students who are now part of Allina Health, a leading healthcare provider in Minnesota. They report that patients who want acupuncture treatment, especially for chronic pain problems, have to wait up to six months for an appointment.

In 1997, a pivotal moment came when the National Institutes of Health (NIH) assembled a panel of experts to rigorously assess the efficacy of acupuncture. Their findings recognized acupuncture's potential benefits in treating conditions such as pain, vomiting, and nausea [1]. However, they emphasized the need for more robust research methodologies and advocated for the integration of acupuncture alongside conventional medical treatments. These landmark findings not only validated ongoing research but also set the stage for the wider acceptance of this age-old healing modality. The NIH has continued its serious approach to acupuncture by sponsoring the development of an open-access digital compendium of acupuncture points and their related information recently. This innovative online resource charts the locations of acupuncture points, correlates them with existing physiological data, and combines knowledge regarding their anatomical and functional aspects. By facilitating more rigorous research and promoting evidence-based practices, this initiative is poised to bridge the gap between traditional acupuncture and mainstream healthcare, heralding a new era of integrative medicine.

The scientific odyssey of acupuncture efficacy commenced with a randomized clinical trial featured in the *New England Journal of Medicine* in 1975 [2]. This marked the inception of a surge in research studies, resulting in more than 14,000 documented acupuncture trials by 2022 [3]. These studies have appeared in highly-respected medical journals including *JAMA* and the *British Medical Journal*, and also in a spectrum of specialized journals ranging from *Fertility and Sterility* to *Frontiers in Neuroscience*, and *Arthritis & Rheumatology*. The accelerating pace of this research is remarkable, with the annual total of trials consistently surpassing a thousand. This burgeoning body of work paints a compelling portrait of acupuncture's evolution as an evidence-based discipline, deeply rooted in ancient tradition yet evolving dynamically with modern scientific rigor.

Since the 1970s, the application of meticulous neurochemical methodology to acupuncture research has unveiled significant findings. Scientists have discerned that neurotransmitters and neuropeptides play integral roles in pain regulation. Furthermore, they have successfully charted the nerve pathways that influence brain structures and neurochemical systems. A landmark study by Liu, *et al.* [4] published in *Nature* in 2022 identified a pivotal nerve fiber (PROKR2) located in the hindlimb of experimental animals. This discovery is essential for understanding acupuncture's anti-inflammatory effects. Notably, the absence of this specific fiber in the abdomen elucidates why different acupuncture points activate distinct neural pathways. Such insights pave the way for more refined, region-specific acupuncture treatments, marking a new era in therapeutic precision.

Ascent of Acupuncture unravels the secrets of acupuncture, from its rising prominence in modern medicine to its innovative applications in a world of diverse traditions. It explores compelling case studies to reveal how acupuncture tackles chronic pain, neurological issues, and even mental health concerns. It approaches challenging material head-on, delving into ongoing research and confronting ambiguous evidence, acknowledging both acupuncture's promise and the need for further exploration. As acupuncture gains global recognition and legal acceptance, this book provides practitioners, patients and other supporters with a powerful tool to advocate for its benefits and responsible application. Whether you're a seasoned practitioner, a curious skeptic, or simply seeking new paths to healing, turn the page and unlock the extraordinary potential of acupuncture. *Ascent of Acupuncture* is not merely a journey through past and current applications of acupuncture; it's a leap into the future of medicine. Within these pages, you'll find not just the historical roots of this fascinating practice, but a vibrant pulse thrumming with innovation, diversity, and scientific inquiry.

A quick overview of the chapters presents the following sequence:

- Chapter One introduces the ascendance of acupuncture. Breaking away from its cultural chrysalis, acupuncture integrates into mainstream healthcare, shedding misconceptions and embracing a future where East meets West in the treatment room.
- Chapter Two highlights acupuncture as an evolving field that transcends its ancient origins by incorporating modern advancements and innovative practices. It emphasizes the dynamic nature of acupuncture, narrating advancements in theories, techniques, and integration with contemporary medicine.

- Chapter Three expands our horizons to explore the unique flavors of Chinese, Korean, Japanese, British and French acupuncture, each adding its own thread to the intricate fabric of this healing art.
- Chapter Four focuses on pain management, bringing theory to life. We see how acupuncture tackles ailments as diverse as migraine headaches and digestive disorders, offering tangible proof of its effectiveness in a diverse range of scenarios.
- Chapter Five considers the frontiers of research, exploring acupuncture's ability to treat complex modern diseases, from adjunctive IVF treatment to cancer care.
- Chapter Six celebrates acupuncture's forward momentum and meteoric rise in popularity, witnessed by clinical trials, systematic reviews and clinical practice guidelines.
- Chapter Seven examines the rigorous scientific research which has been applied to the mechanisms of acupuncture and navigates the complexities of evidence-based medicine.
- Chapter Eight acknowledges the shadows of doubt, discussing the challenges inherent in interpreting this research, where elusive evidence fuels skepticism. We engage in an open dialogue about the need for further research, embracing the importance of critical thinking in validating this powerful tool.
- Chapter Nine reviews the legal landscape confronting acupuncture, including regulations, licensing, and notable legal battles. Gains have been made in wider accessibility and professional recognition, while recognizing the need to advocate for responsible practice and patient safety.

This book is an invitation – to embrace the wisdom of the past, to be challenged by the present, and to actively shape the future of acupuncture. Turn the page, and let's embark together, flowing from point to point on our journey.

CHAPTER ONE

RIISING ACUPUNCTURE: FROM ACUPUNCTURE ANESTHESIA TO NIH ACUPUNCTURE COMPENDIUM

Acupuncture's Rising in America

It is widely acknowledged that James Reston should be credited with first bringing acupuncture to the notice of the American public. James Reston (1909 – 1995) was a *New York Times* journalist who was considered the most powerful, influential, and widely-read journalist of his time. Reston received the Pulitzer Prize twice, in a decades-long career spanning the mid-1930s to the early 1990s. He won the first Pulitzer for his coverage of the Dumbarton Oaks Conference in 1945, which resulted in the establishment of the United Nations. In 1957, Reston's incisive analysis of the effect of President Eisenhower's illness on the functioning of the executive branch of the federal government won him his second Pulitzer. Perhaps it took the "star power" of such a big name to bring acupuncture-consciousness to the United States.

As diplomatic relations between the US and China began to warm, James Reston undertook a groundbreaking trip, arriving in China in July 1971. During this visit, Reston developed appendicitis and underwent conventional surgery to remove his appendix at the Anti-Imperialist Hospital (now known as Peking Union Medical College Hospital) in Beijing. Post-surgery, his pain was alleviated through acupuncture, administered by Li Chang-Yuan. Reston detailed his experiences in a *New York Times* article titled "Now, About My Operations in Peking," published on July 26, 1971. This article marked the first exposure for many Americans to acupuncture and traditional Chinese medicine, introducing these concepts into the lexicon of American healthcare.

Within a year of James Reston's widely-publicized encounter with acupuncture came the historically momentous lifting of the "bamboo curtain," following President Nixon's visit to China in 1972. Suddenly, Americans were

confronted with the vast body of knowledge and tradition which comprises Chinese medicine. Acupuncture pioneers in this country began their quest to learn and understand the principles of energetic anatomy upon which acupuncture is based, and to apply their understanding to the practice of acupuncture. In an effort to disseminate information about Chinese medicine, two journals were launched in 1973: the *American Journal of Acupuncture*, published in California; and the *American Journal of Chinese Medicine* from New York. The following year, the first acupuncture school in the United States, the New England School of Acupuncture (NESA), was founded by the late master acupuncturist James Tin Yau So with the help of his students, Arnie Freiman and Steven Brecker. With the support of Dr. So, Dr. Gene Bruno and Dr. Steven Rosenblatt founded a second school in the United States, the California Acupuncture College, located in West Los Angeles. Dr. So studied and practiced for decades in China before coming to the United States. He developed two of the earliest English textbooks in the field of acupuncture: *The Book of Acupuncture Points* and *The Acupuncture Treatment of Diseases*. Dr. So is considered by many to be the “father of American acupuncture.”

Half a century has been passed since acupuncture was “introduced” to the American public in the form of a first-person story by James Reston. Since then, Reston’s experience receiving acupuncture therapy after an emergency appendectomy in a Beijing hospital has been told and retold so often, by so many people around the world, that it has entered the realm of legend. And, as is the case with a good legend, countless versions of the story have circulated over the intervening decades, some with only a loose connection to the actual facts. In one version, it was President Nixon himself who received acupuncture due to an injury from a fall. Finally, one man was driven to set the record straight. Dr. Yong Ming Li interviewed the surviving witnesses of James Reston’s experience and published the true facts of the incident in the first chapter of his popular book, *American Journey to America* [1].

However, Mr. Reston’s story is too well-known to warrant further discussion in this book. Instead, we would like to recall some of the early history of acupuncture in America, followed by a discussion of the current state of acupuncture as it has developed through clinical practice and scientific research.

In the wake of the general interest in acupuncture and all things Chinese following Nixon’s groundbreaking trip to China, the first high-profile acupuncture clinic in the United States opened in New York City on July

12, 1972. The clinic was founded by Dr. Yao Wu Lee, Dr. Arnold Benson, and Mr. Charles Newmark. Almost immediately, New York Board of Medicine and the FBI intervened to close it. Dr. Lee and his partners then relocated their clinic to Washington, DC, where it opened on December 28, 1972 as the Washington Acupuncture Center. The Washington Acupuncture Center was a notable success and received a lot of attention from media outlets around the world. The clinic employed up to 65 practitioners and staff and treated up to one thousand patients a day who came from all over the United States. In 1974, due to misleading reports by journalists and some administrative changes in Washington, the Acupuncture Center was challenged by the Washington DC Medicine Board and was ordered to close. The Washington Acupuncture Center contested the closure, and eventually won its lawsuit, but in the meantime the clinic suffered from business losses and administrative changes. As a result, most of the clinic staff scattered to other states: some started clinics in Massachusetts, New York, and New Jersey; most of the staff followed Dr. Yao Wu Lee to the new clinics he set up in Florida.

Even though the lifespan of the first acupuncture clinic in the US was brief, the Washington Acupuncture Center was significant for several reasons. For one thing, the suspicion and legal persecution employed against the Washington Acupuncture Center was a blueprint for the treatment of acupuncture practitioners during the 1970's by governmental agencies and the American Medical Association. On a somewhat more positive note, the US Immigration Bureau added the classification of "acupuncturist" to its list of recognized occupations in 1973, and set a specific immigration quota for acupuncturists. In 2012, the 83-year-old Dr. Yao Wu Lee was interviewed by Dr. Arthur Yin Fan. At the time, Dr. Yao Wu Lee was still working in his Florida clinic. Dr. Fan's interview was published in *Journal of Chinese Integrative Medicine*, as "the First Acupuncture Center in the United States [2]."

The story of the first regulation of acupuncture professionals by a state legislature is an epic tale. At the time, an interested observer might have expected the first acupuncture-related legislation to occur in California, which has a large Asian population and a reputation for accepting the unusual; or in progressive New York, where the first acupuncture clinic was set up. But it was Nevada, in 1973, which became the first state to recognize and regulate acupuncture as a medical modality. This was brought about through the combined efforts of three men: New York attorney Arthur Steinberg, a Chinese medicine doctor from Hong Kong named Lok Yee-kung, and a professional lobbyist, James Joyce. Mr. Steinberg was

determined to introduce legalized acupuncture into the United States after being persuaded of its value by his Chinese-born wife. Seeing that the medical establishments in California and New York were determined to confine the practice of acupuncture to licensed medical doctors, Mr. Steinberg decided to submit his test-case legislation to the legislature of Nevada, which often sanctioned unexpected legislation and was seen as more libertarian or independent than the legislative bodies of most other states. He hoped to obtain support from Nevada's Legislative Committee on Health Care for his proposed legislation to legalize acupuncture performed by trained acupuncture practitioners. When the Committee refused to support the legislation, Mr. Steinberg apparently decided to try a more public and theatrical approach. He enlisted the aid of lobbyist James Joyce, and brought in Dr. Lok Yee-kung, who had previously treated Mrs. Steinberg in Hong Kong [1, 2].

Just before the acupuncture-licensing bill came up for a vote in Nevada's Senate, Dr. Lok Yee-kung set up an acupuncture demonstration area in the conference room of a casino located directly across the street from the State Legislative Building. As media outlets excitedly covered the event, Dr. Lok selected seventy demonstration patients out of the thousand who volunteered. Thirty of the selected volunteers just happened to be state legislators, who comprised about half of the total number of legislators who would be voting on the acupuncture bill. During the discussion of the proposed acupuncture legislation, legislators were addressed by Dr. John Sande, president of Nevada's Medical Association, who opposed the legislation. Dr. Sande's comments made it clear that he knew very little about Chinese medicine, and he made a very poor showing. In April 1973, the first legislation legalizing acupuncture practice by non-MDs was a total victory for Steinberg and company: the State Senate passed it on a 20-0 vote; the House of Representatives passed it on a 34-2 vote; and Governor Mike O'Callaghan signed the bill into law on April 20th, which is the first acupuncture law in the world. The national press took note of this outcome. *Time* magazine arranged stories reporting the passage of the first acupuncture legislation and Deng Xiaoping's comeback side-by-side in their April, 1973 issue. In March, 1974 *Playboy* magazine recounted the Nevada legislation story in an article "The 300 Needles of Dr. Lok" charting the fighting between the dragons and snakes. *People* magazine jumped on the acupuncture bandwagon in their April 15, 1973 issue which featured a cover photo of *Bonanza* star Lorne Greene with acupuncture needles in his ear, accompanied by the title "Acupuncture Gets Popular [1]."

As acupuncture gained traction through the 1980's and 1990's, it began to be practiced in hospitals, pain clinics, and drug treatment centers across the country. But the practitioners in these Western-based venues were either M.D.s or non-M.D. acupuncturists working under the supervision of an M.D. In 1993, Hennepin County Medical Center (HCMC) in Minneapolis opened an acupuncture clinic which was staffed by independently-operating acupuncturists including Wei Liu, who was one of the first group of acupuncturists employed by HCMC. The acupuncture department was directed by Dr. Milton Bullock. This made HCMC the first hospital in the U.S. to employ independently-operating, non-MD acupuncturists. HCMC's acupuncture department was successful from its inception, with patient appointments booked a month in advance.

After fifty years since the early days of acupuncture in America, "acupuncturist" is a recognized profession, accepted by the medical establishment and the general public. Licensed acupuncturists work in Western-medicine hospitals and clinics. Legislation regulating acupuncture practice has been passed in 47 states and Washington, DC, driven largely by the efforts of acupuncture practitioners themselves and the public demand. Many private insurance companies cover acupuncture treatments. At the federal level, Medicare is beginning to cover acupuncture for low back pain, VA hospitals are offering acupuncture therapy, and the National Institutes of Health include a National Center for Complementary and Integrative Medicine which sponsors scientific studies of acupuncture. American independent acupuncturists have constructed a complete system for education, certification and licensing. The Accreditation Commission for Acupuncture and Oriental Medicine has accredited sixty schools of Chinese medicine and acupuncture. The National Commission for the Certification of Acupuncture and Oriental medicine has certified 21,000 acupuncture and Chinese herbal medicine practitioners [3].

In place of its initial reaction of hostility and suspicion, the Western medical establishment has accommodated the growing acceptance and popularity of acupuncture by establishing its own independent certification system for certifying M.D.s in medical acupuncture. A significant development has been the adaptation of acupuncture techniques to medical devices and procedures used in Western medicine, including: transcutaneous electrical nerve stimulation; subcutaneous nerve injection therapy; peripheral nerve stimulation therapy; and dry needling. These science-based medical acupuncture techniques are used to varying degrees by Western doctors, chiropractors, and physical therapists. Acupuncturists also integrate some of these techniques into their practice.

Looking ahead to the next fifty years, the trajectory of acupuncture's development in America seems poised to be significantly shaped by two primary factors: the evolving preferences and demands of acupuncture consumers, and the depth and breadth of scientific research into acupuncture's efficacy and mechanisms.

Consumers of acupuncture are playing an increasingly central role in its development. As individuals become more proactive about their health and wellness, there is a growing demand for holistic and non-pharmacological treatment options. Acupuncture, with its minimal side effects and holistic approach to treating the mind and body, aligns well with these preferences. Consumers are not only seeking treatments for physical ailments but also for stress, anxiety, and overall wellness, expanding the range of conditions for which acupuncture is considered beneficial. Moreover, as the demographic of acupuncture consumers diversifies, practitioners will need to adapt and innovate, offering more personalized and accessible acupuncture services. This consumer-driven demand is likely to stimulate growth in the number of practitioners, expand the range of acupuncture services, and integrate acupuncture more deeply into mainstream healthcare systems.

Dr. Arthur Yin Fan of the U.S.-based American TCM Association led a research team which calculated and compared the number of acupuncturists in China and the United States. They estimated that the number of acupuncture doctors in mainland China in 2018 was 18,404 [4]; whereas the number of acupuncturists in the United States in 2018 was 37,886 [5]. American acupuncturists are primarily concentrated in ten states: California, New York, Florida, Colorado, Washington, Oregon, Texas, New Jersey, Maryland and Massachusetts [5]. According to Dr. Fan's team, the acupuncture doctors in mainland China provided 33.71 million acupuncture treatments in 2018⁴. A national health inquiry survey conducted in 2012 estimated that acupuncturists in the United States had provided 33.01 million acupuncture treatments [6], and noted that there had been a rapid increase in acupuncture services in the past decade. The number of acupuncturists in the United States was estimated at 11.63 acupuncturists per 100,000 people [5]. In 2018, U.S. consumers spent 3.5 billion dollars for acupuncture services [7]. These statistics are rudimentary, but quite remarkable. They show that in the space of 50 years, the United States has established an acupuncture consumer market comparable to that of China.

The U.S. consumer market has also expanded in terms of the types of conditions treated in clinical practice. Initially, acupuncture was primarily thought of as an alternative approach to pain relief and drug addiction. Even

now, a report [8] published in the *American Journal of Chinese Medicine* shows that pain-related disorders account for more than 50% of acupuncture visits, with low back pain as the most commonly-treated condition. However, the report also shows that acupuncture practitioners are beginning to resemble the general practitioners of Western medicine in the type and diversity of conditions they address. The top-ten conditions in acupuncture clinics today are: low back pain, depression, anxiety, headache, arthritis, general pain, allergies, female infertility, insomnia, and neck pain. This report on commonly-treated conditions also suggests opportunities for further development and diversification of acupuncture “specialties” as the U.S. market matures. One clinical application which is rapidly becoming popular is the use of acupuncture for symptom control in cancer patients.

In China, acupuncture and Chinese medicine practitioners and researchers have access to detailed and voluminous patient treatment records stretching back for hundreds of years. U.S. practitioners may justifiably feel the lack of such a comprehensive database. This is a matter that only time can resolve. However, there is a source of inspiration for American acupuncturists in the form of Sister Josephine Ciccarello. Sister Josephine passed away in 2017 at the age of 89. At the time of her death, she had been receiving acupuncture treatment continuously for forty-one years from three different acupuncture doctors, all of whom documented her case thoroughly. After her first two doctors retired, Dr. Yong Ming Li treated her for the last ten years of her life. Sister Josephine’s treatment records document rheumatoid arthritis, chronic degenerative joint pain, mobility issues, two bouts of cancer, two hip fractures, and many other problems. Sister Josephine was treated by Western medicine for her diseases, but insisted on having acupuncture every one or two weeks. In an interview with China Central Television, she credited acupuncture with keeping her out of a wheelchair. We think Sister Josephine should be adopted by American acupuncture practitioners as a symbol for the continuity of patient care and the importance of detailed documentation: a “legendary” patient who deserves as much attention as the legendary James Reston.

The future of acupuncture in America will be heavily influenced by scientific research. While acupuncture is a practice rooted in ancient tradition, its acceptance and integration into the Western healthcare model demand rigorous scientific validation. Research efforts aimed at understanding how acupuncture works, for which conditions it is most effective, and how it can be best implemented are crucial. Advances in technology and methodology are making it possible to study acupuncture with greater precision, from neuroimaging studies that observe acupuncture’s

effects on the brain to clinical trials that measure its efficacy against placebo treatments. The accumulation of high-quality evidence will not only enhance acupuncture's credibility and acceptance among healthcare professionals and skeptics but will also guide best practices, optimize treatment protocols, and potentially unveil new applications for acupuncture.

Today, acupuncture research from both Asian and Western sources is well-represented in the mainstream journals of modern medicine. The fact that medical journals now routinely publish acupuncture studies has had a huge impact on the credibility of acupuncture as a medical system. Reports from research projects in Germany early in this century which conducted eight parallel studies of acupuncture on neuropathic headaches, tension headaches, osteoarthritis, and low back pain were published in *The Lancet*, *Journal of the American Medical Association*, *British Medical Journal*, *JAMA Internal Medicine*, *Annals of Internal Medicine*, and *Journal of Headache and Pain* [9-16]. Clinical trial studies demonstrating clinical effectiveness of acupuncture organized by multiple research teams in China have been published in the *Journal of the American Medical Association*, *JAMA Internal Medicine*, *Annals of Internal Medicine*, *American Journal of Gastroenterology*, and *Arthritis & Rheumatology* [17-24]. After acupuncture came to the United States, more than 7000 clinical trials on acupuncture have been conducted globally [25].

In the field of clinical research studies, the United States is rapidly assuming a leading role. Scientific papers designated SCI, SCI-E and SSCI represent the highest quality of research. One study [26] showed that during the eighteen years from 1991 to 2009, the United States published 1,097 SCI acupuncture research papers, while China published 583. In terms of institutional publication of SCI studies in the 1991-2009 period, Harvard University ranked third with the publication of 98 acupuncture research papers, following Kyung Hee University, South Korea (149 studies) and Fudan University, China (132 studies). A broader study by Kung, *et al.* [27] that covered the period from 1988-2015 noted that the United States published 1,638 research papers in SCI-E and SSCI journals in those twenty-seven years, which was close to China's publication total of 2,076 papers. Harvard University again ranked third with 163 published acupuncture research papers, following Kyung Hee University, South Korea (365) and China Academy of Medical Science, China (175).

Fifty years ago, acupuncture had no place in this country. Now it has achieved a significant presence in every place. In certain areas, such as supportive therapy for cancer patients and auxiliary treatment of infertility,

American practitioners are leading the rest of the world. We are impressed by the gains of the last fifty years; We hope the next fifty years will see the United States at the forefront of clinical research and innovation in the treatment of disease with acupuncture. The interplay between consumer demand and scientific research is set to propel the evolution of acupuncture in America over the next fifty years. As consumers increasingly seek out acupuncture for a wide range of health concerns, and as researchers continue to elucidate the scientific underpinnings of its effects, acupuncture is likely to become an even more integral part of the American healthcare landscape. This synergy between the people's will and the pursuit of knowledge will not only sustain but also deepen the roots of acupuncture in American soil, ensuring its growth and development for decades to come.

The Coming Age of Acupuncture

In ancient China, acupuncturists were famous because there were so few of them; today, acupuncturists are popular because there are so many around the world.

Acupuncture practitioners in my home state of Minnesota complain that competition for patients is increasing among the roughly 800 licensed acupuncturists, while California sustains about twenty thousand acupuncture clinics with a robust patient population. When North Dakota became the forty-fifth state to license acupuncturists in 2015, with only a handful of practitioners listed in the state association and over 150 now. The American experience with acupuncture in the early 21st century is not balanced, but “all over the map” indeed.

Once acupuncture arrived in the United States, it began to expand at an unprecedented pace, like air rushing into a vacuum. By 1979, the World Health Organization had endorsed acupuncture as a valid treatment option for 43 health conditions. In 1996, the U.S. Food and Drug Administration approved acupuncture needles for medical use. In 1997, the National Institutes of Health issued a consensus statement that acupuncture could be used for pain conditions, and for post-operative nausea and vomiting. In 1998, *JAMA* (the *Journal of the American Medical Association*) devoted an entire issue to complementary and alternative medicine. Fully half of that issue's articles dealt with acupuncture, moxibustion, and Chinese herbal medicine. Also in 1998, the *Archives of Internal Medicine* reported that when conventional medical practitioners in the U.S. referred patients to a complementary medicine provider, acupuncture was their first choice. (*Archives of Internal Medicine*, 1998). By 2002 – a mere thirty years since

most Westerners had even heard of it – acupuncture had gained the distinction of holding the most credibility in the medical community amongst all forms of complementary medicine (*Annals of Internal Medicine*, March 5, 2002).

We are constantly on the look-out for articles or commentary on acupuncture and Chinese medicine. Twenty years ago, it would make our week if we found an acupuncture or Chinese-medicine-related article in a magazine or newspaper; now there is an avalanche of material which just keeps gaining momentum. Ten years ago, Dr. Gong picked up our daughter's high school statistics textbook and was startled to see that the hypothesis-testing chapter was illustrated by a German study on acupuncture-assisted reproductive medicine.

The following list is some articles and television exposure relating to acupuncture which has appeared in the popular media and medical journals since the mid-1990's:

- "Going Mainstream," *Newsweek*, 1995
- "Nod to an Ancient Art," *Time*, 1996
- "Challenging the Mainstream," *Time*, 1996
- "Acupuncture Works," *Time*, 1997
- "Acupuncture Can Work; It's Not Just Wishful Thinking," *US News & World Report*, 1998
- "The West Gets the Point," *Lancet*, 1998
- "The Science of Alternative Medicine," *Newsweek*, 2002
- Acupuncture demonstrations on "Oprah" twice in 2007
- "Alternative Medicine Goes Mainstream," *US News & World Report*, 2008
- "The Future of Medicine: How ancient remedies are changing modern medicine," *National Geographic*, 2019.

For the last thirty years we have been keeping track of acupuncture-related research appearing in Pubmed, the online medical research database developed and maintained by the US National Library of Medicine and the National Institutes of Health. When results of a clinical trial are published, we share them with our students as soon as possible. When there are new developments in the field of acupuncture mechanisms, we like to discuss them with my colleagues. When we see an arresting functional magnetic resonance imaging (fMRI) image mapping activated and deactivated cerebral structures, we print and save it. As of January 1, 2014, there were fewer than 20,000 acupuncture-related articles listed on Pubmed. Today

(April 1, 2024), looking at PubMed's database for acupuncture research and other medical studies, we find over 44,000 publications on acupuncture and over 79,000 publications about Chinese herbal medicine. Over the last two years, approximately 150 new acupuncture studies per month have been published in recognized academic and clinical journals. In contrast, the Pubmed database lists a total of 9,800 articles on chiropractic-related studies. This relative scarcity of material is interesting, considering that chiropractic was born in the United States and has been practiced and researched for over one hundred years, with seventeen well-established and well-funded schools to train chiropractors.

One reason that acupuncture has gained so much visibility over the last few years is that it has been enthusiastically adopted by two especially high-profile groups: members of the U.S. military; and show-business celebrities. Dr. Richard Niemtzow is credited with creating battlefield acupuncture while he was on active duty in 2001, and he has since carried the lesson of its benefits to doctors around the world [28]. The U.S. army, navy, air force, coast guard and marines have embraced acupuncture treatment, both on the battlefield and in VA hospitals around the country. The highest use of acupuncture in the armed services is for post-traumatic stress disorder, addictions, and pain control. Captain Robert Koffman, a navy psychiatrist at the National Intrepid Center of Excellence in Bethesda, Maryland performs acupuncture to treat officers and enlisted men and women for psychological and stress disorders, such as post-traumatic stress disorder (PTSD) and traumatic brain injuries, as well as ongoing psychological complications from traumatic brain injuries [29]. In April 2015, eight U.S. Air Force physicians from bases across the globe travelled to the Acupuncture Center at Andrews Air Force Base to become certified and licensed as physician acupuncturists [30]. On April 30, 2014, the Senate Veterans Affairs Committee conducted a hearing on overmedication concerns. Brigadier General Norvell V. Coots, deputy commanding general of the U.S. Army Medical Command and assistant surgeon general for force projection, testified that in 2011, 26 percent of all service members were prescribed at least one type of opioid medication. Coots said that number was reduced to 24 percent in 2013, partly due to the use of acupuncture, yoga and other alternatives to medication [31].

In recent years, celebrities such as Madonna, Gwyneth Paltrow and Cher have extolled acupuncture's benefits for everything from facial rejuvenation to stress reduction to baby conception. The list of Hollywood stars utilizing acupuncture goes on and on: Jennifer Lopez uses acupuncture for weight management; Sheryl Crow gets acupuncture for breast cancer treatment

support; Jennifer Aniston conditions herself for pregnancy and motherhood; Kim Kardashian uses acupuncture for facial rejuvenation; Sandra Bullock stipulates acupuncture treatments as a perk in her movie contracts; acupuncture helps Matt Damon with neck and back spasms; Oprah invites acupuncture doctor to her show stage; Celine Dion supplements her IVF treatments with acupuncture; Robert Downey Jr. attributes his two-decade run of good health entirely to Chinese medicine; Mariah Carey and Natalie Portman receive acupuncture for stress and conception issues.

Another high-profile arena ensuring widespread dissemination of acupuncture is the social media. Two WeChat seminars were held on the evening of November 28, 2015, the Saturday following Thanksgiving, the United States was still enveloped in a festive holiday atmosphere. Families and friends gathered to enjoy the extended holiday, reveling in leftover turkey feasts, engaging in late-night shopping sprees as Black Friday sales lingered, and decorating their homes in anticipation of the upcoming Christmas season. The air was filled with warmth and laughter, a continuation of gratitude and celebration. In Los Angeles, Dr. Lu Biao (who was mentored by two leading acupuncturists in the twentieth century China, Yang Jiasan in Beijing and Zheng Kuishan in Lanzhou) shared his acupuncture techniques with colleagues from the New York Chinese Medicine Forum. In Orlando, Dr. Zhao Ruanjin (who was mentored by Liu Duzhou, a leading Chinese medicine hepatologist in China) discussed the classic *Shang Han Lun (Treatise on Cold Febrile Diseases)* text with members of the Everyday Up Acupuncture Techniques Exchange WeChat Group. On the same night, another organization with a strong online presence is the TCM American Alumni Association (TCMAAA), with its Online School of Chinese Medicine through the TCMAAA WeChat Group. Each year, the TCMAAA has hosted over fifty presenters whose topics included infertility, macular degeneration, dry needling, pain and inflammation, various acupuncture techniques, and classical Chinese herbal formulas. These types of grassroots academic activities are happening regularly and frequently on WeChat and other internet venues. The spread, accumulation and development of acupuncture knowledge and experiences by scholars and clinicians are exponentially growing like mushrooms after rain in the United States.

While Hollywood superstars and internet presence confer interest and excitement on acupuncture in the 21st century, the solid foundation for the acceptance and continuing development of traditional Chinese medicine is its scientific validity. For centuries, classical Chinese medicine was proven on an empirical basis. With the advent of modern scientific methods, rigorous standards have been applied to acupuncture and other TCM

modalities, and science has proven the effectiveness of acupuncture treatment. The first randomized controlled clinical trial on acupuncture was published in the *New England Journal of Medicine* in 1975. It was a study to assess the effectiveness of acupuncture in reducing chronic pain associated with osteoarthritis [32]. Going forward, clinical trials on acupuncture have been conducted in Beijing, Shanghai, Tokyo, Boston, and numerous other medical centers around the world. Today, fifty years after results of the first clinical trial were published, scientists and clinicians have collectively conducted over 14000 clinical trials on conditions including headache, back pain, IBS, infertility, and supportive treatment to chemotherapy and radiation therapy in cancer patients. Science has demonstrated that the universe is expanding at an accelerating pace: it seems that acupuncture research and clinical trials are following the same pattern.

The increasing acceptance of traditional Chinese medicine modalities by the scientific community, and the increasing popularity of TCM with the general public, is demonstrated in the December 19, 2014 issue of *Science* magazine, which contains a special section on acupuncture and traditional Chinese medicine. The titles of the eight TCM-related articles are as follows: “The WHO Traditional Medicine Strategy 2014–2023: A perspective”; “A global scientific challenge: Learning the right lessons from ancient healing practices”; “East is East and West is West, and never the twain shall meet?”; “Zheng: A systems biology approach to diagnosis and treatments”; “Integrated network-based medicine: The role of traditional Chinese medicine in developing a new generation of medicine”; “The hunt for antifibrotic and profibrotic botanicals”; “i-Needle: Detecting the biological mechanisms of acupuncture”; and “Purinergic signaling in acupuncture”.

A notable event underscoring academic interest in acupuncture was the 2015 conference organized by the Society for Acupuncture Research, held at Harvard University in November. Themed “Reaching across Disciplines to Broaden the Acupuncture Research Network,” the conference aimed to foster innovation and interdisciplinary collaboration. It was co-hosted by the Society for Integrative Oncology (SIO) and the Fascia Research Society (FRS), highlighting its commitment to expanding the scope and impact of acupuncture research.

The combination of scientific verification and popular acceptance has had a predictable result for acupuncture: market-driven applications. Public health consciousness and market demand have become a driving force for acupuncture innovations and applications, pushing acupuncture into new territories. Skyrocketing cases of drug addiction and substance abuse

resulted in the development of the NADA (National Acupuncture Detoxification Association) protocol [33], once it was confirmed that acupuncture was effective in controlling addictions. The spin-off to using acupuncture for weight control was a predictable offshoot of the NADA experiment. Acupuncture-assisted *in vitro* fertilization (IVF) and intrauterine insemination (IUI) procedures [34] have become standard because of demand for effective fertility treatments by thousands of women who deferred childbearing to early middle age. Increasing numbers of battlefield injuries in America's wars, coupled with increasing numbers of veterans returning from Vietnam, Iraq, and Afghanistan with post-traumatic stress disorder (PTSD) and over-medication problems resulted in acupuncture being applied on the battlefield and in VA hospitals and clinics [35]. Escalating numbers of senior citizens suffering from macular degeneration who want to continue living an active lifestyle drove the development of the Santa Fe Eye Protocol [36].

In this new age of health care, how many faces can acupuncture wear? It can be considered as a world medicine, a cultural repository, a historical curiosity, a form of energy work, a brain science, a miracle cure-all, a trade, a higher calling, a passing interest, a lifetime study. For us, and for acupuncture professionals in general, we think scientific investigation and validation is the most exciting direction – the path that leads directly to the most positive development of acupuncture and traditional Chinese medicine in the future. We look forward eagerly to the use of cutting-edge technology and scientific methodology to resolve such questions as how acupuncture relieves pain and how it affects the reproductive system. There is no end to the questions; there is no end to acupuncture.

Landmarks of Acupuncture's Rising

Acupuncture's cultural and historical roots go back to the emergence of Chinese civilization. For more than 2,000 years, acupuncture needling has been continuously practiced on the largest population in the world. As a system of medical treatment, acupuncture's prevalence and robustness are continuously demonstrated by strong public demand, growing scientific evidence, and vast institutional support. Over the last thirty-odd years, students, scholars, researchers and practitioners of acupuncture and Chinese medicine in the United States have witnessed a swift rise in popular acceptance of acupuncture therapy, hand-in-hand with the profession's steady advancement.

Although the increasing momentum of acupuncture acceptance and awareness in the West is based on a solid foundation of daily work and practice by tens of thousands of practitioners around the world, the acupuncture profession has also been shaped by a succession of historical landmark events. In this chapter, we attempt to trace the trajectory of acupuncture's development as a global medicine by focusing on the following years: 1958, 1971, 1987, 1997, 2002, 2016 and 2022. These dates denote significant turning points in terms of forming institutional establishments, pioneering new fields of research and practice, and expanding the presence of acupuncture/Chinese medicine throughout the world.

1958: Discovering Acupuncture Anesthesia

In Chinese history, 1958 is remembered as the year of the “Great Leap Forward,” a centralized, planned economic experiment leading to a disastrous destruction of the Chinese economy. But in acupuncture medicine, 1958 was bench-marked by an extraordinary development: the discovery of acupuncture anesthesia, one of the most spectacular modern applications of acupuncture and Chinese medicine.

In acupuncture anesthesia, the insertion and manipulation of acupuncture needles replaces anesthetic drugs. Patients are awake and even talking to their surgeons while undergoing major surgical procedures. The first successful instance of acupuncture anesthesia occurred in 1958, in Shanghai No. 1 People's Hospital. Dr. Yin Huizhu performed a tonsillectomy without the use of conventional anesthesia by applying acupuncture to Hegu (LI4) acupoints. The case was immediately reported in Shanghai's *Liberation Daily* [37]. This extraordinary discovery was immediately followed by an observational study with 74 patients participating. A fairly high success rate was reported and published in the *Shanghai Chinese Medicine Journal* [38]. Subsequently, hospitals all over China rapidly assimilated this breakthrough procedure. Between 1958 and 1986, over two million procedures using acupuncture anesthesia were performed in Chinese hospitals, including operations on the brain, face, neck, chest, abdomen and limbs, either without drug-induced anesthesia or with only a small dose of conventional anesthesia. Over one hundred different surgical procedures have been conducted using only acupuncture anesthesia, including significant surgeries such as thyroidectomy, hysterectomy, heart surgery, and subtotal gastrectomy [39]. The enthusiastic popularization of acupuncture anesthesia in the 1960's led to widespread total replacement of conventional anesthesia by acupuncture anesthesia in a variety of surgical operations. China officially announced acupuncture anesthesia to the world in China's *People's Daily*

in 1971 [40]. During the 1970's, the more rational practice of combining acupuncture with conventional anesthesia to reduce the overall dosage of anesthetics became the norm. A quiescent period followed in 1980's, but acupuncture anesthesia never disappeared from Chinese medical practice. From the 1990's on there has been a resurgence of interest in acupuncture anesthesia in both research and practice.

How does acupuncture anesthesia actually work? Although acupuncture is involved in many aspects of the anesthesia process, the central theme of the mechanism of acupuncture anesthesia is acupuncture analgesia (AA). The analgesic effect is accomplished through the production and regulation of neurotransmitters in the central nervous system. When acupuncture needles are inserted into specific acupuncture points on or under the skin, nerve fibers in the underlying tissues are stimulated. This stimulation sends impulses to the spinal cord, activating the spinal cord, midbrain and hypothalamus-pituitary complex to release neurotransmitters. Incoming pain messages are blocked by the release of neurotransmitters such as enkephalin and dynorphin. The midbrain uses enkephalin to activate the raphe descending system which inhibits spinal cord pain transmission. In the hypothalamus-pituitary center, the pituitary gland releases β -endorphin into the blood and cerebrospinal fluid to produce an analgesic effect. Nerve cell extensions from the hypothalamus to the midbrain stimulate the midbrain's production of β -endorphin, which activates the descending analgesia system [41].

The discovery and development of acupuncture anesthesia is a remarkable chapter in the ongoing story of Chinese medicine. Scientific research into the effects and applications of acupuncture are now being conducted in countries around the world. Although acupuncture is an ancient treatment modality, it continues to provide a seemingly inexhaustible supply of avenues for exploration.

1971: Acupuncture Arrives in America

James Reston's encounter with acupuncture in 1971 [42] is a pivotal moment in the history of medicine in the United States, marking the introduction of this ancient Chinese practice to American shores and igniting widespread interest. Reston's firsthand account served as a catalyst for curiosity and fascination with acupuncture in America. At a time when the Cold War fostered both fascination and fear of China's closed-off culture, Reston's story provided a rare glimpse into Chinese medical practices and piqued the interest of both the medical community and the

public. His detailed description of the procedure, along with his personal endorsement of its effectiveness, presented acupuncture as a viable and intriguing alternative to traditional Western medical practices.

Following Reston's articles, there was a surge of interest in acupuncture among Americans. This ancient medical art suddenly found a receptive audience in the United States. Healthcare professionals and patients alike began to explore acupuncture as a treatment option for a variety of conditions, particularly those involving pain and chronic ailments. The demand for knowledge and training in acupuncture led to the establishment of educational institutions, certification programs, and regulatory measures to ensure the practice was both safe and standardized.

Reston's experience not only introduced acupuncture to America but also triggered a broader acceptance and integration of alternative and complementary medicine into the American healthcare system. The openness to acupuncture paved the way for the exploration of other traditional and non-Western medical practices, enriching the landscape of medicine in the United States. Today, acupuncture is widely recognized and utilized as a complementary treatment, often integrated into holistic health programs and offered in many hospitals and medical clinics across the country. Reston's encounter with acupuncture, therefore, not only brought an ancient medical art to America but also significantly contributed to the diversification and enrichment of the country's medical practices.

While acupuncture and Chinese Medicine were being introduced to the United States, students from all over the world were invited to study in China. This endeavor was initiated in 1975, when the World Health Organization (WHO), with the cooperation of the Chinese State Council, Ministry of Health, Ministry of Foreign Affairs, and Ministry of Foreign Economics and Trade, authorized China to initiate three acupuncture programs for international students. These programs were affiliated with three leading acupuncture and Chinese medicine institutes: the China Academy of Traditional Chinese Medicine in Beijing, Shanghai College of Traditional Chinese Medicine in Shanghai and Nanjing College of Traditional Chinese Medicine in Nanjing. In 1983, these three international acupuncture training centers/colleges were officially designated as the Beijing, Shanghai, and Nanjing International Acupuncture Training Centers and have trained students from more than 140 countries and regions since they were opened.

1987: Establishment of the WFAS

Worldwide interest sparked the emergence of an international organization, the World Federation of Acupuncture-Moxibustion Societies (WFAS). The idea of establishing WFAS was initiated by eight countries in 1984, an important time for the development of acupuncture in China. A preparatory committee was formed in Beijing that year, and by 1987 the WFAS was founded, holding its first inaugural conference that year. WFAS was headquartered in Beijing; it was approved by the Chinese State Council and coordinated by China's Ministry of Health, Ministry of Foreign Affairs, Commission of Science and Technology, and National Commission of Science. Further development of WFAS was facilitated by the China Acupuncture Association and China Academy of Chinese Medicine. WFAS started with 57 members representing 37,000 acupuncture practitioners, scholars and medical doctors. To qualify for membership in WFAS an organization was required to be a registered acupuncture organization with at least three years' history in a country/region, and must include a minimum of fifty individual members, three-fourths of whom had to be medical doctors and/or acupuncture practitioners.

In 1991, the *World Journal of Acupuncture and Moxibustion* was launched by WFAS. In 1998, WFAS and WHO established an official non-governmental partnership. This relationship allowed WFAS members to attend WHO's World Health Assembly as well as meetings of the WHO Standing Committee. Under the auspices of WHO, WFAS held international conferences for institutional members and professional members. At international conferences hosted by WFAS, many significant topics of acupuncture theory and practice have been addressed. WFAS has been instrumental in developing the acupuncture standards promulgated by WHO.

As a non-governmental international union of acupuncture associations and organizations, having official relations with the World Health Organization (WHO) since 1998, WFAS functions to promote understanding and cooperation among acupuncture groups throughout the world, to strengthen international academic exchanges, to advance acupuncture medicine, and to enhance the status of acupuncture in health care systems. More specifically, WFAS was established to organize international conferences, symposiums and seminars on acupuncture; promote cooperation among acupuncture groups throughout the world; encourage academic exchanges on acupuncture; meet responsibilities required by the official relations between WFAS and WHO; cooperate with WHO to implement WHO's strategy regarding traditional medicine; publicize and promote acupuncture medicine; strive to

attain legal status for acupuncture in all countries; develop education and training methods for acupuncture and improve its professional quality; promote acupuncture treatment and research; publish periodicals and provide information on acupuncture; and formulate and promote organizational standards and international standards of acupuncture.

1997: NIH Consensus

Complementary and alternative medicine achieved substantial forward momentum in the United States during the 1990's. As a modality of complementary and alternative medicine, acupuncture was especially prominent, eliciting an increasing number of clinical trials and mechanism research studies. In November, 1997, the National Institutes of Health (NIH) held a conference on acupuncture. This conference was the first of its kind concerning a modality of complementary and alternative medicine. The conference intended to provide health care providers, patients, and the general public with an accurate assessment of the use and effectiveness of acupuncture for a variety of conditions. Participants included a non-federal, non-advocate, 12-member panel representing the following constituencies: acupuncture, pain medicine, psychology, psychiatry, physical medicine and rehabilitation, drug rehabilitation, family practice, internal medicine, health policy, epidemiology, statistics, physiology, biophysics, and the public. In addition, 25 experts from these same fields presented data to the panel and a conference audience of 1,200.

As part of the NIH acupuncture conference, acupuncture-related literature was researched through Medline. An extensive bibliography of references was provided to the panel and the conference audience by experts, with abstracts and relevant citations from the literature. Scientific evidence was given precedence over clinical anecdotal experience. The panel responded to predefined questions, developing their conclusions based on scientific evidence presented both in the open forum and in the scientific literature. The panel drafted a statement, which was read aloud in its entirety, then circulated in written form to the experts and the audience for comment. The panel resolved conflicting opinions and recommendations, releasing a revised statement at the end of the conference. The panel finalized its revisions after the conference. The draft statement was made publicly available on the World Wide Web immediately following its release at the conference, and was updated with the panel's final revisions.

The NIH consensus conference on acupuncture reached the following conclusion:

Acupuncture as a therapeutic intervention is widely practiced in the United States. While there have been many studies of its potential usefulness, many of these studies provide equivocal results because of design, sample size, and other factors. The issue is further complicated by inherent difficulties in the use of appropriate controls, such as placebos and sham acupuncture groups. However, promising results have emerged, for example, showing efficacy of acupuncture in adult postoperative and chemotherapy nausea and vomiting and in postoperative dental pain. There are other situations such as addiction, stroke rehabilitation, headache, menstrual cramps, tennis elbow, fibromyalgia, myofascial pain, osteoarthritis, low back pain, carpal tunnel syndrome, and asthma, in which acupuncture may be useful as an adjunct treatment or an acceptable alternative or be included in a comprehensive management program. Further research is likely to uncover additional areas where acupuncture interventions will be useful [43].

Following the NIH conference, acupuncture became a hot topic in the booming field of complementary and alternative medicine. Acupuncture images appeared repeatedly on the covers of the mainstream news media, and an article, “Acupuncture Works”, was published in *Time* magazine on November 7, 1997.

The milestone NIH conference and the increasing prevalence of acupuncture in the 1990’s brought acupuncture to the attention of the American Medical Association, which advised its members to look at acupuncture and complementary medicine seriously. To stimulate scientific and professional inquiry, the AMA suggested designating an entire issue of the *Journal of American Medical Association (JAMA)* to acupuncture, Chinese herbal medicine, moxibustion, and other modalities of complementary medicine [44-46]. *JAMA* complied, dedicating its November 11, 1998 issue to alternative medicine.

2002: Acupuncture Assisting IVF

The establishment and development of professional organizations and affiliations helped to legitimize acupuncture and Chinese medicine in the eyes of the world. Acupuncture continues to consolidate its reputation as an effective medical modality through applications and innovations which represent scientifically-based advances in the field. One striking example of such an innovative application of acupuncture is assisted *in vitro* fertilization (IVF). In the United States, IVF treatment for infertility began in the 1980s, expanded during the 1990s, and became a standard of care in the 2000s. From 1985 to 2001, IVF treatments produced an average increase of one to two percent per year in positive outcomes, pregnancy or babies.