According to one account, the phoenix—a legendary bird in Chinese and other mythologies—died in flames, then rose from its own ashes to live again. Something similar has happened with acupuncture: Mao Zedong "restored" it as "New Acupuncture." Then New Acupuncture—based on fanciful prescientific theories and widely promoted in the United States as something of a cure-all—inspired the development of a science-based mode of acupuncture that New Age opportunists largely ignore: neuro-electric acupuncture.

Acupuncture has hundreds of forms and variations. Nearly all forms lack a scientific basis. Many undiscriminating proponents of acupuncture use science as window dressing, while their true allegiance is to mysticism and superstitious quackery. But also misguided are those self-described proponents of science who dismiss acupuncture across the board. Below I describe how I came to distinguish between mystical and science-based acupuncture.

**From Believer to Skeptic**

Leonardo da Vinci said: "Take no miracles on trust, always look for causes." My fidelity to that creed originated in 1932, when a magic show came to my small town. My friend and I believed we were witnessing miracles during a performance at a theater owned by his father. Then we silently climbed into the loft above the stage and found that back of every "miracle" had been a string or mirror.

I learned the "meridian acupuncture" of Traditional Chinese Medicine (TCM) from a physician friend in Japan, before the Nixon visit to China that would export acupuncture to the United States. Despite its prescientific metaphysical "explanations," TCM acupuncture, like any "new" mode of therapy, elicited "cures" in some of my patients. That the beliefs and hopes of my patients seemed important "curative" factors did not deter me. But the mystical rituals supposedly necessary to determine where to insert the acupuncture needles troubled me. I was told that the aim of acupuncture was to undo internal blockages of chi.

Allegedly, chi is a mysterious "energy," disturbance of which in the body is the cause of all illness. I attended acupuncture seminars at which speakers "taught," matter-of-factly, such notions as the following.

* There are twelve meridians that relate to twelve body organs, and there are 365 points where chi comes to the surface and may be controlled.

But the meridians of TCM acupuncture do not correspond to anatomic structures, and chi whatever it may be is unmeasurable. TCM theories originated in times of little physiologic
knowledge. Numerology was important in ancient Chinese folklore. Thus, the number of meridians twelve corresponds to the number of lunar months, and the number of acupoints 365 to the number of days in a year.

* These meridians are apportioned amongst the elements fire, water, wood, earth and metal and are named for the body organs they control.

In ancient China, Greece, and India, the basic components of the material world were thought to number four or five. In TCM, the five elements supposedly are manifestations of chi, and each symbolizes a group of physiologic functions. For example, metal represents decay, and wood represents a growth phase.

* In which meridian the trouble lies can be detected by feeling the radial pulse at the wrist. Six organs are represented on the left wrist, and another six organs can be detected at the right wrist. You palpate in order to detect which meridian is strong or weak. A skilled pulse practitioner can discern 27 varieties of pulse, such as "strong," "reedy," "vibrant," etc.

Discerning particular organ problems by so-called pulse diagnosis is impossible. Blood flows from the heart equally to each wrist and does not pass through, or even near, any internal organs.

'Humpty-Dumpty' Acupuncture

Traditional Chinese Medicine which encompasses TCM acupuncture, traditional Chinese pulse diagnosis, and Chinese herbalism is a grand, mystical, self-contained belief system that borrows from astrology, numerology, shamanism, Taoism, and various superstitions. Acupuncture training was integral to curricula in Chinese schools of medicine from as long ago as 3000 b.c.e. until 1888 c.e., when with the influx of scientific findings from the West the emperor banned it.

After the Chinese communist revolution, Chairman Mao handled the lack of physicians trained in biomedicine by proclaiming Chinese folk medicine a treasure house. The Barefoot Doctor's Manual became the bible by which thousands of Chinese "healers" spread TCM theories. And TCM apparently worked well in China, for it was both folksy and nationalistic. The former head of the Office of Alternative Medicine, Joseph Jacobs, M.D., whose mother was a Mohawk, once told me: "The Indian medicine man heals only those who are raised on the reservation."

In the 1950s Chinese physicians applied electricity to inserted acupuncture needles. This early form of electroacupuncture appeared more effective against pain than the acupuncture of old. And "acupuncture assisted anesthesia" so-called acupuncture analgesia was introduced in 1958. Research over the next three decades, especially by Prof. JiSheng Han at Beijing Medical University, resulted in New Scientific ElectroAcupuncture (NSEA), which utilized none of the metaphysical "explanations" of ancient acupuncture.
In the 1970s these "explanations" reminded me of Lewis Carroll's Humpty Dumpty, who said to Alice: "I use words to mean what I want them to mean, nothing more nor less."

**Science-Based Acupuncture**

In 1972 our group at the University of Missouri Medical School received a grant from the National Institutes of Health to compare the effects of acupuncture and hypnosis on experimental pain. We concluded that acupuncture is not a form of hypnosis and that, while acupuncture without electrical stimulation had some beneficial effect, electroacupuncture was twice as effective.

Other studies published in that decade gave credence to our view that important acupuncture points were unrelated to the chi pathways posited by TCM theory. It became apparent that not hundreds of points, but only about 80, were useful. These 80 points have an anatomical basis; most are "motor points" areas sensitive to electricity because they are near junctions of nerves and muscle.

I traveled widely in search of scientific explanations. I learned that nerve cells in the brain responded to electroacupuncture, and that a breed of rats unresponsive to acupuncture are deficient in endorphins (various painkillers produced by the brain). In China I met Prof. Han, author of *The Neurochemical Basis of Pain Relief by Acupuncture: A Collection of Papers* (Beijing Medical University Press, 1987). Han had increased the pain threshold of a "nonacupunctured" animal by introducing into it the spinal fluid of an "electroacupunctured" animal. Later, Han discovered that different frequencies of electrical stimulation give rise to different neurohormones in the brain (so much for chi as an explanatory concept). And he developed an electroacupuncture device that makes needling patients unnecessary: Polymer conducting pads on the surface of the skin suffice.

In short, the key to consistently effective acupuncture is electrical stimulation. But practitioners at those addiction treatment centers in the United States that use acupuncture perform "nonelectrical" acupuncture. Such practitioners ritually insert needles into three of 168 ear points represented on a "map" of the body superimposed on the ear. This, in the context of a treatment program, apparently has some therapeutic utility, primarily because of a placebo effect an improvement in condition that is due to the act of treating disease rather than due to the specific treatment. However, neurosurgeon H. Wen demonstrated that essential to effective acupuncture in addiction treatment was neither ritual nor the use of ear points, but the application of electricity.

Regular, long-term use of opiates decreases endorphin production by the brain. Apparently, if electroacupuncture can increase endorphin production, it can decrease dependence on opiates.

**Acu-Nonsense**
The names of more than 40 alternative-medicine methods include the prefix "acu-." These methods include the acu-diet, colored light acupuncture, laser acupuncture, magnetic acupuncture, and even music therapy acupuncture. Modes and variations of reflexology a variation of acupressure whose postulate is that all bodily organs have corresponding external "reflex points" number about 20. Reportedly, modes of acupuncture practiced in Japan number more than 200.

In most of those cases in which "acu-methods" are helpful to patients, their therapeutic utility is due to a placebo effect. Furthermore, most illnesses are self-limited. If an illness disappears spontaneously during or shortly after treatment, the "acu-method" will certainly look therapeutic.

Why is TCM acupuncture so popular in the U.S.? Considerable hoopla attended its introduction in this country. The finding that TCM acupuncture lacked a scientific basis prompted the American Medical Association (AMA) to pronounce it "quackery" in 1974. But by then public demand for acupuncture had become significant. Chinatown practitioners of TCM were in vogue and offering lucrative how-to "seminars." While medical doctors because of the AMA's pronouncement hesitated to learn acupuncture, hundreds of people bereft of medical training availed themselves of this fast track to practicing medicine.

Thirty-four states license acupuncturists or "doctors of oriental medicine" without requiring conventional medical training. Typically, training for a few hundred hours indoctrination in Chinese philosophy, basically is the main prerequisite for licensure. Missouri's Board of Chiropractic requires that all chiropractors undergo 100 hours of training in "meridian theory." Yet the meridians of TCM do not correspond to anything identifiable!

The Bottom Line

Alternative medicine and pop culture have accorded considerable respect to the superstitious, ritual acupuncture of Traditional Chinese Medicine. Public acceptance of ritual acupuncture will not weaken until (a) the medical profession recognizes science-based acupuncture and (b) the media help the public distinguish between therapy based on controlled experiments and treatment based on magic or mysticism.

George A. Ulett, M.D., Ph.D., is a clinical professor of psychiatry at the Missouri Institute of Mental Health, St. Louis, of the University of Missouri-Columbia. He is the author of Alternative Medicine or Magical Healing: A Factual Look at Unconventional Healing (1996) and Beyond Yin and Yang: How Acupuncture Really Works (1992).

(From Priorities, Vol. 9, No. 3)