Chiropractic: Healing or Hokum? HEW Is Looking for Answers

Chiropractic, the art and science of spine manipulation, calls itself the world's largest nondrug healing profession. Mainly practiced in the United States, where it officially began life in 1895, chiropractic has been the target of continuous assults from the American Medical Association (AMA), and it is almost universally looked upon askance by scientists. The scientific underpinnings of chiropractic remain obscure, it is true. And, because chiropractors rarely are trained in research and no federal money has ever been allocated to research or training in chiropractic, the discipline has languished in the backwaters of the health professions, highly vulnerable to labels of cultism and quackery.

Spinal manipulation is as old as Hippocrates, and has been employed by every major civilization around the world. But chiropractic is uniquely American. It was born in the great American Midwest, amid faith healers, magnetic healers, the vendors of snake oil, and a fledgling medical profession that was still using techniques such as bleeding and tincture of watermelon seeds. It started as a sister discipline to osteopathy, which celebrates its first century of existence this year. But whereas osteopathy has gradually incorporated the precepts of modern medicine in addition to its bone manipulation theories, chiropractic has pretty much stayed in the same place. It has much in common with homeopathy and naturopathy, both of which operate on theories that the body will heal itself if the natural pathways are left open to allow it. Unlike these, it has survived the advent of organized medicine in this country. The stronghold of chiropractic continues to be rural America, in large part because the profession has no affiliations with hospitals or major medical training centers.

The number of practicing chiropractors has fallen off in recent years. In 1957 there were an estimated 25,000 practicing chiropractors in this country; the number has now dwindled to 15,000. But despite its unfashionability, the profession is by no means dying out. Some 8 or 9 million Americans are treated by chiropractors each year, a great many of whom resort to it after they have failed to find relief with medical doctors.

Since chiropractic colleges do not train researchers (almost all teaching staff members are chiropractors), little new knowledge has come to the profession, and a musty turn-of-the-century aura still clings to its philosophy and techniques.

None of this necessarily means chiropractic doesn't work, and the federal government, as a result of its expanding role in the nation's health affairs, has finally decided to look into chiropractic. Spurred by Senator Warren Magnuson (D–Wash.), chairman of the appropriations committee for the Department of Health, Education, and Welfare, the National Institute for Neurological Diseases and Stroke (NINDS) is seeking ways to stimulate research in chiropractic and plans a conference to evaluate the scientific principles on which the profession is based.

Covered under Medicare

A major turning point for chiropractic came last year when Congress, after repeatedly dismissing the issue since Medicare and Medicaid came on-line in the mid-'60's, finally voted to afford chiropractic treatments coverage under Medicare. While the coverage is limited —diagnostic x-rays, a basic tool of chiropractic, are not reimbursed—this move appears to have been enough to reverse the stagnation of the profession. (With Medicaid, states have the option to cover chiropractic, but if they do they must follow the Medicare guidelines.) It also marks the first real recognition by the federal government that chiropractic exists. Other moves have followed. This year the Federal Employees Compensation Act was amended to include limited coverage for chiropractic. Then, in August, the Office of Education gave the American Chiropractic Association (ACA), one of chiropractic's two professional organizations, long-sought recognition as an accrediting body for chiropractic education. This year, too, Mississippi started licensing chiropractors, which means that there are licensing boards in all 50 states. (Each state has its own standards, but none specifies the disorders chiropractors are qualified to treat.) These developments have had quite a stimulating effect on the profession. For the first time in years, according to ACA director Louis Gearhart, colleges of chiropractic are getting more applications than they can handle. What's more, 3 new schools have sprung up, bringing the total to 13.

So the time seems ripe for the government to find out what chiropractic is all about. Last year Magnuson got his subcommittee to direct NINDS to allocate up to $2 million for research directly related to chiropractic. "In view of the recent inclusion of chiropractic services under Medicare . . . this would be an opportune time for an 'independent, unbiased' study of the fundamentals of the chiropractic profession," said the committee report.

According to Murray Goldstein, NINDS director of extramural research, the institute is responding in two ways. First, it has let it be known that money is available for research in neurological, neuromuscular, and communicative (hearing and speech) disorders. This includes spinal biomechanics, the anatomy, physiology, and pathophysiology of subluxations (the term chiropractors use to describe misarrangement of bones), as well as clinical trials of diagnosis and therapy.

The other thing NINDS is planning is a conference, to be held in Washington in February, to which 40 or 50 medical doctors and researchers, osteopaths, and chiropractors from around the world will be invited to conduct an evaluation of the fundamental principles of chiropractic. At the conference, says Goldstein, the experts will decide once and for all just what is known and what is not known about chiropractic and will set priorities for research. All this will be written up in a big report.

The general reaction to the NINDS initiatives has been favorable, says Goldstein, although some chiropractors were initially hostile, fearing it was the institute's intent to evaluate them as a profession, including their licensing and education. HEW has been under intense pressure from the AMA to do just that, but NINDS intends to stick purely to the science. Indeed, chiropractors are probably lucky that Goldstein is running the show. He is an osteopath and therefore more open-minded about chi-

ropractic than his medical brethren. Osteopathy, according to Goldstein, combines the principles of medicine with structural diagnosis and manipulative therapy.

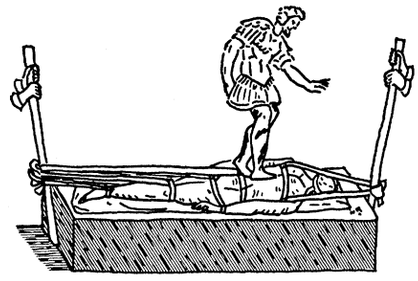
At any rate everybody is pleased—chiropractors because they believe they will finally have the opportunity to prove their worth as health providers, and the AMA because it believes the facts will bear out what they have always contended: that chiropractic is quackery.

It is partly the fault of the profession that chiropractic has not been able to justify itself to modern medicine. Goldstein says NINDS has always been prepared to support legitimate chiropractic research but no one ever asked. It has long funded studies on biomechanics of the spine and related fields, but even now that it has made known its intentions directly to the profession it has received only four proposals.

The present situation marks a considerable change in the federal position since 1968 when HEW prepared a report at the request of Congress on "Independent practitioners under Medicare." After a 50-page discussion of chiropractic it concluded that federal reimbursement was undesirable. It said: "Chiropractic theory and practice are not based upon the body of basic knowledge related to health, disease, and health care that has been widely accepted by the scientific community. Moreover, irrespective of its theory, the scope and quality of chiropractic education do not prepare the practitioner to make an adequate diagnosis and provide appropriate treatment."

Chiropractors would say this reflects a vision of chiropractic as it was practiced a generation ago, when the profession indulged in sensational advertising and entrance requirements for admission to colleges were practically nonexistent. Two years of undergraduate education are now a universal prerequisite, all schools have 4-year curricula, and chiropractors claim the course of study is very much like medical school except that pharmacology and surgery are omitted.

Chiropractic was officially created in 1895 by Donald David Palmer, an Iowan faith healer, mesmerist, homeopath, and naturopath who in that year restored the hearing of a Negro janitor, deaf for 17 years after he twisted his neck, through manipulations of his cervical vertebrae. The theory of chiropractic is based on the fact that all the body's parts are fed by nerves emanating from the spinal column. Nerves from each of the vertebrae feed specific organs. If a subluxation or misarrangement exists in part of the spine, the nerve impulses are blocked and the relevant bodily parts suffer. Spinal adjustments open up the proper pathways, thereby allowing the body's natural defenses to do their work.



An illustration from Galen's collected works shows method for "repositioning of an outward dislocation" (about 200 A.D.).

X-rays are used to determine where the subluxations exist; then the chiropractor uses his hands and sometimes other techniques such as heat treatments and electrical impulses to correct them. In explaining how chiropractic works, it is difficult to tell where science leaves off, and faith and surmise take over. A free-flowing nervous system is certainly important to health, but the relationship between blocked nerve impulses and disease or mechanical disorders has by no means been scientifically established. The issue is complicated by the fact that the two professional organizations, the ACA and the International Chiropractors Association (ICA), have differing philosophies about chiropractic. ICA members, who number some 4000, represent orthodoxy and are the direct descendants of founder Palmer. They are known as "the straights," which means their only tools are their x-ray machines and their hands. To them, the spine is all, and they claim to be able to cure or significantly ameliorate a wide spectrum of disorders—not only neuroskeletomuscular problems but such things as asthma, bronchitis, allergies, gallstones, diabetes, hepatitis, hemorrhoids, and bunions. The ACA, with some 9000 members, represents "the mixers." Their armamentarium includes heat treatment, electrical impulses, ultrasound, vibrators, and nutritional directives. At the same time their claims are more modest than those of the straights and they usually confine their ministrations to correction of muscle-, nerve-, and bone-related disorders. Both schools believe that chiropractic is good for whatever ails you, because they maintain that for every bodily problem there is a corresponding subluxation. Nonetheless the failure of the profession to agree on exactly what it can and cannot treat has certainly undermined its credibility.

In a way, chiropractic is America's answer to acupuncture, whose scientific rationale is similarly vague. American medicine is now having a big fling with acupuncture, but it continues to despise chiropractic—presumably because the exotic foreign import is free from the associations that have earned chiropractic the lasting enmity of the AMA. One Washington area chiropractor claims the AMA keeps dossiers on every chiropractor in the country, but ACA counsel Harry Rosenfield dismisses this idea, saying, "like any minority group these people tend to be a bit paranoid."

Certainly there is enough hypocrisy toward chiropractic to breed suspicion among its practitioners. Although doctors officially dismiss it as an "unscientific cult," doctors and chiropractors regularly refer patients to each other. At least one prominent member of Congress has availed himself of the services of a chiropractor while publicly speaking out against coverage of their services by federal money. Ex-President Nixon, while in the White House, was regularly visited by an osteopath (osteopaths and chiropractors have many manipulative techniques in common).

There are no doubt some intangible reasons for the medical establishment's hostility to chiropractic. Allopathy is geared toward cure, while chiropractic is much more in the preventive mode. Chiropractors claim to be able to predict future trouble from a spinal subluxation while, as one said contemptuously, "the medics don't find anything until you've got it." And, although chiropractors themselves don't see it that way, there is much of the counterculture mystique about them. Their holistic approach to the body, emphasis on natural processes, and folksy egalitarian approach to patients has much in common with the antiestablishment, antitechnology, back-to-nature movement of the 1970's. The return to natural foods, concern for ecology (with its holistic perception of nature's operations), mistrust of authority, growing interest in Eastern religions, and concomitant awareness that there are ways of arriving at "truth" that Western science knows nothing of—all would seem to contribute to an intellectual environment compatible with the chiropractic mode of healing.

This connection does not yet seem to have been made, though, and meanwhile chiropractors are continuing their fight to coexist with and gain the kind of recognition accorded to establishment medicine. Their next goal, of course, is to get themselves in on proposed National Health Insurance. So far the outlook is not very good. Although files of congressmen concerned with health affairs are jammed with fervent testimonials from chiropractic patients, no serious consideration has been given to extending coverage to these services. It seems likely that evaluation of such coverage will have to wait until some results from the NINDS initiatives start to trickle in. So far about the only major research directly related to chiropractic is being conducted at the University of Colorado where C. H. Suh, a biomechanical engineer, has spent the past few years working on computer-assisted x-ray techniques and on constructing a computerized mathematical model of the spine. Not only is basic research sadly lacking, but hardly any objective clinical studies have been made. One of the few, reported in 1972 in *The Lancet* by researchers at the University of Utah College of Medicine, found that patients treated for neck and spinal injuries did just as well with chiropractors as they did with medical doctors.

The AMA would probably counter that studies could be engineered to show that patients also did just as well by consulting faith healers, or following the indications of their astrological charts. But chiropractic has been around long enough that it doesn't deserve to be swept under the rug before it has been subjected to a thorough and long-overdue evaluation.

—CONSTANCE HOLDEN

Science and Its Critics: Must Rationality Be Rationed?

Anti-science is synonymous, or nearly so, with anti-reason, and it is not surprising if the anti-science movement often appears an inchoate striving, too protean to yield to inspection and analysis. But the recent writings of critics such as Theodore Roszak have articulated the strong anti-science urges of the age with clarity and strength enough to make a case. The summer issue of *Daedalus*,* journal of the Boston-based American Academy of Arts and Sciences, is an attempt to diagnose what is troublesome about the scientific enterprise in its own eyes and in those of its critics.

Several different aspects of the science-society relationship are discussed in the issue, including the interaction between science and the press, by David Perlman, and the academic isolation of agricultural scientists, by André and Jean Mayer. But the philosophical center of the debate is held by Theodore Roszak and physicist Steven Weinberg of Harvard.

The principal theme of Roszak's previous critiques (see *Science*, 1 December 1972) is that the objectivity of scientific inquiry is not merely a convenient tool for arriving at agreed results, but rather an ingrained philosophical attitude, cold, depersonalized, and spirit-sapping, which dehumanizes science and indeed aridifies Western civilization itself, since the scientific view of reality has succeeded in ousting all others.

In his *Daedalus* article Roszak goes on to say that the trouble with science is that it provides only information about the world, without the meaning. Real knowledge, which Roszak calls "gnosis," avoids the Cartesian apartheid which science has imposed on itself and seeks the "meaningfulness of things which science has been unable to find as an objective feature of nature."

Gnosis is an older and larger kind of knowledge, from which, by an impoverishment of the sensibilities over the last three centuries, science has been derived. Ironically, Roszak notes, the scientific revolution of the 16th and 17th centuries was launched by men such as Copernicus, Kepler, and Newton, whose thought was steeped in the mystical, as well as scientific, branches of gnosis. "Our science, having cut itself adrift from gnosis, contents itself to move along the behavioral surface of the real—measuring . . . but never penetrating to the visionary possibilities of experience."

Weinberg, who like several other contributors considers Roszak among the most serious critics of science, finds much in his writings that is "pertinent, and even moving." But Weinberg is puzzled to know what he as a scientist is expected by Roszak to do. If Roszak is asking that science should change in some fundamental way so as to incorporate other modes of knowledge, the answer is "that science cannot change in this way without destroying itself, because however much human values are involved in the scientific process or are affected by the results of scientific research, there is an essential element in science that is cold, objective and non-human."

Weinberg goes on to say: "We didn't want it to come out this way, but it did. . . . The search for these laws [of nature] forces us to turn away from the ordinary world of human perception, and this may seem to the outsider to be a needless specialization and dehumanization of experience, but it is nature that dictates the direction of our search."

The end result of this search, Weinberg says, is the discovery of harmony and order. This does not satisfy Roszak, who, having read Weinberg's paper in draft, seizes on his admission that scientists didn't want things to come out this way. "One cannot help admiring the candor of such an answer —and grieving a little for the pathos of its resignation." Roszak then spells out what he wants done. Have scientists never noticed, he asks, "how the lay public hangs upon these professions of wonder and ultimate belief, seemingly drawn to them with even more fascination than to the great discoveries?" People want more from science

* "Science and its public: The changing relationship," *Daedalus*, Summer 1974. $2.95. Obtainable from the American Academy of Arts and Sciences, 165 Allandale Street, Jamaica Plain Station, Boston, Massachusetts 02130.