
PAIN'S DOMINION

Medical science works new wonders every day, but until recently Western physicians and scientists have shown remarkably little interest in pain.

That is beginning to change. David Morris surveys today's rethinking of the nature and treatment of pain. Kathleen Foley looks at the role of the new view of pain in current debates over euthanasia and doctor-assisted suicide. And Richard Selzer assays an experience that is shared by virtually all of humankind yet felt by each individual in an absolutely private way.

What We Make of Pain

BY DAVID B. MORRIS

Jeremy Bentham—the great-grandfather of modern utilitarian thought—offers a useful jolt to normal opinion in his claim that pain, far from constituting merely an unwelcome occasion to race for the medicine cabinet, holds sway over individual lives much as a sovereign power governs a state. Pain, that is, rules us not only when it appears in full regalia, displaying its power like a king at a banquet, but also when it remains behind the scenes, more or less invisible, its presence diffused through a thousand daily acts such as the care we take opening a jackknife or stepping across an icy patch of sidewalk. Like it or not, pain lends an underlying stability to our lives—something we count on, build on, work around—and Bentham's insight thus helps us imagine the deep sense of crisis a person might experience when, inexplicably, pain seems to go crazy.

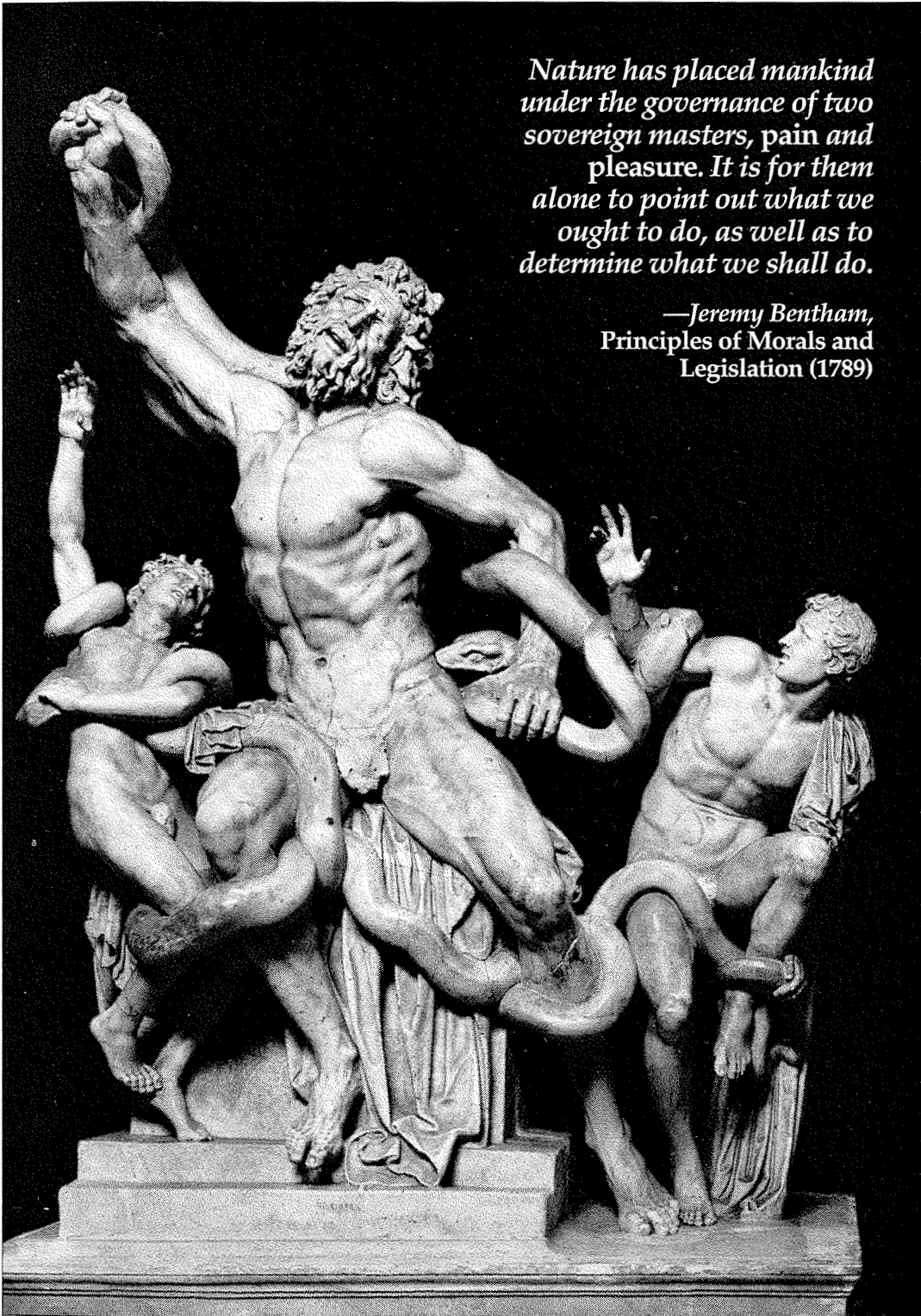
Intense and prolonged pain, as recent controversies about physician-assisted suicide

make clear, has driven people to take their own lives. Such intractable pain no longer governs a life, in the Benthamite sense of providing a source of underlying stability, but plunges the sufferer into a state so unfamiliar and frightening that it can resemble sheer chaos. We know what to expect from acute pain: It comes, it goes, it follows the rules. Chronic pain, however, lingers and torments and threatens never to leave. It subsumes a wide variety of baffling attacks, from recurrent headache and low-back misery to tic douloureux, phantom limb, and the completely mysterious pain of "unknown etiology." So great are the differences, for example, that medical treatment good for acute pain is generally unsuitable for chronic pain of unknown cause.

Indeed, the distinction between *chronic* and *acute* underlies sweeping changes in contemporary thinking about pain. One aspect of this rethinking centers on new drug therapies,

*Nature has placed mankind
under the governance of two
sovereign masters, pain and
pleasure. It is for them
alone to point out what we
ought to do, as well as to
determine what we shall do.*

—Jeremy Bentham,
*Principles of Morals and
Legislation* (1789)



especially opiates and opioid narcotics, often prescribed together with nonopioids and with adjuvant analgesics such as tricyclic antidepressants, anticonvulsants, and benzodiazepines. Drugs alone, however, cannot control the wide range of pain syndromes, and an individual's over-reliance on drugs may simply exacerbate the problem. Thus, even more exciting is a second and far less familiar aspect of the current revolution in thinking about pain, one that goes beyond the biomedical focus on nerves and neurotransmitters to consider the ways in which biology, mind, and culture interact.

Pain is such a familiar event within medicine—the most common symptom bringing doctor and patient together—that, paradoxically, it often tends to go unnoticed, like the air we breathe or waiting room art. Its role in diagnosis is crucial, but thereafter doctors too often find pain of little importance. Twenty years after a chilling study showed widespread medical undertreatment for pain, the *American Journal of Public Health* reported in 1993 that 80 percent of health professionals believe that such undertreatment is still a serious problem in their facilities. The U.S. Department of Health and Human Services says that cancer pain, for example, goes “frequently undertreated.” Such undertreatment cannot stem simply from fears that narcotic medications might prove addictive, since a well-known study puts the rate of addiction among a hospital population at far less than one percent. Undertreatment for pain in medical settings has sources that run far deeper than a reluctance to provide adequate medication.

The dismissive or contradictory attitudes that most people—not just health professionals—hold toward pain seem rooted not in biology but in culture. Life in modern Western societies teaches us that drugstores contain a pharmacopoeia of over-the-counter pills that effectively, if temporarily, cancel pain. Any-

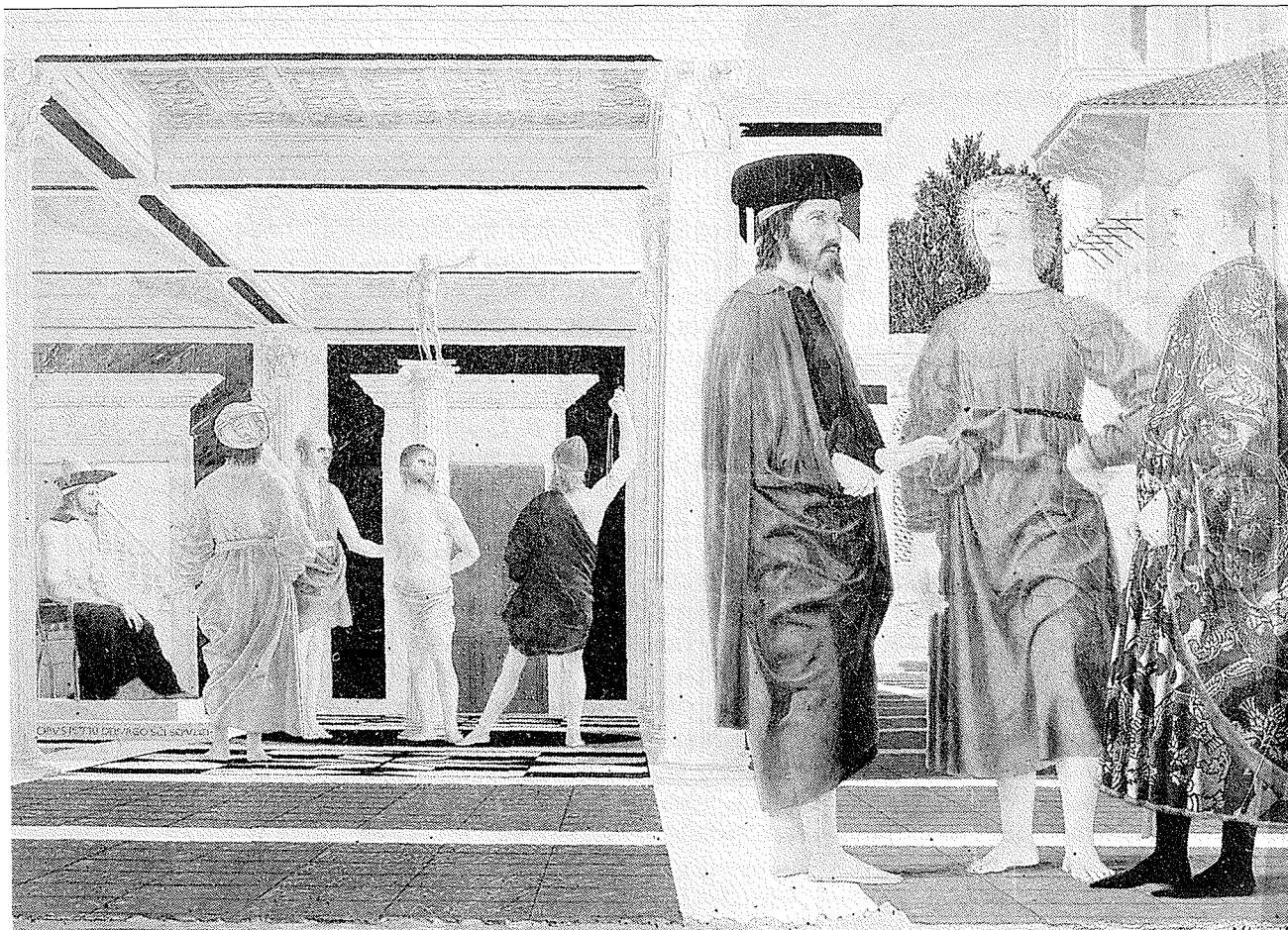
thing that can be erased by an over-the-counter product hardly seems worth a second thought. But such an attitude may prove lethal when it leads us to undertreat intractable pains such as those often caused by cancer. Moreover, like taxes, government regulation of narcotics in America tends to make doctors a little edgy. Nobody wants to show up in computers that track prescription drug abuse. Then, too, somewhere in our heritage lurks the moral notion that pain builds character. This tangled knot of thought produces the paradoxical American belief that too little is being done to relieve pain and that we take too many drugs. As often, the public is both confused and correct.

II

To understand our modern confusion and its connection with the still-emerging revolution in thinking about pain, we might consider three different visual representations of the subject. The first is Piero della Francesca's enigmatic painting *The Flagellation*, finished about 1460 and ranked among the most famous works of the early Renaissance. It depicts, through an advanced and almost mathematically precise treatment of visual perspective, a somewhat ambiguous drama played out in *two* specific and vastly different historical spaces and times. As their clothing shows, the three larger figures clearly inhabit the painter's contemporary world of quattrocento Italy. Within the interior, however, we see another group positioned some 1,400 years earlier: the two torturers who stand on either side of Jesus with their whips upraised, as Pontius Pilate and a mysterious turbaned figure look on.

Indeed, the painting, like pain, is full of questions. Who are the three well-dressed contemporary figures? What are they doing

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The Flagellation (c. 1460) by Piero della Francesca

here in the vicinity of this biblical scene of flagellation? Why does the flagellation, the theological importance of which is surely paramount, proceed in the background? Such questions have sparked a variety of ingenious and conflicting explanations, but none directly address the question we need to ask here: How does the painting invite us to think about pain? The answer turns out to be entwined with an account of Piero's strange mixture of disparate historical places and times.

The best explanation of the painting has been proposed by art historian Marilyn Aronberg Lavin. She identifies two powerful Renaissance figures among the contemporary group on the right: Ludovico Gonzaga, a nobleman, and Ottaviana Ubaldini della Carda, a famous astrologer. (As befits his occult profession, Ottaviana wears an exotic, eastern-style hat.) Both men, Lavin explains, had recently lost a son, one to death, the other to crippling dis-

ease. The barefoot youth standing between the two bereaved fathers thus represents an idealized, angelic "son" figure—whose loss brings them together. Their loss, meanwhile, helps explain why Piero should represent them as if standing alongside the biblical scene of flagellation. The subject of the painting, we might say, is pain ancient and modern, visible and invisible. Pain is what draws the two disparate historical scenes into a single field of thought: Jesus' calm acceptance of the torturers' blows offers guidance to the grieving fathers. It reminds them that God's will demanded that even his own Son should suffer. The painting may have served as a meditative consolation. Lavin shows that it exactly fits a space in front of the altar in Ludovico's private chapel.

Ludovico's choice would have been quite sound. Meditative solace in the late Middle Ages, tendered with the vast authority and empathy of the omniscient church, was likely to be far more effective in countering pain than

medications available from a culture in which teeth were pulled in public squares with pinners resembling fireplace tongs and surgeons still belonged to the guild of barbers. Others might have recourse to Stoic philosophy or to folk beliefs that linked pain to pre-Christian demonology. Drug therapies certainly had little to offer the people of this time.

Western pharmacology had advanced very little some 200 years later, at the dawn of the scientific revolution in Europe, when readers encountered a schematic kneeling figure in the posthumously published *Treatise of Man* (1662) of René Descartes. Insignificant as it might seem, this figure initiates and epitomizes the tradition that for the next 300 years will decisively redefine pain as a medical matter of nerves and neurotransmitters.

Cartesian physiology did not sever all ties with the past. It retained the old idea that the body moves with assistance from small organisms called "animal spirits" produced and stored in the brain. These minute, rarefied particles were believed to travel through the nerves, which Descartes described as hollow tubes containing tiny filaments that terminate in the brain. Pain, as Descartes described it, works by means of a simple mechanism. The fast-moving particles of fire disturb the filaments in the nerve of the foot. The disturbance passes along the length of the nerve fiber until it reaches the brain, where it activates the animal spirits, which in turn travel down through the nerves to the muscles, producing the movement that removes, say, foot from flame.

The key concept for Descartes was the idea of mechanism. The impulse traveling from the site of injury to the brain, he explained, produces pain "just as, pulling on one end of a cord, one simultaneously rings a bell which hangs at the opposite end." This rope-pull model of pain, however primitive, is a direct precursor of the standard

medical model developed from Cartesian principles in the mid-19th century and (in many quarters) still going strong. Doctors and researchers adhering to the medical model talk about nociception and endorphins rather than about filaments and animal spirits, but the basic idea is unchanged. They view pain as strictly the result of an internal mechanism that sends a signal from the site of tissue damage to the brain. Most people in the Western world grow into adulthood believing in some version of this Cartesian picture.

Crucial implications of the mechanistic view will be evident if we consider what is absent from Descartes's illustration. Notice how he—or at least his illustrator—suspends the human figure in a limbo outside time or space. There is literally almost no ground to stand on. The diagram cannot tell us whether

the kneeling figure is aristocrat or commoner, French or English, Chris-

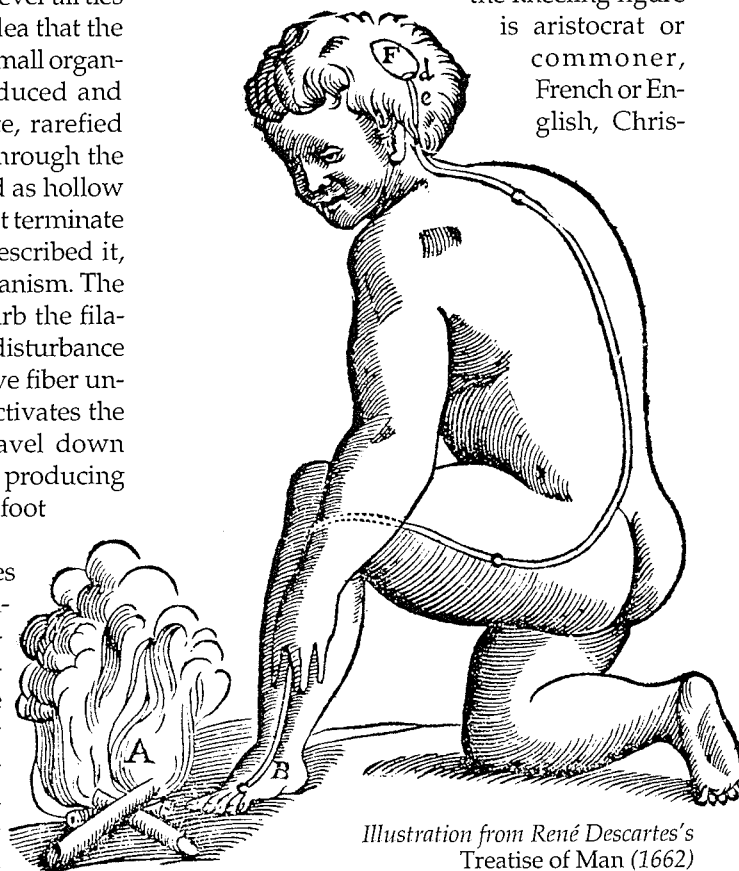


Illustration from René Descartes's *Treatise of Man* (1662)

tian or Jew, even, perhaps, male or female. The calculated blankness probably reflects a desire to situate scientific truth in an abstract or universal realm beyond the irrelevant historical accidents of a specific time and place. But the vagueness of the drawing is exactly the point. Descartes, in this early version of the medical model, gives us pain in a vacuum.

The diagram, further, is not a quaint or neutral artifact but a salvo in the battle of the ancients versus the moderns. The letters and bold lines, as if accompanying a theorem in geometry, reflect a deliberate assault on earlier ways of understanding pain. Science, in effect, is declaring its superiority over the extensive discourses on pain in theology, philosophy, art, and folklore, which are implicitly commanded to fall silent. The advantages of this new way of thinking are obvious, and we all stand in debt to René Descartes and practitioners of modern, scientific medicine. Our encounter with Piero, however, helps us to identify what has been lost and to note how far Descartes and his successors have succeeded in stripping away the complex fabric of personal and cultural experience that once enfolded pain.

It is probably high time that the flagellation of Descartes stop, particularly since he distinguishes himself from his followers by insisting that we feel pain only when the physical motion of the nerve fibers and animal spirits is perceived by the mind or soul. (This insistence explains his otherwise bizarre claim that animals do not feel pain; animals, he believed, do not possess minds or souls.) Whatever his responsibility for the medical model of pain, the modern world has very successfully out-Descarted Descartes. In rejecting the earlier view represented by Piero, we perfected an idea of pain so blank and stripped down that, much to our eventual confusion, it acknowledges no meaning or social context at all.

The confusion of contemporary attitudes is captured in a striking work by

American artist George Dergalis (b. 1928). The painting, which appeared in a 1989 exhibition of headache art called *Through the Looking Glass*, is entitled simply *Anguish* (see page 14). Here, as if revisiting Descartes's kneeling figure with a zoom lens three centuries later, Dergalis depicts the ultimate triumph of the medical model. Pain exists now as a meaningless torment, a soundless scream devoid of content, entirely cut off from the surrounding social world. Without even a hint of landscape to ground him, the anonymous sufferer keeps his eyes squeezed shut in solipsistic inwardness as the disjointed vertical planes suggest psychic splintering and disintegration. This is truly a life torn apart: mind and body both at a breaking point. Detached from meaning and social context, reinvented as mere agonized entrapment, pain stretches before us as a potentially endless shuttle of electrochemical impulses. It threatens not only health but also any prospect of interior coherence. We are no longer ourselves, almost inhuman, howling like injured beasts, masks of fragments that pain reshapes in its own twisted image.

The dread implicit in George Dergalis's painting reflects the claim that people today fear death far less than they fear dying in terrible pain. Meaningless pain has, in this sense, absorbed one last subliminal meaning: as the deepest nameless horror at the end of the mind. Advanced drug therapies may relieve some of this dread, but not all. Even the most aggressive therapies for cancer pain will not help a small percentage of patients. Opiates do not relieve every kind of pain. Chronic pain in particular often resists and baffles current medical technologies. And the damage goes beyond the bleakness facing people for whom the biological revolution brings no relief. As specialists are beginning to show, the medical model of pain—built on Cartesian principles and elaborated over the last several centuries of ongoing research in anatomy and physiology—is fundamentally inadequate.

III

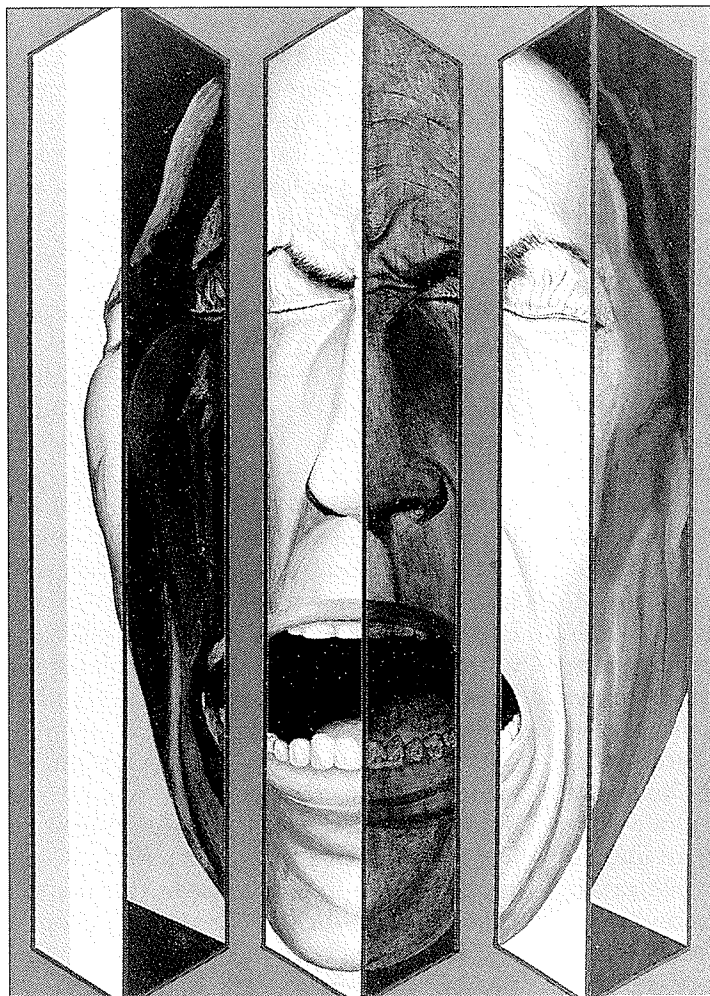
We need to respect the destructive, panic-inducing power of pain that Dergalis captures. Many people today find themselves in situations in which time and drugs fail to bring relief. Such pain may expand to fill the patient's entire consciousness and to create permanent disability. Quality of life measurably plummets. Indeed, a life filled with intractable pain is not just arduous and fundamentally disordered but very likely pathological. Patients suffering from chronic low-back pain—the most common form of nonmalignant chronic pain—experience

rates of depression three to four times higher than those of the general population. The social costs, moreover, are immense. Pain in the United States alone—from headache to cancer—causes more than 900 million lost workdays each year at a total cost of \$120 billion. The distinguished British specialist Patrick Wall describes pain as “the greatest health problem of our age.” The medical model, in short, has left us with a mounting dilemma.

The dimensions of the problem have indeed begun to approach crisis, but its true scope would require us to imagine human faces behind every statistic. For example,

some 20 million Americans suffer from arthritis and another seven million from low-back pain. About three percent of the U.S. population experiences daily headaches, and 10 percent suffers weekly headaches. Every day one in six Americans is in pain. The National Center for Health Statistics estimated that in 1988 one quarter of the American population experienced moderate to excruciating pain that required major therapy such as opioid narcotics. During that same year, 19 percent of Americans were partially disabled by pain for periods of weeks or months, and another two percent were permanently disabled.

We can observe a dim reflection of all this faceless pain in the desperate and often compulsive search for relief. In 1989 Americans spent \$1 billion for prescription analgesics and another \$2.2 billion for over-the-counter painkillers. Meanwhile, the annual world out-



Anguish, by George Dergalis (1989)

put of aspirin stands at 30,000 tons. This mountain of pills suggests that pain is not so much receding in the face of modern progress as consolidating its position as an immovable force. Immovable and monolithic—but not homogeneous. Not all pain is the same. There are almost as many different varieties of pain as roses, from the everyday cramp and ache of arthritis to the terrifying conviction in panic disorder that your chest is about to explode. (Cancer pain in particular has a very distinctive profile.) We seem in no danger of running out of pain despite a cornucopia of biomedical publications and overflowing medicine cabinets. Rather, as the statistics mount, there seems solid weight behind Norman Cousins's intuitive claim that no form of illiteracy in the United States is more widespread or costly than ignorance about pain: "what it is, what causes it, how to deal with it without panic."

If the public is ignorant about pain, it may be because the medical profession has not yet provided a sound education. A 1988 study of 28 British medical schools revealed that four had no teaching about intractable pain and that the others averaged just over three hours in five years. John J. Bonica, founding president of the International Association for the Study of Pain (IASP), recently reviewed 17 top textbooks in medicine, surgery, and oncology, finding just one-half of one percent of the space devoted to "a detailed description of the symptomatic treatment of acute postoperative, post-traumatic, visceral, and cancer pain." In a 1989 interview, Bonica described the general situation bluntly: "No medical school has a pain curriculum."

We are left, then, with a large-scale crisis of pain that our systems of public and professional education are so far unable to address effectively. They are ineffective partly because, whether through silence or misinformation, they perpetuate the errors of the standard medical model that we have absorbed into our general cultural thinking about pain over the past 200 years. Fortu-

nately, a new (if still unformulated and unrecognized) model of pain seems to offer a way of reconciling the strengths of Piero and Descartes.

IV

The change in thinking currently under way does not mean wholly abandoning the medical model of pain—which consolidates a great deal of brilliant research about the human nervous system—but rather absorbing it into a more comprehensive perspective that I call *biocultural*. This more inclusive model adds four crucial propositions:

1. Pain is more than a medical issue and more than a matter of nerves and neurotransmitters.
2. Pain has historical, psychological, and cultural dimensions.
3. Meaning is often fundamental to the experience of pain.
4. Minds and cultures (as makers of meaning) have a powerful influence on the experience of pain, for better or worse.

Doctors wedded to the Cartesian view of pain implicit in the medical model will find these four propositions instantly counterintuitive, if not just plain wrong. (Patients well schooled in a medicalized culture tend to resist them as well.) British gerontologist Ray Tallis expresses the prevailing opinion: "I have a prejudice against pain," he writes, "believing that, once it has done its job of warning us of danger, it is meaningless."

To be sure, pain is meaningless if we view it merely as the product of nociception: an electrochemical signal transmitted over nerve pathways from the site of tissue damage to the brain. Pain from this perspective is chiefly a problem in biochemistry, with no more meaning than a malfunctioning alarm bell. By contrast, a biocultural model of pain, while it insists on the value of medical knowledge about nociception, holds that

pain is never entirely a matter of nerves and neurotransmitters but taps into our emotional, psychological, and cultural experience in ways deeply entangled with the meanings we make or inherit.

One great advantage of a biocultural model is that it provides a far better account of chronic pain. Indeed, the medical model breaks down notoriously when confronted with the ambiguities of chronic pain. Chronic low-back pain, for example, often proves impossible to trace to an organic lesion, such as a prolapsed (or "slipped") disk. Neurosurgeon John Loeser examined 10,000 cases of low-back injury submitted for compensation in the state of Washington during 1977 and reported that 75 percent of the cases showed no physical findings. Although most adults who complain of back pain have demonstrable lumbar disk disease, so do 70 percent of adults without complaints. (Treatment can be almost as mysterious as the complaint. A recent study reported in the *Annals of Internal Medicine* showed that long-term functioning of patients treated for back pain was similar whether doctors prescribed pain medication and bed rest or emphasized self-care and education. The main difference? One-year costs for treatment with pain medication and bed-rest were twice those of self-care and education.) The medical model not only justifies countless unnecessary surgeries; it also fails to say why the strongest signs predicting that a worker will develop chronic back pain are job dissatisfaction and unsatisfactory social relations in the workplace.

The truth is that we cannot understand chronic pain through an analysis of tissue damage alone. In *The Social Context of the Chronic Pain Sufferer* (1992), Ranjan Roy, professor of social work and psychiatry at the University of Manitoba, offers a scrupulous review of current research showing how chronic pain sweeps into its domain such nonbiological contributing causes as family conflict, economic stress, and a history of emotional trauma. Such often-invisible blows can

help transform a local injury—a slip in the shower or a whiplash accident—into an intractable and apparently endless torment. Or the causes may recede into a distant past. One study showed that women suffering from irritable bowel syndrome, where an organic cause is not clear, proved significantly more likely than women with organic inflammatory bowel disease to report a history of severe lifetime sexual victimization. Chronic pain, moreover, is so widespread and resistant to traditional medical treatment that it calls for a more inclusive way of thinking.

For what we think matters greatly. The ancient Babylonians attributed headaches to an assault by malign demons. Does it make a difference today if you attribute your headache to eyestrain or to a brain tumor? Meaning can facilitate or retard therapy. Even the belief that pain means nothing—if it replaces, say, a belief that pain means terminal cancer—can be life giving. The American writer Reynolds Price experienced such a breakthrough after drugs and traditional medicine failed to relieve his constant torment following multiple surgeries and chemotherapy for spinal cancer. In near despair, he discovered that hypnosis and biofeedback offered a technique for controlling his pain, which led to a liberating insight. He described his new awareness and the recovery it permitted: "Now my mind understood that *The harm is done. It cannot be repaired; pain signifies nothing. Begin to ignore it.*" That which signifies nothing is very different from that which means nothing, as the zero in mathematics teaches us.

V

The mind's role in constructing meaning—even the zero-degree of meaning that pain signifies nothing—is basic to a biocultural model of pain, but argument alone seems unlikely to persuade skeptics or to overcome centuries of medical training. Fortunately, five areas of research—scientific redefinition, cross-cultural studies,

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interethnic studies, psychological studies, and studies of pain beliefs—offer hope that major change is underway.

At its founding in 1974, the International Association for the Study of Pain set up a Subcommittee on Taxonomy. The definition it published five years later is fascinating for the steps it takes to loosen up the medical model. "Pain," the IASP authors wrote, "is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." Cartesian mind/body dualism comes under implicit rebuke in the phrase "sensory and emotional" experience. The strategic use of "or" eliminates a direct one-to-one link between tissue damage and pain. Henry K. Beecher, in his classic article on World War II battlefield injuries, showed persuasively that even terrible wounds do not correlate directly with reports of pain. Tissue damage remains the gold standard, but it's clear that pain has various currencies. The IASP definition confirms that people often report pain in the absence of any known lesion and that pain cannot be regarded simply as the response to a noxious stimulus.

The most illuminating changes provided in the IASP definition occur in a series of annotations. There the authors emphasize that pain must be understood not only as an "emotional experience" but also as "always subjective." Further, they distinguish sharply between pain and nociception: "Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus," they insist, "is not pain, which is always a psychological state." We should not be surprised that the revolutionary impact of these annotations gets somewhat muted in the one-sentence IASP definition. This is how committees handle controversial issues. It is common practice in the history of science to couch radical theories in a style that makes them seem no more than a restatement of accepted ideas.

The revolutionary distinction between

nociception and pain runs parallel to another key distinction between pain as sensation and as perception. The medical model treats pain as a sensation. Hence the value of animal research, since rats and cats share with humans a basic somatosensory system. When pain is redefined as a perception, however, the limits of animal research become clear. The kneeling figure in the Descartes illustration might as well have been an enormous cat: The rope-pull pain mechanism works the same for felines as for homo sapiens. The importance of the human brain cannot be overstated in a biocultural model, since the brain is the organ responsible for all pain. "All sensory phenomena, including nociception," as the current president of the IASP puts it, "can be altered by conscious or unconscious mental processes." Reynolds Price found the truth of this view on his own.

Many of these lexical and conceptual changes are reflected in the summary account by the noted pain specialist Allan I. Basbaum, professor of anatomy and physiology at the University of California (San Francisco). Basbaum writes:

Pain is not just a stimulus that is transmitted over specific pathways but rather a complex perception, the nature of which depends not only on the intensity of the stimulus but on the situation in which it is experienced and, most importantly, on the affective or emotional state of the individual. Pain is to somatic stimulation as beauty is to a visual stimulus. It is a very subjective experience.

If pain is always subjective and always a psychological experience, the implications are clear. Human subjectivity cannot somehow be washed out as an impure and undesirable variant in the analysis of pain. Furthermore, subjectivity is never a wholly private, individual state, because individual human beings exist only within the intersubjective framework of specific cultures. Cultures, as they help to shape and to

constrain human mental processes, necessarily play a role in pain.

It follows, if culture plays a role in pain, that pain should differ across cultures, and a growing body of evidence suggests that this is so. One group of researchers studied people with low-back pain in the United States and New Zealand, and concluded that American patients used more medication, were more likely to receive pretreatment compensation, and experienced greater "emotional and behavioral disruption." A similar comparison of Japanese and American low-back-pain patients found that Japanese patients were significantly less impaired in "psychological, social, vocational, and avocational functioning." Another study comparing low-back-pain patients in the United States, Japan, Mexico, Colombia, Italy, and New Zealand again found that American patients were "clearly most dysfunctional." Dysfunction should not be viewed as a reaction to pain, as if pain were a stimulus and dysfunction the response. Rather, pain here *includes* the culturally created and reinforced meaning that a person is dysfunctional.

The diverse cultural meanings and contexts that give pain its changing character have been explored by participants in the Harvard Program in Medical Anthropology. The volume describing their work—*Pain as Human Experience: An Anthropological Perspective* (1992)—offers abundant illustration that a purely biological approach misses an essential component of pain. Even the taxonomy of pain changes significantly across cultures. The Sakhalin Ainu people of Japan, for example, distinguish among at least three different kinds of headaches: "bear headaches" (like the heavy steps of a bear), "deer headaches" (like the light steps of running deer), and "woodpecker headaches" (like a woodpecker pounding a tree trunk). Is it relevant that pain here is described primarily through *sound* and that the sounds all issue from birds and animals (rather than

from jackhammers or chain saws)?

Such cross-cultural approaches to pain find support in the parallel exploration of interethnic experience that began with Mark Zborowski's pioneering study *People in Pain* (1969). Zborowski studied American veterans hospitalized after World War II, and his findings indicate that different ethnic groups experience pain quite differently. The ethnic groups he studied—Italians, Jews, Irish, and what he called Old Americans—turn out to experience pains as distinctive as their respective cuisines.

We need to keep in mind two qualifications. First, Zborowski's veterans were all males. Differences in biology and in cultural roles make gender an important influence on pain. Migraine headaches, for example, occur three times more often in women than in men, moderating during pregnancy, which suggests a link to estrogen. Second, Zborowski's stoic Irishmen and hypervocal Jews look uncomfortably like cardboard stereotypes. Yet the experience of 1950s Jews and Irishmen differs greatly from that of their assimilated grandchildren, raised on MTV and *Terminator II*. Our experience of pain today is no less mediated by our culture, and we too may resemble stereotypes in a few years. The *Nuprin Pain Report* (1985) finds that second- or third-generation Americans are more likely than their first-generation counterparts to report suffering from headaches, backaches, muscle pains, and stomach pains. Another study detects significant variation among ethnic groups in the "affective" dimension of pain. Still another team of researchers concludes that variations in pain intensity may be affected by "attitudes, beliefs and emotional and psychological states" associated with particular ethnic groups.

The force of such studies increases when we look at research broadly classified as psychological. Ever since publication of *The Psychology of Pain* (1978), edited by Richard A. Sternbach and now in a second edition, it has

become routine to associate chronic pain with emotional states such as fear, loss, and anger. The specific link between chronic pain and clinical depression has proved elusive enough to generate a small library of studies. (Tricyclic antidepressants are effective in treating a wide range of chronic-pain patients.) Beyond depression, the impetus for much psychological research on pain doubtless comes from George L. Engel's classic study " 'Psychogenic' Pain and the Pain Prone Patient" (1959). In his clinically based analysis, Engel found that "pain prone" patients tended to be individuals for whom psychological conditions during childhood—often centering on punishment—create a template for adult experiences of pain and suffering. The novels of Sade, backed up by modern studies of sadomasochism, clearly indicate that some people seem compelled to inflict pain or to seek it. It is no surprise that people who feel driven toward extreme states of discipline or penance eventually find their way to pain.

The concept of psychogenic pain—pain generated in the absence of an organic lesion—remains controversial, but a recent study from the Baylor College of Medicine strongly suggests that for some people the mind plays a crucial role in creating pain. One hundred paid volunteers were told that the experiment in which they would participate involved an electric stimulator that might possibly produce a headache. The volunteers were not told that researchers set the stimulator at a level too low to produce a painful charge. The result? Fifty percent of the volunteers reported pain. A similar phenomenon reappears in the condition known as *couvade syndrome*, in which the male partners of pregnant women experience various symptoms of pregnancy, including abdominal pain.

The power of the mind to generate pain seems matched by a mysterious power to erase it. The placebo effect—sugar pills killing pain as effectively as morphine—is normally dismissed as an irritating variable in drug trials. Despite the widespread medical belief that a fixed fraction of the population (roughly one-

third) responds to placebos, Patrick D. Wall argues that the true figure ranges from almost zero to near 100 percent, depending on the circumstances of the trial. What matters most is that the placebo effect (by definition) requires patients to *believe* that they are receiving effective treatment. Placebos thus offer another illustration of how minds and beliefs help to reshape the experience of pain.

Studies in the personal and social psychology of pain radiate in so many directions that it is easy to ignore the central concern they share with mind and meaning. Take, for example, the malady now called *somatization disorder*, in which the most common symptom (among multiple complaints that cannot be traced to tissue damage) is pain. Women vastly outnumber men among its sufferers, and the origin of such shifty pain may be circuitous or impossible to pin down. Professor of psychiatry G. Richard Smith, in his book-length study of *somatization disorder*, cites research showing that a large percentage of women with pelvic or abdominal pain report childhood incidents of sexual abuse. Even a diagnosis may aggravate pain. Thus patients with arthritis report significantly less pain than patients diagnosed with *myofascial disorder*—the latter being a condition whose cause and status are still somewhat ambiguous. Other psychological research offers evidence that pain originating in demonstrable tissue damage can be exacerbated by events that are largely mental and emotional. Anger and "negative cognitions," for example, especially punishing responses from family members, have been shown to increase pain in a state as undeniably organic as chronic spinal cord injury.

Psychological research into what are called "pain beliefs" offers a wealth of support for a new biocultural model. Whatever school of psychology they represent, psychologists usually agree on the basic point that pain always involves learning. They often disagree on what exactly is learned—behaviors or beliefs—but some specialists now take the sensible position

that learning about pain extends to *both* behaviors and beliefs. The academic turf wars of psychology would not matter much if they did not affect clinical treatment. Should clinicians treat behaviors only, ignoring the underlying pain beliefs? Will ignored pain beliefs simply find new modes of somatic expression? Some specialists contend that knowledge of a patient's pain beliefs allows them to help develop a personalized and effective coping strategy. Two researchers, Donald S. Ciccone and Roy C. Gresiak, go so far as to argue that the reason behaviorist techniques prove effective is precisely that patients develop (even if unknowingly) "new thinking skills."

The research on beliefs about pain began in the 1980s, and several sophisticated instruments have now been developed to assess pain beliefs, including the Pain and Impairment Relationship Scale (PAIRS) and the Pain Beliefs Questionnaire. These instruments are not trouble free. (For instance, the Pain Beliefs Questionnaire perpetuates the myth that pain comes in two flavors: organic and psychological.) They nonetheless show promising uses. At Georgetown University, psychologist David A. Williams examines what he calls "core beliefs" about pain, which involve issues of self-blame, cause, and duration. Core beliefs, he argues, predict pain intensity. Researcher Mark Jensen finds that those patients function better who believe that they have some control over their pain, who believe in the value of medical services, who believe that family members care for them, and who believe that they are not severely disabled. Another study of 100 patients shows that pain beliefs correlate directly with treatment outcomes.

Disability is a phenomenon in which we can see with stark clarity how pain is tied to beliefs and culture. As specialists insist, disability is not synonymous with impairment. Pitcher Jim Abbott plays major-league baseball despite having been born without a right hand. He is impaired but not disabled. Disability is a malleable category reinvented by Western social-welfare systems to provide financial

help to individuals deemed unable to perform normal work. It also offers people new and possibly damaging ways to think about their pain. In Sweden between 1952 and 1982, conferral of permanent disability status for rheumatoid arthritis (for which diagnosis is relatively straightforward) showed no increase, whereas awards for the more mysterious category of back injury increased almost 3,800 percent. Perhaps Swedes endured a freakish 30-year eruption of injuries to the back, but it seems far more likely that the modern social creation of disability status encouraged many people with back pain to define themselves as disabled.

Through disability insurance, culture now regulates pain in ways that may well increase, prolong, or even create it. Doctors are asked not only to treat pain but also to judge whether it merits compensation—a dual role that can easily turn counter-therapeutic. How do you cure a patient you have already certified as disabled? A patient who receives continuing cash payments for disability has a powerful disincentive to recover. Although there is no warrant to support an older view that pain patients with pending legal claims exhibit something called "compensation neurosis," claims for compensation both complicate and impede effective treatment.

Pain in our culture thus includes the radically new meaning that it can be certified as disabling and exchanged for cash. This change means that we must take care to know whether we are talking about a person in pain, a pain patient, or a claimant. Each status implies a different cultural relation to pain, since not everyone with pain seeks medical help, and not everyone who seeks medical help has a claim pending. The stories of people who enter the cultural embrace of medicine or of law will be different from those people who do not. Or, to put it a little differently, their pain may well express quite different meanings, meanings perhaps completely unsuspected by the afflicted person, as when a spouse discovers that com-

plaints of pain draw tender care from a long-remote husband or wife. Pain that brings with it an otherwise inaccessible good may be very hard to let go. Effective therapies probably will need to address not only the pain but also the unsuspected meaning it embodies.

VI

Once we challenge the notion that pain is always meaningless, illustrations of meaningful pain begin to pop up almost anywhere. An engineer at a radio station explained how pain had wrecked the marriage of her elderly parents. Her mother interpreted pain as a symptom of serious illness, whereas her father dismissed it as a normal sign of aging. The husband called his wife a hypochondriac, the wife called her husband a fool, and their conflicting pain beliefs put them at each other's throats. Yet the example also indicates how the meanings of pain can remain almost invisible. The pain of the elderly, like the pain of children, is a topic about which we know very little—except that the poor and powerless usually suffer most. The past few years have seen an attack on long-standing medical myths (or beliefs) that infants don't feel pain. Our revised understanding of infancy and old age shows how the meanings of pain may vary not only across cultures but also within the course of a single lifetime.

It is our relatively recent cultural tendency to transform pain almost entirely into a medical problem that prevents us from recognizing the immense proliferation of meanings all around us. Western physicians, for example, may simply ignore the religious beliefs of their patients, even though religion for centuries has provided complex explanations for pain, from the divine retribution described in the Old Testament to the Gospels' sacrificial love. An unwed mother may experience the pain of childbirth as a fearful trial, while a ballerina comes to regard her bloody toes as a sign of luck. Some cultures employ pain in

rites of initiation designed to signify the passage to adulthood. Others use it as a punishment designed to safeguard public order. The ancient arts of body piercing and self-mutilation arrive in postmodern America filtered through pop icons and rock lyrics. The hottest fashion model in Paris, as of last year, was 21-year-old Eve Salvail, whose closely shaved head sports a serpentine dragon tattoo. Why the tattoo? "It symbolizes pain," she told *Women's Wear Daily*. Today pain can even make a fashion statement.

A recognition that pain belongs to a culture far wider than modern medicine lets us reappraise possibly damaging beliefs that we have more or less taken for granted. Among our most unshakable assumptions, for example, is the belief that pain comes in two kinds: physical and mental. This assumption has a common-sense logic in that a headache clearly differs from a broken heart. Yet the differences may be less important than our cultural heritage of mind/body dualism has led us to expect, and the damage implicit in a false distinction may spread unstoppably. Like Victorian women whose pain was dismissed as bogus or imaginary, many patients today go through a demoralizing experience with doctors who indicate a belief that the pain is not *real*. ("It's all in your head.") Real pain here means physical pain, anchored in visible tissue damage, understood according to the old medical model as a meaningless shuttle of electrochemical impulses.

It is not nature but culture—reinforced by several centuries of medical progress—that provides us with the ready-made opposing categories of mental pain and physical pain. Indeed, some non-Western cultures proceed on the opposite assumption that mind and spirit are always involved in pain. Maybe the construction of a new biocultural model will allow us to reject or reformulate cultural beliefs—such as the division between mental pain and physical pain—that prove inaccurate and damaging. The task ahead, then, goes beyond educating



Acupuncture is one form of "alternative" medicine that one in every three Americans resorts to for treatment of pain and illness. In 1990, Americans spent \$14 billion on unconventional therapies.

doctors and patients about effective drug therapies. We ignore at great cost both the complex meanings of pain and the role of culture in promulgating a myth of meaninglessness. Pain is meaningless only when we *believe* in its meaninglessness, which provides just another example of how pain wraps itself in meaning. The pertinent question inside and outside the clinic is whether personal beliefs and cultural meanings that we bring to pain are accurate, positive, and helpful—or, as is too often the case, inaccurate, negative, and damaging.

One of the largest unresolved questions is who in our culture will be authorized to speak about pain. Will doctors retain the sole authorized voice, or will a biocultural model allow us to hear other voices currently silent, subjugated, or forced to the margins of public discussion?

Doctors who average seven minutes per patient may simply lack the tools and time to hear what patients themselves could tell them. (In my experience, nurses are far better listeners, but

their voices too may go unheard.) It may take assistants in nonmedical disciplines—such as anthropology or literature—to help gather and interpret the meanings with which patients and cultures endow pain. Such assistance in the past, for example, would have told us that many prominent 19th-century doctors believed blacks did not feel pain; that pain was divided by social class, with aristocrats believed to possess delicate and sensitive nervous systems that left them open to debilitating affliction, unlike the coarse laboring masses; that, ever since Plato described the womb as an animal roaming free within the body, women's pain has been interpreted within patriarchal cultures built upon myths about male power and female weakness. Today it could show us how we experience pain shaped by the institutions of our own time and place, such as television, sports, cinema, popular music, advertising, welfare, and a massive health-

care bureaucracy.

A new model will not come easily. Ronald Melzack, who in the 1960s co-authored a ground-breaking theory of pain that focused chiefly on the modulation of nociceptive impulses, now works with quadriplegics suffering complete, verified severing of the spinal cord. No nociceptive impulses from the periphery can reach the cortex, yet these patients still feel pain. For Melzack, the main focus of pain research has shifted to the brain's neuro-matrix of interconnections, and it does not surprise him that scientists shy away from this complex region. "It is difficult," he says, "to deal with such problems as consciousness, awareness of one's own body, and the brain's capacity to create perceptions, memories, and every other aspect of cognitive activity." Although undeniably subject to biological laws, human consciousness opens out finally onto the changing historical field of culture, where the difficult influences that modulate pain mount exponentially.

Difficulties, however, are preferable to errors or illusions. In 1896 the world-famous neurologist and popular novelist S. Weir Mitchell appeared at Massachusetts General Hospital on the 50th anniversary of Ether

Day. The annual Ether Day rite commemorated the first public demonstration of the surgical use of ether, a near miraculous breakthrough—at Mass General in 1846—that spared later patients wide-awake incisions, unanesthetized amputations, and, not infrequently, death by shock. Mitchell read to the assembled medical audience a poem he had composed for the occasion, entitled "The Birth and Death of Pain." It included these bold, prophetic lines:

Whatever triumphs still shall hold the
mind,
Whatever gift shall yet enrich mankind,
Ah! here no hour shall strike through all the
years,
No hour so sweet as when hope, doubt,
and fears.
'Mid deepening stillness, watched on
eager brain,
With Godlike will, decree the Death of Pain.

Pain did not die with the advent of effective surgical anesthesia. If anything, it has multiplied alarmingly. For that reason, among others, new wonder drugs to kill pain may now be less important than a recovered understanding of pain's connections with what we think and what our cultures say.