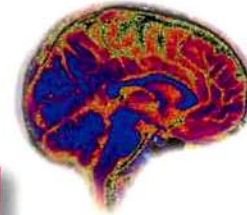


Candace B. Pert, Ph.D.

Foreword by Deepak Chopra, M.D.



Molecules of Emotion

THE SCIENCE
BEHIND MIND-BODY
MEDICINE

“Candace B. Pert . . . has managed to take the study of the
emotional connection to the body . . . and present this information in not only
an understandable manner, but an enjoyable one.”

—Caroline Myss, Ph.D., author of *Why People Don't Heal and How They Can*

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THE RECEPTOR REVOLUTION: AN INTRODUCTORY LECTURE

SCIENTISTS, by nature, are not creatures who commonly seek out or enjoy the public spotlight. Our training predisposes us to avoid any kind of overt behavior that might encourage two-way communication with the masses. Instead, we are content to pursue our truth in windowless laboratories, accountable only to members of our highly exclusive club. And although presenting papers at professional meetings is encouraged, in fact required, it's rare to find one of us holding sway to standing-room-only crowds, laughing, telling jokes, and giving away trade secrets.

Even though I am a long-standing club member and bona fide insider myself, I cannot say that it has been my trademark to follow the rules. Acting as if programmed by some errant gene, I do what most scientists abhor: I seek to inform, to educate, and inspire all manner of people, from lay to professional. I try to make available and interpret the latest and most up-to-date knowledge that I and my fellow scientists are discovering, information that is practical, that can change people's lives. In the process, I virtually cross over into another dimension, where the leading edge of biomolecular medicine becomes accessible to anyone who wants to hear about it.

This mission places me in the public spotlight quite often. A dozen times a year, I am invited to address groups at various institutions, and so, when not engaged in my work at Georgetown University School of Medicine, where I am a research professor in the Department of Biophysics and Physiology, I go shuttling from coast to coast, sometimes even crossing the great blue waters. It was never my plan to become a

scientific performer, to act as a mouthpiece for educating the public as well as practitioners in the alternative health movement, so wed was I for most of my career to the mainstream world of the lab and my research. But it's been a natural evolution, and I am now at home in my new role. The result of translating my scientific ideas into the vernacular seems to have been that my life in science and my personal life have transformed each other, so that I have become expanded and enriched in myriad unexpected ways by the discoveries I've made, the science I've done, and the meaning I continue to uncover.

Writing this book was an attempt to put down on paper, in a much more detailed and usable form, the material I've been presenting in lectures. My goal in writing, as in speaking, was twofold: to explain the science underlying the new bodymind medicine, and to give enough practical information about the implications of that science, and about the therapies and practitioners embodying it, to enable my readers to make the best possible choices about their personal health and well-being. Perhaps my journey, intellectual as well as spiritual, can help other people on their paths. And now—on with the “lecture”!

ARRIVAL

Whenever possible I try to arrive at the lecture hall early, before the members of the audience take their seats. I get a thrill out of sitting in the empty room, when all is quiet and there exists a state of pure potentiality in which anything can happen. The sound of the doors swinging open, the muffled voices of the crowd as they file slowly into the room, the clinking of water glasses and screeching of chairs—all of this creates a delightful cacophony, music to my ears, the overture for what is to come.

I watch the people as they move toward their seats, finding their places, chatting with a neighbor, and getting comfortable, preparing themselves to be informed, hopefully entertained, unaware that my goal is to do more: to reveal, to inspire, to uplift, perhaps even to change lives.

“Who's this Candace Pert?” I may ask, retaining my anonymity as I playfully engage the person now seated next to me. “Is she supposed to be any good?” The response is sometimes informative and always amusing, allowing me a brief entry into the thoughts and expectations of those I am about to address. I nod knowingly in response and pretend to arrange myself more comfortably, more attentively.

I often find myself addressing very mixed audiences. Depending on the nature of my host's organization, the crowd is either weighted toward mainstream professionals—doctors, nurses, and scientific researchers—or toward alternative practitioners—chiropractors, energy healers, massage therapists, and other curious participants—but frequently includes members from both camps in a blend that can best be described as the Establishment meets the New Paradigm. This sort of composition is very different from the more homogeneous audiences present at the hundreds of talks I've given over the past twenty-four years to my fellow scientists, colleagues, and peers. For them, I deliver my more technical remarks in the language of the club, not needing to translate the code we all understand. I still address such groups, making the yearly round of scientific meetings, but now I also venture into a foreign land, where few of my fellow scientists dare—or wish—to go.

Breathing deeply for a moment or two, I relax into my seat and close my eyes. My mind clears as I offer a brief prayer to enter a more receptive state. Calling on an intuitive sense of my audience's expectations and mood, I can feel the wall coming down, the imaginary wall that separates us, scientist from lay person; the expert, the authority, from those who do not know—a wall I personally stopped believing in some time ago.

THE AUDIENCE

As the room fills, I can feel the excitement building. When I open my eyes and glance around at one of these mixed crowds, I notice first that, in marked contrast to the more scientific gatherings, there are usually large numbers of women present. It still surprises me to see so many of them, dressed beautifully in their flowing California-style robes of many colors. I am always stunned by the many shades of purple in their dress, more shades than I ever knew existed! Then, looking beyond the surface, I try to assess the various components of my audience and what might have motivated them to come today.

My attention goes first to the doctors and other medical professionals, whose contingent is almost always dominated by males. The men sit erect in their well-tailored dark suits and crisp white shirts, while nearby their female counterparts look officiously around, checking the room for the faces of their colleagues.

Scattered more sparsely throughout the room are the neophytes, earnest young men and women with packs on their backs and dreams in

their eyes. Their posture is perky and eager, revealing their sincerity and also their uncertainty about what they want or where they are going.

As the room settles and voices are hushed to a low din, I wonder: What do all these people expect me to tell them? What do they want to know, what are they hoping for?

Some are here because they saw me on Bill Moyers's PBS special *Healing and the Mind*, a program that also included segments with Dean Ornish, Jon Kabat-Zinn, Naomi Remen, and a number of the other doctors, scientists, and therapists who are trying to make the same mind-body connections that have become my life's work. Being interviewed by such a well-informed, receptive journalist made it possible for me to speak of the molecules of mind and emotion with a passion and humor not ordinarily associated with medical research scientists. I tried to make it easy for a television audience to understand the exciting world of biomedicine, molecular theory, and psychoneuroimmunology, revealing information usually shrouded by an impenetrable language, letting them know that they have a stake in understanding this body of knowledge, because it could give them the power to make a difference in the state of their own health.

The physicians, nurses, health care professionals—what brings them out? Have they touched on some new situation that their current knowledge cannot explain? Many of them know me as a former chief of brain biochemistry who toiled at the National Institutes of Health for thirteen years, demonstrating and mapping biochemicals I later came to call the physiological correlates of emotion. Some may know that I left the National Institutes of Health when I developed a powerful new drug for the treatment of AIDS and couldn't get the government interested. All of them seem to be aware that science marches on, and that much of what they were taught in medical school twenty years ago, even ten years ago, is no longer current, even applicable. They know that my work is in a breaking field—no less a chronicler of contemporary culture than Tom Wolfe himself has pronounced neuroscience the “hottest field in the academic world” in a recent issue of *Forbes*—and that it's just now finding its way into medical schools around the world.

Then there are the many massage therapists, acupuncturists, chiropractors—the so-called alternative medicine practitioners who offer their patients approaches that are not part of the mainstream. I'm aware that these people have been marginalized for years, rarely taken seriously by the powers that be—the medical schools, insurance companies, the American Medical Association, the Food and Drug Administration—

although it is well documented that the public spends billions yearly on their services. Later, in the Q&A sessions that follow the talks, they tell me they believe I have done the research that will lead to the validation of their theories, their beliefs. They have read about my theory of emotions, about how I have postulated a biochemical link between the mind and body, a new concept of the human organism as a communication network that redefines health and disease, empowering individuals with new responsibility, more control in their lives.

The philosophers, the seekers, they're here too. Some are very silent—listeners, not talkers—these pale, earnest young men and women who tell me after the lecture that they've been traveling in India or living in Asia. They see my work as proof of what their gurus and masters have long been saying, and they want more answers, perhaps about the meaning of it all. Maybe they've heard me quoted as the scientist who said “God is a neuropeptide.” They know I'm not afraid to use what most scientists consider a four-letter word—soul—in my talks, and they want me to address their spiritual questions today.

Many come simply because they are curious. Perhaps they've heard of my reputation as a young graduate student who laid the foundation for the discovery of endorphins, the body's own pain suppressors and ecstasy inducers. Or they may know me as the young woman who was passed over for a prestigious pre-Nobel Prize and dared to challenge her mentor for the recognition she felt she deserved. They may recall how the resulting front-page controversy exposed a system that was sexist and unjust at its core, and caused a shake-up that embarrassed a medical dynasty.

Others are here because they need to have hope. The sick, the wheelchair-bound, I see them positioned on the aisles, near the doors. They know I've been on the cutting edge with my research, crossing disciplines and researching for breakthroughs in cancer, AIDS, mental illness. I always feel a little nervous when I see them sitting in my audience. Are they expecting me to deliver their miracle cure like a preacher at a revival meeting? *Hope* is a dirty, rarely uttered word in the circles I frequent, and it still tugs uncomfortably at my self-image as a scientist. To think I'm being viewed as a healer—God forbid, a faith healer! Yet I can't ignore the expressions of desperation and suffering that I see on their faces. Information. Yes, at least I can give them that, something they can use in seeking alternatives, these people for whom mainstream medicine offers no further answers, no treatment, no hope.

Regardless of their profession, orientation, or expectations emo-

tional or intellectual, I've come to believe that most of the lay people who find their way to my lectures are hoping to hear science demystified, de-jargonized, described in terms they can understand. They want to be more in control of their own health and to learn more about what is going on in their own bodies, and they have been deeply disappointed, disillusioned by the failure of science to deliver on its promises to provide cures for the major diseases. Now they want to take back some power into their own hands, and they need to know about what the latest scientific discoveries mean for obtaining optimal health.

Perhaps you, my reader, see yourself in one or more of the groups described above. If so, I hope for your sake, as I always hope for the members of my audiences, that some part of the information presented in this book will make a difference in your life.

TAKING THE STAGE

A sudden hush descends on the room, catching me off guard, and my head turns as I glimpse a figure walking slowly across the stage toward the spotlit podium. What follows is generally a lavish detailing of my list of accomplishments. I feel genuinely moved by the appreciation expressed by my host or hostess, but always a bit embarrassed and undeserving of such flattering words.

Over the years, I've learned to keep my ego reigned in by saying a quiet blessing during these introductory remarks. I ask that I not be cowed by my mission, nor swept up in it. I remind myself that, in spite of the spotlight I am about to step into, first and always I am a scientist, a seeker of the truth—not a rock star! I silently vow that I won't let any of this go to my head—although that could easily happen, and did happen occasionally at one time.

At last I hear my name and rise from my chair to begin the long walk onto the stage. I remember to breathe deeply as I pass the front row and feel all eyes in the room turn to focus on me. A few whispered words reach my ears as I move along: "There she is! Is that her? She doesn't look like a scientist!"

What did they expect? I wonder with an inward chuckle. I am still a woman, a wife, and a mother. Don't I fit their pictures of the scientist? Of course, they have their own ideas, and many of them fit the standard cliché of the conservatively dressed, intense-looking, usually male scientist. Not too long ago, I wore those serious little boxy suits, the dress-for-success uniform, conforming to the more buttoned-down image people

expect. But now, my own transformation is boldly reflected in the way I present myself, an image that better matches my message these days. In keeping with the evolution of my scientific ideas, my dress has evolved so that I now look more like the ladies in the flowing robes, my clothes looser and more colorful, more comfortable, even more purple! These days I dare to be more outrageous, although those who know me insist that outrageousness has always been the hallmark of my personality, however submerged I've tried to keep it at times to survive.

Taking my place at the podium, I wait while the technicians fumble with my mike and make last-minute adjustments to the projection screen at my side. As I look out on the sea of upturned faces, I am struck by how perfectly still people sit. I know they won't move until I crack a joke, giving them permission to enjoy themselves and explode in laughter, animating the room and filling it with energy.

My audience is ready and so am I—hundreds, sometimes thousands of people are seated before me waiting for my words. I take one last minute to focus inwardly on my mission: to tell the truth about the facts that were discovered by my colleagues and myself. First and foremost, I am a truth-seeker. My intention is to provide an understanding of the metaphors that express a new paradigm, metaphors that capture how inextricably united the body and the mind really are, and the role the emotions play in health and disease.

The house lights dim as I clear my throat and my first slide comes up on the screen.

SETTING THE TONE

There is something incredibly intoxicating about standing in front of a huge room full of people who are all laughing uproariously. I have become quite addicted to this experience, ever since 1977 when I gave a lecture to the National Endocrine Society and accidentally brought down the house with a joke that was intended to cover a mistake I'd made. Now I don't waste any time. I start right off with a cartoon that never fails to elicit hearty, if sometimes nervous, laughter.

My first slide looks like this:

