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*“Worlds
are created by
brains”*

Is the Brain Stuff Still the Right (or Left) Stuff

Of what value is the research and theories into the ways of the brain? Well, that depends on whom you ask. Some have taken it as their task to purge any vestige of brain dominance theory from modern psychology. (See *T&DJ*, November 1985.) But here, Dudley Lynch offers the evidence that may prove such research valuable, for HRD and a host of other fields.

By DUDLEY LYNCH

Almost a decade ago, theorist Henry Mintzberg praised the "split-brain" idea in *you know which* business review, and suddenly it was permissible to talk about management and the brain. Right away the dividing of the property began. Men generally took the left hemisphere and women the right, intellectuals the frontal lobes, Win-Winners the limbic circle and Neurolinguistic Programmers the reticular activating system. Many miracles were claimed.

So where are we, ten years later? In the human resource sphere, has the brain persevered and blossomed as a model of some endurance? Or, as Daniel Goleman warned in a 1977 issue of *Psychology Today* that it probably would, has the brain joined pet rocks, T groups and backyard nuke shelters as a victim of the fad-producing virus, *instantaneous overkillus*.

How to answer depends on what we mean by "the brain stuff." Let's look at a few examples.

The right brain/left brain phenomenon, Dr. Goleman and others to the contrary, has proved incredibly durable. Even the medical community is often found climbing aboard the Wagon of the Oppositional Hemispheres today, apparently finding the idea greatly legitimized by Dr. Roger Sperry's 1981 Nobel Prize for split brain research. For example, the July 1985 issue of *Psychiatric Annals* devoted its entire issue

to "The Question of Laterality" (and in the process demonstrated once more just how "left-brained" physician/researchers can be; one memorable paragraph was nearly 1,650 words long and covered parts of three pages). Cardiologist Meyer Friedman is another laterality "believer," suggesting that Type A behavior is a result of an overdeveloped left brain, which he says sees life only as a continuous stream of competitive numbers.

The blanket tendency to lay all ills of westernized culture, management theory, and organizational habits at the door of the left brain has, however, dwindled. Ideological burnout? No, actually you can credit serious research. The more we learned about the nature of right-brain processing, the less enthused we became at uncritically accepting the answers posed by The Aquarian Conspirators. Put the left hemisphere to sleep with sodium amytal, and you find that the unregulated right brain is a swamp of unpredictable, often moody, even messianic chemicals. Nothing you would want to take to Wall Street.

Also, in a bold and controversial new book, *The Social Brain*, split-brain researcher Michael S. Gazzaniga argues that the left brain does more—much more—to shape its world than just control speech: It also controls the formulation of beliefs by providing a language-tissues-related "interpreter" to explain what the brain's many behavior-producing modules are up to. If you have to make a choice between hemispheres, the emerging evidence says, in the strongest terms, "Keep the left half of

the brain, not the right!" (Choicest of all, though, remains the idea of lifelong, up-down, left-right, front-back, past-future, neurosomatic, neuroelectric, and neurogenetic development, for each and every individual brain.)

Many of the initial brain enthusiasts—from HRD practitioners to public school educators to professional self-helpers—viewed the brain function inquiry primarily as a way to develop the creative mind. But preachers often failed to practice. Borrowing each other's exercises and illustrations outrageously, everyone copied everyone. The outcome was Jacquelyn Wonder's and Priscilla Donovan's *Whole-Brain Thinking*, which contained a revealingly thorough assortment of "split-brain" stories, techniques, drawings, and claims handed from facilitator to facilitator over the past ten years. The book was a kind of valedictory to that era.

Various sectarian varieties developed out of the brain movement, and many continue yet, their disciples often fervid believers in brain-change possibilities. Most see their protocols as instruments for expanding or harnessing the unconscious. Some want you to fire-walk or break thick boards with bare fists. Others seek to recapitulate your phylogeny in a weekend seminar that moves from fish to primate to "you." From a mainstream corporate stance, however, most of these approaches are viewed as an extravagance.

The NLP crowd has its foot in the organizational door, perhaps because its theories and techniques make a lot of com-

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mon sense. Its feuds between competing camps, however, are already legendary. One reason for all the discontent—and the damage it brings—is that the entire movement is a sometimes angry revolt against the psychological establishment, and a great many NLPers are psychological professionals. Rebels, of course, breed rebellion.

Accelerated learning is another brain offshoot. It started with Georgi Lozanov's suggestopedia ideas. The Ostrandors (Sheila, Lynn and Nancy) made it fashionable for a time with their near-best-seller, *Super-Learning*, published in 1979, but the method's claims never quite proved out. More conventional speed-learning practitioners are now bringing knowledge-

behavioral to the social sciences. The result is an unprecedented "kind of scientific migration," as Hamburg called it, toward the brain as a focus of inquiry.

If HRD's theorists and practitioners choose to join the migration in a big way, what will they find? For one thing, a lively debate goes on over just how primary, or basic, is the brain's made-to-order version of what philosophers (and physicists) call middle-order reality. Does the brain, in other words, synthesize a certain kind of optical world simply because space/time and causality have proved so convenient in handling the demands of middle-order living? If so, then the brain may have evolved this mode of "seeing" adaptively. If so, then HRD must persuasively develop new

weirdness," they are routinely triggering new "ahas!" even for their designers.

Brain creativity

Common to each model is the idea that Douglas Hofstadter espouses in his Pulitzer Prize-winning book *Godel, Escher, Bach: An Eternal Golden Braid*. The idea, as voiced by his brilliant Mr. Tortoise, is that "the top level [of the mind] pretty much has to wait for decisions to percolate up from the bottom level" and that "when reasons collide, the real battleground is not at the verbal level; it's really a battle between opposing armies of neurally coded memories, residual atavistic fears, and ancient biological realities."

Brain theorists are attempting to model Immanuel Kant's reality-channeling "I"—or the process that Hofstadter's Tortoise has just described—so that we have a better feel for what kind of world a given brain can be expected to create. Knowing that, then we can expect to be more proficient at educating, managing, and rewarding the brain in question.

Viewing the brain as a focusing process that creates its own kind of world, we have begun to explore the meaning and applicability of ideas such as these:

■ *The single most descriptive thing we can say about an individual brain in an organizational context concerns its sense of the future.* Physicists like Dr. Fred Allan Wolf (particularly in his latest work, *Star Wave: Mind, Consciousness and Quantum Physics*) suggest that in the world of the quantum, it is the present that creates the past and the future that creates the present. Wolf believes these are also principles of mind. And our own work, in modeling decision-making from a brain perspective, shows agreement.

In fact, it now appears that the greatest psychological leap of the species lies between those brains that are capable primarily of creating the past out of the present and those brains capable of creating the present out of the future. That gap seems to occur at the farther edge of Maslow's "self-actualization." Thus those brains that have moved "beyond self-actualization" offer our organizations the best shot at creating futures where many of our current problems drop out.

The organizational challenge becomes one of identifying these individuals, providing the resources they need, and managing them in accordance with worlds their brains create. Plus—in no way incidentally—finding ways that they can coexist politically with others whose brains are

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mastery techniques long used by good elementary school teachers into the corporate learning environment, using the brain umbrella.

When summed, these clusterings of effort and enthusiasm, varied as they are, add up to a consequential development. In answer to the question, "Where are we?" brain-streamers can reply, "While it hasn't been particularly pretty, our effort of the past decade has put us at a timely threshold. We appear on the verge of offering HRD a major candidate for replacing such fraying-at-the-edges approaches as Theory Y, the various grids, and the self-actualization/participatory-management models."

Present theory and HRD

Not all of this opportunity is strictly of our own making. Call some of it luck. In the decade since the first brain presentations at HRD conventions, the brain itself has emerged as the *wunderkind* of scientific inquiry. If HRD decides to make the brain a major player for the remainder of the 20th century, it hardly will be alone. At this year's annual meeting of the American Association for the Advancement of Science, President David Hamburg observed the outpouring of current brain research and noted, "We're in the midst of as dramatic a transformation as has ever occurred in science."

In a virtual eye's blink, the brain has come to dominate many avenues of scientific inquiry—from the physical to the

understanding, new uses, and new forms of experimentation for modes and mechanisms of knowing. Unlike milk, the world appears less and less a homogenized place.

Yet, the field of HRD remains anchored in what Dr. Alex Comfort, in *Reality and Empathy: Physics, Mind and Science in the 21st Century*, calls "the hard-hat model of an objective reality." Reading HRD's major theorists, you would never suspect that modern physics has just spent 85 years overthrowing the idea that the brain merely threads its way through a ready-made world.

Comfort, a physician, biologist, and neuropsychologist who predicts that the study of introspection will dominate scientific inquiry in the next century, says flatly, "Worlds are created by brains."

Now that it is finally dawning on us that the few physical processes uncovered by physicists in the subatomic world are also at work in our own heads, we stand poised at a major transformation in thinking about how we think. Since HRD is primarily head work, a reformulation high on the Richter Scale is probably just ahead in our basic constructs about learning, organizing, and managing.

For a preview, HRD practitioners might wish to look at some of the brain models developed for use in the organization in the past decade. Looking back, we'll no doubt find them simplistic or partial. But they are a start, and now that we are beginning to interpret them in light of what Dr. Heinz Pagels in *The Cosmic Code* called "quantum

creating different, less future-oriented realities. In a personal sense, the challenge is one exploring the limits and, if they beckon, mustering the commitment, insights, and techniques to trigger an individual reframing of capabilities.

■ *The most distinctive quality occurring within various brain-values or belief systems that we find in organizations is what the brain does with new information.* In the Kins-Person, or tribalistic, brain-values system, new information is nearly always "offered up to the gods." Thus there is no way to create a new order since the brain subconsciously subsumes all new information as opposed to being transformed or enlightened by it.

In what continues to be the most heavily populated, Industrial Age brain-values system, the Cautious/Careful or loyalistic, new information is severely judged by whether it meets the approval of authority. Obviously, there is little room here for transcendence. Thus, despite signs of danger, military-trained pilots may fly airliners into severe thunderstorms at a cost of many lives. Politicians and their backers will defend a policy like apartheid, while a nation disintegrates. And domestic manufacturers will continue to produce goods of insufficient quality while better-made foreign goods flood their markets.

Once again, not until we cross that Rubicon to the bank where we are at home easily creating the present out of the future do we encounter brains adept at reframing. These brains—called the Choice-Seekers, the Integrateds or the Systemics in our brain-values systems—react to new information by using it immediately to reconstitute a "new world," one constructed of the most apropos ingredients available. Since an Age of Information encourages flux, these brains are very much at home juggling the age's many formulas.

■ *Altering the brain's ability to process change requires increasing its processing options.* The key to ratcheting our own brains "up" the double helix (as Dr. Clare Graves termed it) of increasing conceptual (or information processing) skills is to use our brain powers to do different things.

In the physical world, we seek to understand by working with principles of time, space, energy, and wavelength. In the mental world, we work with values, experience, intuition, and affects. Some brains lock in doubly hard on values; they go to great ends to think things through and control events. Others swear by the experience; what they want, they go for. Still others excel at intuiting; they are constant

seekers. And those who feel most deeply establish the strongest likes and dislikes.

By concentrating on one form of processing, the brain leaves great gaps in its understanding. The I-control-processing brain knows little of easy emotions, open-ended questions, or failing without guilt. The I-explore-processing brain lacks knowledge of systematic inquiry, stabilized beliefs, or a sense of completeness. The I-pursue-processing brain fails to appreciate elaborate explanations, strangeness as a goal, or unnegotiated outlooks. And the I-preserve-processing brain leaves undiscovered such experiences as neutrality of knowledge, argument as an exercise in rhetoric, and a balanced view of possibilities.

Each of these preferred domains of information processing produces vulnerabilities for the organization whose brains adopt them. One promising method for creating alternative futures is to take the viewpoint of a processing approach not normally used. Another advantage of this model is that by coaxing ourselves to engage in activities that require an alternative way of processing information, we gain new perspectives. Maybe even new energies. With both, we have hope of breaking into a new brain-values system.

■ *We can change the future of our organizations as quickly as we can change their minds.* Believing this, we turn with a new seriousness to the findings of cognitive psychology, quantum physics, artificial intelligence, neurochemistry, philosophy, religion, and any other source useful in guiding us to a better understanding of how people think.

From a political scientist like Robert Axelrod, we learn that we can promote cooperation among egoists without a strong central authority—no more than 5 percent of the population need act cooperatively. From a quantum physicist like Wolf, we learn that there is no "out there" out there—that is, something absolutely concrete, anchored in an objective reality that exists immutably, unchangingly, completely independent of who you are, what you think, and how you are responding.

From a psychologist like Hunter Shirley, we learn that the entire body is a "cognitive envelope" constantly flashing preverbal clues as to what the mind is hatching. From an information systems expert like Walter Lowen, we gain knowledge of how memory specializes and once biased, puts its indelible design on everything it touches. From psychologist Goleman, we learn how the mind protects itself against

anxiety by policing awareness. Educator Lawrence Kohlberg keys us to a dominion of rationality where, for those who reach it, the brain instantaneously formulates universal moral principles adequate for most any occasion or challenge.

The Italian economist Pareto reminds us that 80 percent of an organization's problems often are caused by 20 percent of its activities. Armed with the new brain approaches, insights, and models, we have reason to be optimistic that we can develop at least 20 percent of its brains to where they can handle at least 80 percent of the problems.

If this is achieved, it will buy time for the rest of us—or buy peace. The more adept we become at understanding the differences between brains and the kind of world they create, the better we should be at what the modern manager is essentially paid to do: establish environments where the work can be done humanely, cost-effectively, and efficiently and with satisfaction in the achievement.

For further reading:

- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books. Using a computerized tournament in which entries from several countries twice played a deceptively simple game called the iterated Prisoner's Dilemma, political scientist Axelrod demonstrates how easy and wise it is for cooperation to evolve between egoists even in the absence of a central authority.
- Comfort, A. (1984). *Reality and empathy: Physics, mind, and science in the 21st century*. Albany: State University of New York Press. A penetrating book on the dangers of being blind-sided by a worldview. Dr. Comfort suggests that the great scientific explorations of the 21st Century will be into the nature of introspection—into the mechanisms used by the human brain to construct its understanding of what is real. For serious students of mind only.
- Corballis, M.C. & Beale, I.L. (1983). *The ambivalent mind*. Chicago: Nelson Hall Inc. Just how basic is right-handedness and left-handedness—that is, a fundamental imbalance—in nature? These authors probe not only brain findings but also findings at the biochemical and molecular level. Their suspicion: that there is an absolute, universal distinction between left and right.
- Freeman, W. & Watts, J. (1950). *Psychosurgery In the treatment of mental disorders and intractable pain* (2nd ed.). New Haven: Yale University Press. An explanation of psychiatric surgeon Freeman's ideas, based on his studies of prefrontal lobotomy patients, of a functional, latitudinal "split-brain"—one that divides duties between the frontal lobes and the posterior cortex. For serious students of mind only.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books. Harvard psychologist Gardner challenges the long-prevalent idea that a single test for intelligence is sufficient by arguing that we are all born with the potential for a multiplicity of intelligences.

Gazzaniga, M.S. & LeDoux, J.E. (1978). *The integrated mind*. New York: Plenum Press. This book was celebrated by many as an antidote to the pop psychological theories generated by the so-called "split-brain" studies. The authors developed an "integrated" view of mind using findings from split-brain patients but ended up with a theory some consider even more bizarre than those they set out to challenge: the view that a person is a conglomeration of selves—a sociological entity.

Goleman, D. (1985). *Vital lies, simple truths: The psychology of self-deception*. New York: Simon & Schuster. A fascinatingly novel look at the way fixed patterns of thought guard the access ways to the mind. Why? Perhaps the secret lies in the fact that the same brain hormones control both attention and pain.

Halstead, W.C. (1947). *Brain mechanisms and intelligence*. Chicago: Chicago University Press. Based on his study of the psychological testing of prefrontal lobotomy patients, neuropsychologist Halstead proposes that a higher form of intelligence awaits in the frontal lobes for those who cultivate it. For serious student of mind only.

Hofstadter, D.R. (1979). *Gödel, Escher, Bach: An eternal golden braid*. New York: Basic Books. A prize-winning classic—all 777 pages of it—that explores Hofstadter's intuition that consciousness results as the brain explores itself in a kind of Strange Loop that sets up a self-reinforcing "resonance" between its many levels. If that's not clear, then credit yourself with stumbling over the first of Hofstadter's many difficult but entertainingly juggled, ideas. For serious students of mind only.

Hunt, M. (1982). *The universe within*. New York: Simon and Schuster. A popularized look at the findings of cognitive science—the study of the fun-

damental workings of mind. Hunt's book offers a new appreciation for just how intricate and mentally capable our minds are.

Kohlberg, L. (1985). *The psychology of moral development*. New York: Harper & Row. The second volume of essays on Kohlberg's theory that moral development takes place in stages, if indeed it takes place.

Konner, M. (1982). *The tangled wing: Biological constraints on the human spirit*. New York: Holt, Rinehart and Winston. A detailed, inquiring examination of the barriers to progress and reasonableness built into human biology.

Lowen, W. (1982). *Dichotomies of the mind: A systems science model of the mind and personality*. New York: John Wiley & Sons. At times aided by the split-brain findings, at times by psychological findings, and at times by his own theories on artificial intelligence, Lowen develops point-by-point, page-by-page, a conceptual model for the functioning of mind. For serious students of mind only.

Loye, D. (1983). *The sphinx and the rainbow*. Boulder: Shambhala. A futurist surveys the models and mechanisms of "forward-seeing" from perspectives ranging from brain physiology to holography to quantum physics.

Luria, A.R. (1973). *The working brain: An introduction to neuropsychology*. New York: Basic Books. Among other insights, the noted Soviet neuropsychologist discusses his findings that the frontal lobes are related to adult intelligence. For serious students of mind only.

Lynch, D. (1984). *Your high-performance business brain: An operator's manual*. Englewood Cliffs, N.J.: Prentice-Hall. This bottom-line look at business and the brain synthesizes 20 years of key

discoveries, including the provocative thesis that the brain is evolving psychologically.

Pagels, H. R. (1982). *The cosmic code: Quantum physics as the language of nature*. New York: Simon and Schuster. A pellucid account of 20th century physics' world of "quantum weirdness"—often praised as the most balanced and most careful narrative yet written on the subject for lay people.

Segalowitz, S.J. (1983). *Two sides of the brain*. Englewood Cliffs, N.J.: Prentice-Hall. Perhaps the best of all the pocket books when it comes to dividing the "split-brain" claims into those backed by strong, scientific findings and those that fall between conjectures and the possible.

Shirley, H.B. (1983). *Mapping the mind*. Chicago: Nelson-Hall. An explanation of Shirley's "psycho-vector" theory of mind based on years of observing signalling behavior observed in extensive field studies in Europe and Africa. For serious students of mind only.

Smith, A. (1980). *The mind*. New York: The Viking Press. A noted British science writer, convinced that all of us have far more brain capacity than we've managed to use, introduces us to a great many facts about this organ.

Springer, P. & Deutsch, G. (1981). *Left brain, right brain*. San Francisco: W.H. Freeman. Going back a hundred years, these authors critique a wide variety of materials on hemispheric asymmetries—the split-brain approach—and give their measured estimate of what is fact and what is speculation.

Wilber, K. (Ed.). (1982). *The holographic paradigm and other paradoxes: Exploring the leading edge of science*. Boulder: Shambhala. Another effort—and a wide-ranging one—by writer/editor/thinker Wilber to discourage "pop mysticism" and all other ideas suggesting that to know the answers to the New Physics is to know the answers to the nature of God and other perennial conundrums.

_____, Ed. (1984). *Quantum questions: Mystical writings of the world's great physicists*. Boulder: Shambhala. Wilber lets some of the 20th century's leading physicists debunk the idea that quantum physics offers us an explanation of mystical religious insights.

Wolf, F.A. (1985). *Star wave: Mind, consciousness and quantum physics*. New York: Macmillan. A highly original work that uses the findings of quantum physics as the basis for explaining the emergence and workings of mind. For serious students of mind only.

Wonder, J. & Donovan, P. (1984). *Whole-brain thinking: Working from both sides of the brain to achieve peak job performance*. New York: W. Morrow. These authors stake out their turf so that right brain activity is intuitive and left brain activity is efficient and carve the world of business up in very readable fashion accordingly.

Yaker, H., Osmond H., & Cheek, F. (Eds.). (1971). *The future of time*. New York: Doubleday. A study of how personalities defined by Carl Jung's personality types differ in their experience of time.

Zdenek, M. (1983). *The right-brain experience: An intimate program to free the powers of your imagination*. New York: McGraw-Hill. Zdenek interviews such people as cartoonist Charles Schultz, dancer Marge Champion, and writer Ray Bradbury on the subject of creativity and then offers 67 "mental exercises that stimulate right-brain activity."

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