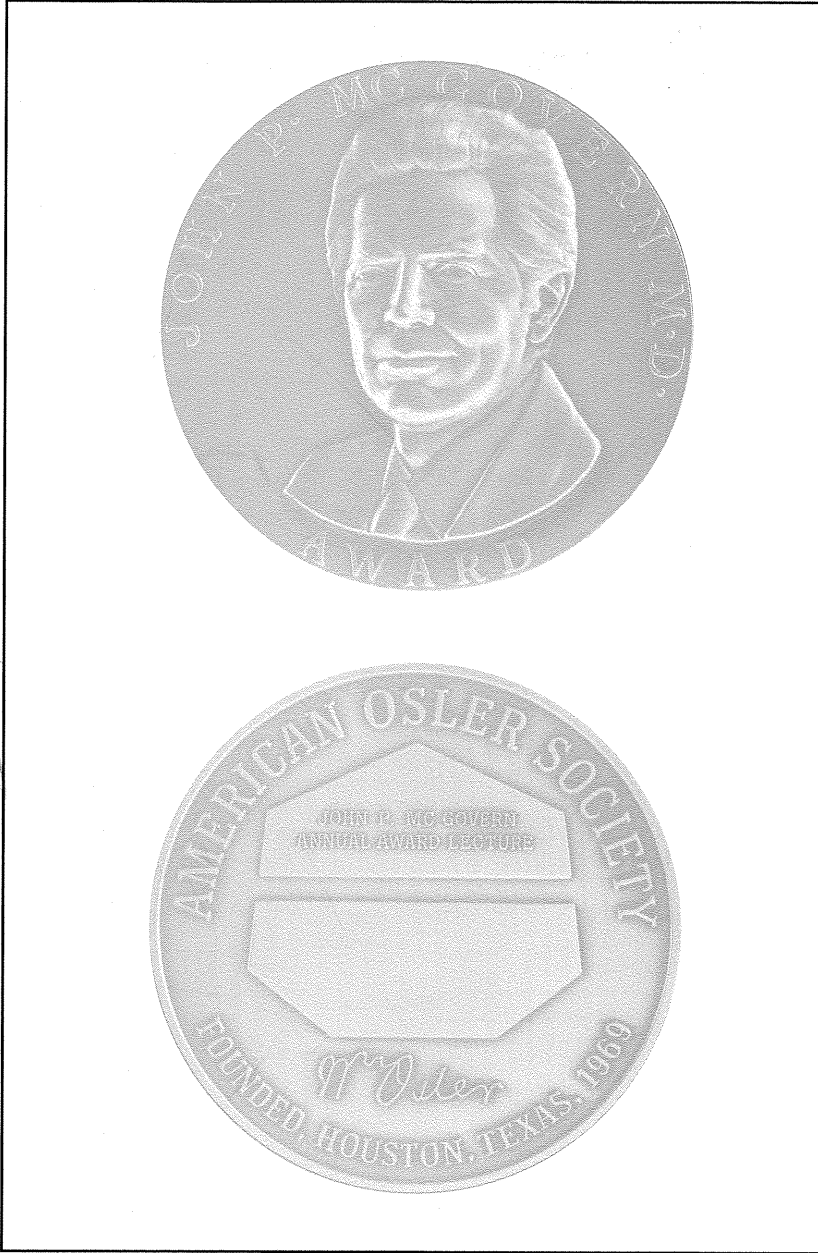


**A Body of Knowledge:
Knowledge of the Body**

*Nuland, Sherwin,
A body of knowledge.*





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JOHN P. MCGOVERN AWARD LECTURESHIPS

1. *Our Lords, The Sick* presented by Albert R. Jonsen, Ph.D., April 12, 1986, in San Francisco, California.
2. *To Humane Medicine: Back Door or Front Door?* presented by Edward J. Huth, M.D., April 29, 1987, in Philadelphia, Pennsylvania.
3. *Medicine and the Comic Spirit* presented by Joanne Trautmann Banks, May 3, 1988, in New Orleans, Louisiana.
4. *The 'Open Arms' Reviving: Can we Rekindle the Osler Flame?* presented by Lord Walton, April 26, 1989, in Birmingham, Alabama.
5. *Rx: Hope* presented by E. A. Vastyan, May 8, 1990 in Baltimore, Maryland.
6. *Osler's Gamble and Ours: The Meanings of Contemporary History* presented by Daniel M. Fox, April 10, 1991, in New Orleans, Louisiana.
7. *From Doctor to Nurse with Love In a Molecular Age* presented by William C. Beck, March 26, 1992, in San Diego, California.
8. *The Heroic Physician In Literature: Can The Tradition Continue?* presented by Anne Hudson Jones, May 12, 1993, in Louisville, Kentucky.
9. *'The Leaven of Science' : Osler and Medical Research* presented by David Hamilton, May 10, 1994, London and Oxford, England.
10. *A Body of Knowledge: Knowledge of the Body* presented by Sherwin B. Nuland, May 10 1995, Pittsburgh, Pennsylvania.

Cover - Obverse and reverse sides of John P. McGovern Award Lectureship commemorative medal which is presented to each annual lecturer.

The Tenth
John P. McGovern Award Lecture



A Body of Knowledge: Knowledge of the Body

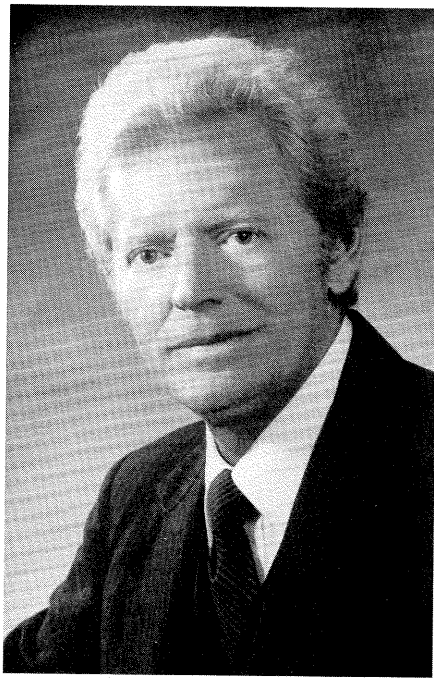
By

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Clinical Professor of Surgery
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New Haven, Connecticut



Delivered 10 May 1995
at the Twenty-Fifth Annual Meeting of the
American Osler Society
Pittsburgh, Pennsylvania

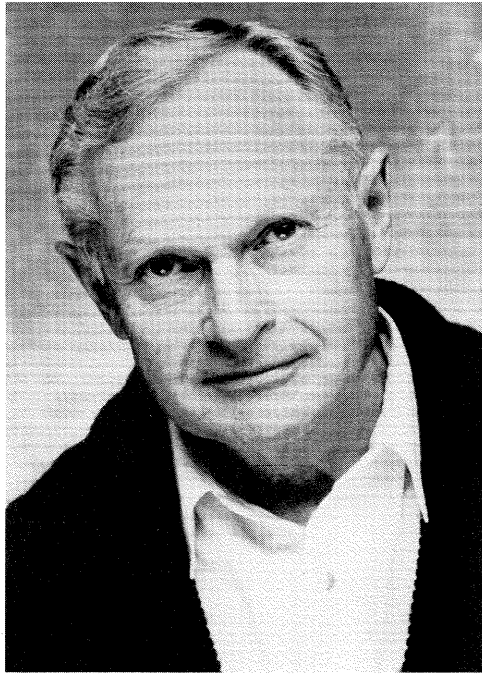
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John P. McGovern, M.D.

JOHN P. McGOVERN AWARD LECTURESHIP

Through the generosity of the John P. McGovern Foundation to the American Osler Society, a John P. McGovern Award Lectureship was established in 1986. The lectureship makes possible an annual presentation of a paper dedicated to the general areas of Sir William Osler's interests in the interface between the humanities and the sciences - in particular, medicine, literature, philosophy, and history. The lectureship is awarded to a leader of wide reputation who is selected by a special committee of the Society and is especially significant in that it also stands as a commemoration of Doctor McGovern's own long-standing interest in and contributions to Osleriana.



Sherwin B. Nuland

SHERWIN B. NULAND

Sherwin B. Nuland is Clinical Professor of Surgery at the Yale School of Medicine, where he has been studying since starting medical school in 1951. A New York native and a product of city schools, he became interested in history at P.S. 33 in the Bronx. He maintained that interest during a thirty year career in surgery during which he not only wrote numerous research and clinical papers, but gradually taught himself to be a medical historian. After contributing to that literature over the course of some years, he wrote *Doctors; The Biography of medicine*, the history of the profession told in the form of the biographies of 14 of its most prominent contributors. Since then, he has written for the *New Yorker*, *Discover*, *The New Republic*, *Time*, *The New York Review of Books*, and several other periodicals for the general reader. His overview of surgery as it has been taught and practiced during the second half of the twentieth century, "A Surgeon's Valedictory," appeared in the Winter 1994 issue of *Perspectives in Biology and Medicine*.

In 1994, Dr. Nuland published *How We Die*, a study of the modern way of death, which astonished him and everyone else by becoming what glib publicists called "a runaway best seller," with more than half a million copies sold in countries throughout the world, having been translated into some 15 languages. It won that year's National Book Award, and was a finalist for the 1995 Pulitzer Prize and Book Critics' Circle Award. The present John P. McGovern Award Lecture is the beginning of Dr. Nuland's gropings toward an understanding of the origins of the human spirit, within the realm of human biology.



Perhaps it is a function of increasing age, but I find myself thinking often these days about the human spirit. Are we indeed greater than the sum of our parts, and is there a quality residing within *Homo sapiens* that distinguishes us, beyond strictly evolutionary characteristics, from all other animals? I mean this in the biological, and not in the theological, sense.

Until recently, I had forgotten that almost ten years ago I had written the following, in the book called *Doctors; the Biography of Medicine*:

I am convinced that there is a biologically determined characteristic that is the human spirit – that there is a gene or genes for it just as surely as there is a gene or genes for the color of our eyes or the length of our fingers. I have no idea whether it was put in place by the power that some call God or the power that some call chance, but it is reproduced within us with the same predictability as the rising and setting sun. It is not our intellect or even our physical structure that is the criterion of our human-ness; man is the most fulfilled animal on this planet because there resides in us the motivating and civilizing force of the human spirit. It gives us the ability to think courageous thoughts, do courageous deeds, and give courageous sustenance to our fellows. I predict that it will one day be the subject of scientific research and validating experiment. ... I don't believe for a minute that minds capable of solving the mysteries of DNA will not, in some distant future, elucidate what are now seen as the miraculous mysteries of human nature. There are, as Goethe tells us, no miracles; there are only those mysteries of nature, and they wait to be solved.

As late as the middle of the 19th century, many authorities, and virtually all plain people too, believed that living things were possessed of an unknowable form of energy that made them vastly different from structures not endowed with life. Because this hypothetical energy was commonly called "the vital force," the scientists and other learned people who trusted in its existence were known as "vitalists". The concept of vitalism stood independent of religious conviction -- there was nothing about it that necessarily required a supernatural or theological explanation. Although some vitalists, starting as far back as Aristotle in the 4th century BC, identified the life force in humans with the psyche, many others thought that it had no connection to mind or soul. Obviously, though, there were those of a less scientific bent who embraced vitalism because of their certainty that the unknown and unknowable factor was God-given.

Many of the secular vitalists were persuaded that the origin of the life force was not explainable by the usual principles of physics or chemistry, but some few of the staunchest proponents of the theory maintained, on the other hand, that it would eventually be shown to be regulated by as-yet undiscovered natural laws. They reasoned that if this proved to be the case, it might then become possible to carry out laboratory studies of this unique form of energy.

The belief in vitalism, at least among scientists, had lost favor by the latter half of the 19th century, as biochemical and physiological elucidations of the characteristics of living things increasingly emerged from the burgeoning numbers of research laboratories making their appearance in Europe and to a lesser extent in North America. The so-called "mechanists," those who sought physico-chemical explanations of life processes, had won the battle and convinced all but a few diehards of their correctness.

And yet, the general notion of vitalism, attenuated though it may be, lives on in the minds of any and all who refuse to believe that there is not more to the phenomenon of life than a series of chemical reactions.

Ranged against the principle of vitalism is an array of evidence so overwhelming that twentieth century scientists have never questioned it. To them, the physico-chemical or "mechanistic" view of life has become

axiomatic. Even stubborn latter-day vitalists cannot question that at the very least the mechanistic bases of life become even more evident with each passing decade.

The characteristics shared by all living things can be listed:

Respiration
Circulation
Responsiveness, or Adaptability
Assimilation
Absorption
Digestion
Excretion
Movement
Growth
Reproduction

This list may serve as a perfectly adequate accounting of all the biological functions that characterize living things, but it should not be mistaken for an attempt to define such an abstruse and immensely complex word as Life. Life is a concept, a philosophy, an abstraction, a point of view -- and also a chimera and a thousand tangibles and intangibles, substantialities and imponderables, appearing quite different from every one of the many angles and along every one of the many axes from which it may be approached.

Even the most detailed mechanistic descriptions of our nuts-and-bolts physicochemistry are missing something, and that something is immense. More than one scientist has expressed frustration with how little is even now known about the *organization* of our biological faculties, functioning with such an integrated degree of coordination that we are capable of what would seem to be mental and physical miracles, not to say spiritual ones, which would appear to transcend the mere interaction of molecules.

Otto Loewi was such a scientist. Loewi was the physiologist who first demonstrated that impulses pass through the gap between nerve cells by

means of chemical substances, rather than via an electrical wave as had been previously supposed. There could not have been a more mechanistic laboratory-produced explanation of a phenomenon that for millennia had been presumed a miracle of inscrutable mystery.

But even in the face of his discoveries, something in Loewi refused to give up his fascination with that mystery. He never lost his sparkling ability to indulge in it, and allowed himself to wonder what else there might be. As a scientist he devoted his life to proving that the totality was no more than the sum of its physicochemical parts, but there were playful elves in his soul, and once in a while he would smilingly say the kind of thing reported by his nephew: "The beauty of the Budapest String Quartet can never be explained by a little acetylcholine in the nerves and muscles." After his death in 1961 at the age of 89, Loewi was quoted by his nephew as having believed that "the life sciences contain spiritual values which can never be explained by the materialistic attitude of present-day science."

Not all of science, of course, is materialistic -- and very few scientists are cynical about the sources of life. Not infrequently, some of the self-same researchers whose career-long work it is to seek out materialistic or mechanistic answers are precisely those most urgently questing after the secret sources of the mysteries; the very wonderment that sustains the ceaseless curiosity of so many researchers is precisely their wonderment at the marvels of nature. Otto Loewi has never been alone in his awe. To search for a biochemical or physical basis for those marvels is not to lessen that awe. In some ways the awe is greater in fact, when it can be shown that no magic is needed to elucidate one or another of nature's closet-secrets. That enormously complex biological interactions are so flawlessly coordinated as to result in such obvious manifestations as human thought is as exciting to me -- actually more exciting -- than such phenomena were when I was a small boy and thought them divinely driven.

What I find most exhilarating is not even the freedom from invoking magic that modern science provides. As paradoxical as it may at first sound coming out of the mouth of a skeptic like me, the ultimate exhilaration derives from my conviction that the whole is greater than the sum of its

parts.

In my view, humankind has adapted to the surroundings in which it finds itself in ways far greater than the mere evolutionary or physicochemical events might have decreed. The physicochemical and genetic may have provided us the basic ability to integrate our mental and somatic functioning, and they may also have given us the inborn ability to adapt, but the very way in which we have made use of that adaptability is the real secret of how our species has transcended the limitations that even our extraordinary molecular function impose on us.

The anatomy of intricate circuitry in our brains and the balance of hormonal controls in our physiology can take us only so far. Millennium by millennium, Homo sapiens has, I believe, built up patterns of anticipatory thought and reflection, and evolved a culture that could not have been predicted relying only on knowledge of our anatomy and physiology. It is necessary to take other factors into account.

To us must go the credit for using our inborn neurological connections and cerebral centers to bring about the real creation -- the creation of humanity from Homo. By the way we have gradually brought ourselves to *utilize* the nature-given complex of molecules and wires, we piecemeal over eons discovered the pathways and linkages within us to develop the qualities of abstract thinking that are the hallmark of our species.

We have sent exploring couriers in the form of electrical impulses, up and down the cerebral highways and into remote junctions, paths, and way-stations. They have returned after finding linkages and routes that we then employed to provide us with memory, foresight and reflection. With memory, foresight and reflection we were able to build a logical pattern of evaluating the evidence of our senses and employing it in decision-making. That power might not necessarily have arisen, though the strictly physical equipment for it was in place. By a process of chance, by trial and error, by firing and misfiring among the ten billion brain cells and their thousand times that many connections to each other (amounting to some ten trillion in all), we have made unanticipated albeit not consciously recognized discoveries and thereby adapted to what nature originally gave us with the

intention only of helping us to survive and reproduce.

In coming upon and utilizing a myriad of local electrical circuits organized into interconnecting regions and systems in our brains, and by turning our hormonal capabilities to uses beyond the basic needs of passing on the DNA, we have created humanity and all that humanity represents. By this I mean not only the concept of social relationships and community, but what is more basic -- hope, faith, altruism, obligation, charity, morality and even those aspects of love that are selfless and non-procreative. We have gone so far as to create enriching qualities that are totally useless for survival, most particularly our esthetic sensibility, manifest in our appreciation of beauty and our need for order. Certainly the *capacities* for developing those characteristics which we recognize as uniquely human came originally with the molecular equipment assigned to us by natural selection, but it is through Homo sapiens' gradual explorations and discoveries that the capacity became reality. This then is the ultimate process by which the human spirit has come into being. It is in the way we have made use of our innate physiology and anatomy that we ourselves, the members of our own species, are the real creators.

I refer here to actual organic events, to messages that move along nerve fibres and cells that respond to the stimuli thus induced. It should not be thought that I am presenting a rehash of psychological theory. In my view, contemporary psychology is in itself a form of vitalism, postulating psychic energy of an immeasurable nature and a mind that functions in some ways independently of the demonstrable physiology of the brain. On the other hand, though, I don't so much dismiss the notion of certain bulwarks of psychoanalytic thought as I seek to explicate them on an organic basis.

In his masterly *Civilization and Its Discontents*, Sigmund Freud postulates that in addition to the personal superego, humankind has developed what might be called a cultural superego. Personal superego "commands and prohibits" in the manner of an internalized fatherlike authority figure (equated with conscience); cultural superego forces the individual into behavior patterns that conform to the values of the surrounding society.

In an expanded sense, the cultural superego forces the society itself to act much like an individual, overseen by generally accepted ethical precepts. As Freud puts it, "That which began in relation to the father ends in relation to the community!" Clearly, the demands of the superego and cultural superego largely coincide, with the difference that the superego is subconscious. The essential message here is that on every level, from the subconscious to the communal, we absorb the rules laid down by the authority structure into whose realms we enter.

I don't believe that any of this is a "psychological" process, if by psychological is meant the mind as distinct from the brain. I suspect that the elemental brain of Homo sapiens was (and is) the repository of vast quantities of excess circuitry and cellular structure, just as the rest of the body has vast quantities of excess hormonal and other capacity. Nature everywhere provides its creatures with plenty of reserves of cells, tissues and even organs -- we don't really need two kidneys, or such a perfectly huge liver, among other examples. Over tens of thousands of years, we have adapted to the dangers and rewards associated with the basic genetically determined instincts we share with all life, namely self-preservation and reproduction. In order to adapt to the constantly changing circumstances of everyday existence, every organism has used some of its excess capacity, but the reserve capacity, at least the cerebral reserve capacity, of humans is immensely greater than that of any other creatures. Thanks to our extraordinary neocortex, our ability to adapt in the intellectual and emotional sense is capacious and almost certainly even now underutilized. Adapting and responding to sensory input from the body and its surroundings, delivered over incoming fibres and via chemical messengers, the human brain has engaged itself in the instinctual battle between Eros and Thanatos -- the forces of love (and therefore life) against the forces of the death instinct. Because the two are irreconcilable, the central nervous system of man had, since the time it originally came into existence with the birth of the first Homo sapiens, to conjure with itself -- to try various combinations of circuitry and chemistry, and to turn to its excess reserve capacity in exploratory ways -- until it became what it is today, a vast machineworks of intellect,

spirituality, and even neurosis.

The process is hit or miss: chance firings, misfirings, electrical journeys made, electrical journeys aborted or rerouted anywhere along the way, and gradually the establishment of message routes that seem most suitable to the needs of the therefore ever more intellectually capable human being. As these newly discovered pathways are more frequently traveled, the passage of messages along them becomes easier and easier until it is at last virtually automatic, while the resulting thought and behavioral patterns become the accepted characteristics of the person. The ever enlarging set of responses is so internalized after a while that offspring effortlessly learn it from their parents and surroundings during the long period of early human childhood.

Perhaps the greatest feat of this humanizing process is the recognition of beauty, both the beauty we find around us and the beauty we can create. Beauty in and of itself is of no consequence to the DNA's survival needs, and that alone makes its recognition one of the supreme accomplishments of the human mind; beauty of image, of sound, of thought -- give us the sense of enrichment, even of spirituality, that goes well beyond our constant seeking of mere survival and pleasure. The human spirit and its perpetual search for beauty are the defining characteristics of our humanity.

In my book *How We Die*, I discussed the necessity that the life of each of us must come to an end. Were it not for our individual deaths, I opined, civilization would stagnate, life could not renew itself with enthusiastic vigor in each generation, and the world, as Tennyson put it, "would grow moldy, would only breed the past again." Nevertheless, that does not answer the question of why it is biologically necessary that living things must die. If all our inborn biological drives serve in one way or another the twin purposes of self-preservation and reproduction, where does death fit in? On what mechanistic or physiologic basis do psychoanalytic theorists dare to propose the existence not only of the lifeenhancing quality of Eros, but also of Thanatos? The entire principle of natural selection presupposes that all forms of life are imperfect, and that the causes of their deaths are the result, either directly or indirectly, of those imperfections.

But that in itself does not necessitate an actual instinct that drives us toward dying in the way in which the more overt instincts of Eros drive us toward living.

It is precisely in the matter of death that our notions of instinct and even molecular biology still fail us. Although there is some preliminary evidence of cells being destroyed by what is currently being called a "death gene," much must still be done before its workings are elucidated. Almost paradoxically, the "death gene" appears to be an agency of the very forces that preserve life. Killing groups of cells when they have outlived their usefulness serves the purpose of progressive development of the entire organism as well as keeping it alive.

I am intrigued by a statement made earlier in this century by the eminent medical historian and physician, Logan Clendening. In his hugely popular 1927 book, *The Human Body*, Clendening wrote, "strictly speaking, death is not a biological necessity. There is no inherent reason any cell should ever die." Not at all a man of religious faith, Clendening followed this with, "As I think it over, death seems to me one of the few evidences in nature of the operation of a creative intelligence: of an intelligence exhibiting qualities which I recognize as mind stuff. To have blundered on the form of energy called life showed a sort of malignant power. After having blundered on life, to have conceived of death was a real stroke of genius."

As a freethinker, Clendening seems to have meant this ironically, if not actually with a tinge of sarcasm. He was referring to the "genius" of mindless nature, creating the marvel of life simply by the random juxtaposition of atoms, molecules, and explosive energy at a coincidence of timing, and then going on to develop mechanisms to insure the survival and propagation of those marvels -- even if it requires their individual destruction in each generation. In Clendening's scheme and in mine, the genius of having conceived it lies in the fact that death is the guarantor of the perpetuation of life.

What life has become for our species is, I believe, the result of the way we have adapted to our environment by discovering ways to utilize the

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surplus potentiality of our neural and endocrine selves. The reason natural selection provides a surplus is self-evident. An injured creature is more likely to survive and reproduce if it has a surplus to fall back on. Perhaps the very bilaterality of animals is the result of such a selectivity, providing paired organs and even considerable extras in such single structures as liver, spleen, and intestines -- and of course brain. It is to adaptive use of the considerable extras in the endocrine and central nervous systems, I believe, that we owe our discovery of the mechanisms whereby we created the human spirit.

Seen this way, the human spirit is a generated product of our innate biology. Born with the biologic extras and resources to create, we have done just that. Whether the process by which it has been created is one of millennia-long adaptation or is primarily a genedriven process as I once thought -- the endpoint of all is that it exists as a product of our molecules. Nothing more need be sought. There is no need to invoke either a higher power or magic. We need only invoke what is in our human cells, the highest power and the greatest magic that has ever awed a wonder-struck observer of its magnificence.

There is no end to the series of adaptations along whose continuum we now find ourselves. Barring world or species-destroying catastrophe, the cerebral circuits and the neuroendocrine interactions will never stop discovering new ways to deal with the stimuli presented to them, and will accordingly never stop enhancing our capacity to solve the puzzles inherent in the physical and mental challenges that constantly surround us.

It might be pointed out, and properly so, that all of this presupposes a state of constant improvement, and therefore presents Pollyanna's view of the human mind and its potentialities. But I do not restrict myself to the sublime qualities developed within our species. In my definition of the human spirit is included those other characteristics of which we are far less proud, the base qualities in all that is subsumed under the rubric of humanness. If there is an antonym for everything we customarily associate with *spiritual*, it must surely be *mean-spirited*. The same adaptive use of circuitry and molecular interactions that allows humankind to perform the

mental gymnastics leading to our finest accomplishments is also in thrall to our baser instincts.

After all, the biological imperative of our existence is survival. Of what survival value is the human spirit? Why have we endlessly prowled the thousands of miles of our cerebral connections in search of every aspect of it? The answer is that the human spirit enhances and enriches life. The very fact that life can be pleasurable makes us more likely to seek out atmospheres and behaviors that tend to increase the probability that it will not end. But like all adaptations, some are *maladaptive*. The maladaptions, the conflict between the instinctual forces of Eros and Thanatos, and the interplay of such factors with the stresses of everyday life -- these are the stuff of antisocial behavior and neurosis. They will always exist, and they too are part of what makes us human.

Again and again, the notion of *instincts* has appeared in this discussion. A word variously interpreted by the philosopher, the psychologic theorist, and the laboratory scientist, there would seem to be a general agreement on a basic formulation provided by the lexicographer. My Webster puts it this way: **Instinct:** an inborn tendency to behave in a way characteristic of a species; natural unacquired mode of response to stimuli; as, suckling is an *instinct* in mammals.

The word is derived from the Latin compound verb *instinguere* to urge onward or impel (*instigate* obviously has the same origin), constructed from the prefix *in* (on) and *stinguere* (goad, or prick). The involuntary aspect of the word's implications is clear, especially when *stinguere* is traced to its Indo-European root, which is *steig*, meaning prick, or pointed, or sharp. In the mid-sixteenth century, instinct acquired its current usage as "an innate impulse," or an inborn tendency specific to a particular species.

Seeking an up-to-the minute scientific or perhaps mechanistic interpretation of what is meant by instinct, we might turn to the recent brilliant tour-de-force of the neurobiologist Antonio Damasio, *Descartes' Error*, in which he points out early in a chapter titled *Biological Regulation and Survival* that "the brain has innate neural circuits whose activity patterns,

assisted by biochemical processes in the body proper, reliably control reflexes, drives and instincts, and thus ensure that respiration and feeding are implemented as needed ... On another front, to avoid destruction by predators or adverse environmental conditions, there are neural circuits for drives and instincts that cause, for example, fight or flight behaviors. Still others control drives and instincts that help ensure the continuation of the individual's genes. ... In general, drives and instincts operate either by generating a particular behavior directly or by inducing [e.g. by means of hormones] physiological states that lead individuals to behave in a particular way, mindlessly or not!"

In other words, though we may or may not be aware that they are functioning ("mindlessly or not"), instinctual behaviors are inborn and driven -- in a more basic sense the result of goading and pricking. Whether we consciously want to or not, our innate drives goad and prick us toward staying alive and reproducing ourselves.

Where in this formulation is the prized quality we call reason, and what is its source? Like other of our self-created qualities, reason gently leavens those patterns of instinctual behavior that are inimical to the highest motivations and yearnings of the human spirit. Unlike that other self-creation, superego or conscience, it is not harsh or punishing. Reason, in fact, often mediates between drives and conscience, to lessen the cruelty that might otherwise be inflicted by an overly strict and destructive superego. As the poet George Herbert put it in 1640, "Reason lies between the spur and the bridle!"

Although reason is often required to fight the worst moral qualities of instinct and to mitigate the sternest judgment of conscience, the three are best employed in an alliance under reason's leadership. Bertrand Russell has written that his notion of morality is one in which "instinct should be trained rather than thwarted". Reason is the trainer.

But even here our creations are imperfect. The very power of reason that we employ to understand and sweeten our lives, we employ also in the pursuit of objectives more in keeping with the demands of our less-than-ideally trained instincts. We confuse reason with rationalization, and betray

our highest spiritual values. In *Uncle Vanya*, Chekhov has Constantin say, "Man has been endowed with reason, with the power to create, so that he can add to what he's been given. But up to now he hasn't been a creator, only a destroyer. Forests keep disappearing, rivers dry up, wild life's become extinct, the climate's ruined and the land grows poorer and uglier every day".

I would modify Chekhov's first sentence, to say that man has discovered the neurological pathways and learned to use the hormonal interactions which he has then employed in the creation of reason. By using reason, both consciously and subconsciously, he has made even more neural and biochemical discoveries with which he is constantly creating new aspects of humanness and expanding the horizons of his spirit. Unfortunately, he has not seldom used his capacity of self-creation to allow himself to accede to drives of destructiveness, either in his inner or communal life. In this way have neuroses been created and sources of buoyant life suppressed. Such considerations bring some hesitation to our acceptance of the psalmist's encomium that we are "a little lower than the angels, and crowned with glory and honor!"

It is my spiritual self that makes me human. It enables me to reason, to sublimate my instinctual drives, to be of use to society, and to love in the way that only a member of my species can love; it enables me to do harm, to scheme against the interests of others, and to so misinterpret the subconsciously recalled traumas of my childhood that I become depressed, anxious, or a danger to society. The human spirit can be the high road to the fulfillment of my greatest hopes; it can be the grim pathway to my self-destruction.
