

# SCIENCE, TECHNOLOGY, AND HUMANISM: TOWARD A SCIENCE PLANK FORA HUMANIST PLATFORM

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## What Humanists Believe

Our Humanist ideas fall into two main categories: Humanist *beliefs* and Humanist *values*.<sup>1</sup> Our beliefs and our values are completely different kinds of ideas though they have several points of contact. Our beliefs are our ideas about the world around us and about ourselves. Our values are our ideas of what is right and wrong, what is ugly and beautiful.

I want to emphasize the importance of Humanist beliefs and comment on how Humanist beliefs and Humanist values are related.

Most of us have been asked many times to define Humanism. We all know that people who ask this question are never satisfied with a litany of negatives: "Humanists don't believe this"; "Humanists don't believe that." They generally want to know what we do believe. Our Humanist platform must stress the positive, so I want to talk especially about what Humanists do believe.

<sup>1</sup> We can disagree about my choice of these two words, but the distinction I intend them to convey is absolutely essential to critical thinking; yet it is deliberately obliterated by postmodernist writers.

### **Humanists affirm the naturalistic world view**

Perhaps the most basic Humanist belief is that *the world exists* and its existence does not depend on us. It will still be there if we close our eyes, go to sleep, or die. This is important. If we said no more than this, we would still have a big advantage over the postmodernists, some of whom would say that the world's existence is a matter of personal interpretation only. But we Humanists have much more interesting and important things to argue about.

Our next step is to say something about what *kind* of world this is. In the past, practically all Humanist statements of principle have said that Humanists reject the supernatural, miracles, and so on. This is clearly a negative statement, and it probably reflects our past preoccupation with refuting old religious beliefs and superstitions. But if we reject the supernatural, what do we put in its place? What do we believe?

The answer is that Humanists affirm a universal human experience: that the world is an ever-changing system in which the changes exhibit regularities—sometimes amazing regularities—that enable us to explain these changes, to predict them, and often even to control them. These regularities can be so consistent that we can place enormous confidence in our belief in them, and then, when we have such great confidence in our beliefs, we substitute the word "knowledge" for belief.

So Humanists affirm the naturalistic world view that events in the world follow these regular patterns.

### **Humanists affirm that we need both reason and observation**

The method we use to acquire knowledge of our world has two essential parts: careful *observation* of

the changes around us and critical *reasoning* about our observations. We know that observation alone is frequently misleading, because we can easily miss different interpretations of what we have seen. Reason alone can suggest many possibilities but cannot decide which will actually occur. The combination of observation and reason has been found over and over again to yield the most reliable results.

We call this approach "common sense" when we apply it to everyday occurrences, and we call it "science" when we use it systematically to study a wider range of phenomena.

Science has a built-in corrective, which is why it works. Professional scientists like to point out each others' mistakes; and frequently they like to point out their own mistakes before someone else catches them.

### **Beliefs are often confused with values**

In colloquial speech we often confuse beliefs and values. You remember the story of the minister who said, in response to the question whether he believed in infant baptism, "Believe in it? Why, man, I've *seen* it!"

But beliefs and values have frequently also been confused by thinkers who should have known better, from Plato to the postmodernists. Postmodernists Michele Foucault and Jean-François Lyotard, for example, write at length about "knowledge"<sup>2</sup> when what they really are talking about are values. They say there can be no absolute certainty of knowledge, but they really mean of values. In fact most of postmodernism

<sup>2</sup> See, e.g., Jean-François Lyotard, *The Postmodern Condition: a Report on Knowledge*, trans. G. Bennington and B. Massumi (Minneapolis: University of Minnesota Press, 1984); and Michele Foucault, *Power/Knowledge: Selected Interviews and Other Writings*, ed. Colin Gordon (New York: Pantheon, 1980).

is really about *values*, not beliefs. On the whole, postmodernism has very little of importance to say about beliefs.

**Humanists affirm that many important things can be known with very great confidence**

If you ask me what "absolute certainty" is, I'm not absolutely certain. But every sane person knows that to thrust one's hand into a hot flame would have unpleasant consequences, or to grasp a high-voltage line with one's bare hands, or to swallow potassium cyanide, or to jump in front of a speeding truck, or to leap from a tall building, or to douse oneself with gasoline and light a match. Such knowledge may not be "absolute certainty," but for me it will do until the real thing comes along.

These examples I have just cited, far from being exceptional and academic, are of the same order of certainty as the overwhelming majority of beliefs-or, if you like, knowledge-that science has given us about our natural world. That is to say (the bottom line is): You can stake your life on them. And not only that-you'd damn well better!

Although my little list of horrors may not directly threaten many of us, as Humanists we are vitally interested in programs to combat the all-too-real human horrors of violence, homelessness, nakedness, hunger and disease, and in this struggle we must know how to call upon a vast and rapidly growing fund of scientific knowledge about the world and about ourselves.

**Our beliefs and our values are intimately connected**

This brings me to a short comment about some ways that our Humanist beliefs and our Humanist values are connected. First of all, our commitment to our beliefs is itself a value. If we value reliable information about our world and ourselves, in preference to mere speculation and fantasy and fabrication, then we will value objective science because we believe it is the best source of that kind of information. We will also value humane technology that builds on that knowledge. We will also value means, like education, research, and development, to enhance the quality of our science and technology. And we will hold as morally wrong abuses committed in the name of science and harmful uses of technology .

It's important to remember that science can never tell us what our values *should* be, but it can help us decide what they *can* be and how we might implement them. So all our other values will be conditioned by our beliefs, simply because any moral or ethical choice must first of all be a possible choice-which means it must be possible in the world as it really is, or as it might become.

**Science and technology are absolutely essential elements of our Humanism**

In my judgment there are many areas of life where science and technology have been and will be absolutely essential if we Humanists want to implement our Humanist values. Let me mention a few.

A typical example is reducing atmospheric pollution of all sorts. Three decades ago the world was largely ignorant of the causes and the extent of most atmospheric pollution. The ultimate cause of pollu-

tion, of course, was this very ignorance. We needed more and better science. Today, thanks to the development of extremely sensitive detecting instruments, earth-orbiting satellites, and high-speed computer imaging and data analysis, we have become conscious of the nature and extent of atmospheric pollution, and the whole world is rapidly beginning to understand and even to visualize atmospheric pollution in a way not even have imagined a few years back.

Another example from ecology is the intensive search for alternative energy sources, which are necessary to replace the polluting fuels now in use—those fuels which, in any case, will soon become a lot harder to obtain.

A third example, this time from the life sciences, is the development of safer and more effective methods to limit population growth, which is surely the single biggest cause of the ecological crisis we now face.

My last example, also from the life sciences, is the spectacular pace of research to map the human genome, which is the sum total of all the deoxyribonucleic acid, DNA, that controls what we become in our mother's womb and defines what we human beings are. Every year, the American journal *Science* publishes comprehensive reports on progress during the preceding twelve months in mapping the human genome. This year's reviews happened to come out within a few weeks of some closely related reviews in the British journal *Nature*.<sup>3</sup> The changes in one year are absolutely staggering. The knowledge about ourselves that will inevitably flow from this research is incredibly powerful. One of the most brilliant workers in this field says that in another ten years we will have a whole new paradigm in the life sciences in which new discoveries will

<sup>3</sup> *Science*, 258 (October 2, 1992): 28-30, 49, 52-59, 60-66, 67-86, 87-102, 103-9, 148-62; *Nature*, 359 (October 29, 1992): 367-68, 380-87, 777-78, 794-801.

be mainly deduced, not in the laboratory, but with computers.<sup>4</sup>

In these and dozens of other exciting fields, we Humanists, if we really take our Humanist values seriously, ought to assume the lead in promoting such research and in helping others to understand the enormous implications of the results.

### **Many people seem to be afraid of what we might learn about nature**

Popular culture has always been very suspicious of all attempts to understand nature. There are lots of reasons for this-especially today, when scientific knowledge is exploding and popular understanding seems to be going nowhere. We are truly a nation of scientific illiterates-and that's not to single out Americans; I think the rest of the world is no better off. Science isn't easy, because the world is big and complex. Science is a demanding subject in school: it's a lot harder to fake the answers in science than in some other subjects.

But there is more involved in this negative attitude than mere difficulty. The whole field of science seems almost to be surrounded by *afear of what we might learn*. The scientist appears to many people akin to a priest or sorcerer, and religious and social taboos seriously limit free discussion, most noticeably in the life sciences.

I'll never forget an incident in my own life when I took my Ph.D. in physiology from the University of Minnesota. My grandmother came up to Minneapolis to help me celebrate. She sat there and asked me, "David, what does a physiologist do, anyway?" I said "Well, grandma, a physiologist studies the various parts of

<sup>4</sup> Walter Gilbert, "Toward a Paradigm Shift in Biology," *Nature*, 349 (1991): 99.

the body and tries to find out how they work." She pulled herself up, looked me straight in the eye, and exclaimed, "Why, David, that's none of your business!"

Sometimes people who know the most about science also say things that may reinforce people's fears. The Nobel prize-winning physicist Stephen Weinberg, for instance, has said, "The more the universe seems comprehensible, the more it also seems pointless."<sup>5</sup> Now, this does not seem to bother Weinberg, but others may think differently.

A notable example of one who is troubled is the British writer Bryan Appleyard, whose recent book, *Understanding the Present*, I recommend as important reading when it finally becomes available in the United States. <sup>6</sup> Appleyard gives a generally accurate and well-written account of what science tells us about our world and about ourselves; but then he goes on to say, in effect, that all this information is so bleak and unpleasant that we ought to chuck the whole business and return to our traditional beliefs. One reviewer of this book sums it up with the opening sentence, "Bryan Appleyard is unhappy."<sup>7</sup>

<sup>5</sup> Steven Weinberg. *The First Three Minutes: A Modern View of the Origin of the Universe*, revised edition (New York: BasicBooks, 1988), 154.

<sup>6</sup> Bryan Appleyard, *Understanding the Present: Science and the Soul of Man* (London: Picador (Pan Macmillan Ltd.), 1992). I am informed by the publishers that a revised British edition and an American edition by Doubleday are both scheduled for publication in 1993.

<sup>7</sup> Sir Brian Pippard. "Counsel of Despair." *Nature*, 357 (May 7, 1992): 29. See also the earlier editorial, "Does Science Leave Room for Soul?" *Nature*, 356 (April 30, 1992): 729-30. and the review by Chet Raymo, "Science Musings: 'Is science really necessary- or is it just a means to an end?'" *Boston Globe*, September 14, 1992. 42.

**But even some of us Humanists seem lukewarm  
in our enthusiasm for the naturalistic world view**

For present purposes I am much more interested in what Humanists know and think about the scientific world view. Take a relatively old idea, Charles Darwin's theory of evolution, now 134 years old (at least as far as the publication of *The Origin of Species* is concerned<sup>8</sup>). We Humanists have traditionally defended evolution, especially against the biblical idea of creation, and we may even share Darwin's feeling, expressed at the end of this masterpiece, that "there is a grandeur in this view of life." But I think there are signs we don't really understand it as well as we should, and maybe there are parts of it we haven't really accepted for ourselves. It is almost as if we like the naturalistic world view so long as we can use it as a *weapon against* Christian dogma—a negative belief, in other words—but we don't like it well enough to adopt it as a *substitute for* Christian dogma—a positive belief.

To say that we are descended from apes is one thing. A lot of us have kind of gotten used to that, or at least to hearing it. After all, apes seem almost human. But how about the idea that we are descended from something more like a worm? Or even from single-celled organisms?

Yet the truth about ourselves is that each one of us is a colony of individual living cells. Our cells are quite similar to other cells throughout the animal and even the plant kingdom. So what, then, *is* a human being? What makes us interesting? What makes us special? The answer is in the special way our cells are organized, our special kind of complexity that enables us to do things with our brains and our hands that no other animal on earth can do, so far as we know.

<sup>8</sup> The *Origin* was published—let us Humanists never forget this sacred date!—on November 24, 1859.

### **Understanding of the human brain must be central to Humanist thought**

No less a scientific authority than former President George Bush declared the 1990s to be The Decade of the Brain.<sup>9</sup> This brain is a physicochemical system, and it won't be long before we know everything there is to know about every molecule in it and what each does. But do we Humanists really *want* to know *that* much about ourselves?

It is already completely clear that the billions of cells in our brains send electrical and chemical messages back and forth all day and all night. Most of these messages have little or nothing to do with our conscious mental activity, but they have a great deal to do with our behavior. This picture of the brain conflicts sharply with Enlightenment ideas about the primacy of reason and the autonomous self. Our behavior is to be understood now in terms of impersonal electrical and chemical activity. A lot of what goes on in the brain is like housekeeping, and at lower and intermediate levels, emotions and feelings play a dominant role. Conscious reason, therefore, is a tiny inhibitory layer up at the top level, which the brain is able to invoke briefly when its highest priority is to protect itself from an absurd idea. (So much for Reason!) <sup>10</sup>

Paradoxically, on this matter of the autonomous self the postmodernists seem to be closer to the truth than Enlightenment Humanists even in spite of their outrageous methodology. In a valuable article published

<sup>9</sup> On July 25, 1989, upon signing legislation to this effect, supporting specific program planning and initiatives of the National Institutes of Health; see, e.g., *Journal of Neurosurgery*, 73 (1990): 1-2.

<sup>10</sup> Obviously, this is not to belittle reason as a tool—it is perhaps the most important human tool—but to emphasize that reason is ordinarily only one small and fragile determinant of the complexity of human behavior!

over two years ago in *The New Republic*, Alexander Nehamas of Princeton reviewed important books by Ferry and Renaut asserting that Heidegger, Foucault, Derrida, Lacan, Bourdieu, and Althusser all rejected the notion of the autonomous self-which the French call *sujet*, the subject, and Heidegger called *Dasein*, being present-on various grounds, namely, that "im-personal power, domination, inadequate language codes, unconscious desires and/or economic and social factors all conspire to make free decisions quite impossible."<sup>11</sup> Clearly, it seems to me, it is high time for us as Humanists to reexamine the Enlightenment concept of autonomy, to see if we can't come up with something a bit closer to our scientific view of ourselves. I think we can.

### **We Humanists must take the lead in advancing objective science and humane technology**

On issues such as these, no less than issues of scientific research and technological development of humanity, we Humanists must get out in front or risk being left behind and, in the process, becoming quite irrelevant to the larger problems of the world.

The signs of rapid change are everywhere. On Monday, November 16, 1992, the *Wall Street Journal* shouted, "Technology has cracked the toughest problems of portable electronics. Now get ready for a world we can hold in our hand."<sup>12</sup>

On the same day, in the *Boston Globe*, at the other end of the political spectrum, science writer Chet Raymo wrote, "Biologists of the next century will almost certainly create living organisms from inani-

<sup>11</sup> Alexander Nehamas, "The Rescue of Humanism," *The New Republic* (November 12, 1990): 27-34.

<sup>12</sup> *Wall Street Journal Supplement*, Monday, November 16, 1992. The Wall Street Journal Reports (Technology), R1.

mate materials. Computers of the next century may become fully conscious, by any practical test of consciousness. Human consciousness and memory may also yield to scientific analysis. All these developments will present problems for a theology of the soul grounded in Cartesian mind-body dualism. <sup>13</sup>For that matter, as I have already suggested, these developments will also hold a challenge for Humanists who still maintain a dualistic view of who and what we are. (I wonder if perhaps Humanist organizations should begin now to debate whether it will be ethical to discriminate against a 21st-century computer that applies for membership in a Humanist association.)

**Humanity needs a Humanism allied with science and technology; without these Humanism is utterly feckless**

Finally, as individuals, we Humanists don't have to love science and technology; they may not suit our individual personalities. But our Humanism *does need* science and technology. A Humanism without science would be devoid of any reliable, consistent view of our world and ourselves. A Humanism without technology would be ineffectual and helpless to attack the fearsome human problems that we Humanists are mainly concerned about and committed to solve.

On the other hand, we must not forget that *science and technology do not need Humanism*. Science and technology are effective and dependable and will thrive without any help whatsoever from us. Nonetheless science and technology without Humanist values would indeed be a nightmare. Humanity needs a Human-

<sup>13</sup> Chet Raymo, "In the Church-Science Split, Both Sides Have Suffered," *Boston Globe*. November 16, 1992. Science Musings. 26.

ism that is deeply committed to the naturalistic world view of science, and to humane, beneficent technology.

So, fellow Humanists, are we ready for a world we can hold in our hands?

**Appendix: SOME NOTES FOR A SCIENCE PLANK  
IN A FUTURE HUMANIST PLATFORM**

A group of twelve to fifteen persons discussed ways Humanists might help to promote science and humane technology and to prevent abuses and excesses in the name of science and technology. We pondered linguistic nuances at length; nevertheless we agreed on half a dozen specific suggestions before time ran out:

[As Humanists:]

1. We affirm the validity of a body of knowledge, scientifically derived, and always subject to future modification.
2. We affirm the freedom of science to investigate, but its applications must be subject to society's informed guidance.
3. We seek to promote a better understanding of Humanism among scientists and of science among Humanists.
4. [To this end] we encourage the formation of a society of scientists who are Humanists.
5. Humanists should seek to be included in medical ethics committees.
6. Humanists must aggressively confront the ethical issues that arise out of a rational consideration of new scientific knowledge and capabilities.