

## *Brave New World Revisited* Revisited: Huxley's Evolving View of Behaviorism

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Aldous Huxley's *Brave New World* has served as a popular and powerful source of antibehavioral sentiment. Several of Huxley's works are examined in order to ascertain his true thoughts regarding behaviorism. Early in his career Huxley failed to appreciate aspects of behavioral theory (e.g., an appreciation of heredity) or the good ends to which it could be employed. Huxley's later works portrayed behaviorism in a much more positive light, and he believed that behavioral science, along with spiritual enlightenment, might help save humanity from the *Brave New World* he predicted.

Images of behaviorism presented in literature have proven to be highly persuasive. These stark images (e.g., Burgess, 1962/1986) have colored the way in which behaviorism is perceived and have led to a picture of behaviorists that is contrary to their actual practice (Newman, 1991). A deeper understanding of works that have influenced the public's view of behaviorists is indispensable to the effort to dispel such misconceptions.

*Brave New World* is one such work that has become inextricably tied with behaviorism in the public eye. In Burgess' (1974) *The Clockwork Testament*, a fictionalized B. F. Skinner discusses behavior control techniques that are taken from *Brave New World* rather than from anything Skinner ever wrote. Regarding the political system envisioned by Skinner, we find such quotes as "a specific police state right out of . . . *Brave New World*" (quoted in Todd, Atwater, Johnson, Larsen, & Morris, 1984) and "a straight line out of the ivory tower into the brave new world of *Walden Two*" (Matson, 1971, p. 7). Those who formed a "Walden Two community" had to consider objections based on *Brave New World* (Kinkade, 1973). Even in the pages of *Walden Two* itself, the analogy between the two societies is drawn by critics of the behavioral system (Skinner, 1948/1976, p. 217). The authors of introductory psychology texts (e.g. Bootzin, Loftus, & Zajonc, 1983; Cox, 1970; Rathus, 1984) have occa-

sionally drawn the analogy between behaviorism and *Brave New World*. The problems related to such negative images have been explored elsewhere (e.g., Todd & Morris, 1983) and will not be repeated here. The aim of the current paper is not to provide a profound understanding of all of Huxley's works, that would be a job for a literary critic, but rather to demonstrate that the work considered by many to be the final word on behaviorism was not considered definitive by its own author. I hope to provide a background that will enable behavior analysts to convincingly discuss Huxley's works and to challenge the misunderstandings that may rise from their misinterpretation.

### ALDOUS HUXLEY

Born the grandson of Thomas ("Darwin's Bulldog") Huxley and grandnephew of poet and social critic Matthew Arnold, Aldous Huxley was a product of powerful, conflicting, intellectual traditions. A severe vision problem kept Aldous Huxley from completing his early plan to pursue a career in medicine. This disability undercut Huxley's scientific training and eventually led him into a career in literature. Regarding his scientific training, Huxley (1958/1989) had this to say:

I very much regret the scientific training which my blindness made me miss. It is ludicrous to live in

the twentieth century equipped with an elegant literary training eminently suitable for the seventeenth. (p. 145)

As we will see in *Brave New World Revisited* especially, Huxley committed errors in thinking that a scientific training would probably have eliminated.

Early in his career, Huxley harbored serious misgivings about the nature of scientific enterprises (e.g., 1946, p. 68: "In theory . . . applied science was made for man and not man for applied science. In practice great masses of human beings have again and again been sacrificed to applied science"). Also early in his career, Huxley harbored serious misgivings about organized religion, and was seriously anti-Semitic (Birnbau, 1974). This antagonism to organized religion never abated (although his expressed anti-Semitism did decline). Eventually, however, Huxley accepted and endorsed both science and Eastern enlightenment and suggested that together they would lead to solutions to the problems faced by humanity.

To what extent Huxley was a novelist in the true sense of the word has been disputed in literary circles. He wrote on an exceptionally wide variety of topics, often assuming much knowledge on the part of the reader. Huxley adopted and rejected ideas rapidly, and it has been suggested that his works are best read not as independent entities, but rather as a synthesis of his gradual progression from a "detached skeptic" to a "contemplative mystic" (Bowering, 1968, p. 3).

### **BRAVE NEW WORLD**

*Brave New World*, published by Huxley in 1932, was his vision of a future where science had enabled a small elite minority to subjugate the majority of the population. The novel borrows heavily from ideas presented in Russell's *The Scientific Outlook* and Zamiatin's *We* and was written in part as a reaction against the idealistic thinking regarding science presented in utopian novels authored by H.G. Wells, e.g., *A Modern Utopia* and *Men Like Gods* (Baker, 1990; Bowering, 1968). The society described by Huxley

is also similar to that of Wells' own dystopia, *The First Men in the Moon* (Kumar, 1987). Wells, it is said, wrote Huxley an unfavorable letter after the publication of *Brave New World*, accusing him of "treason to science and defeatist pessimism" (Baker, 1990, p. 11). Huxley, for his part, regarded Wells as "a rather horrid, vulgar little man" and mentioned that *Brave New World* was a novel based "on the horror of the Well-sian Utopia and a revolt against it" (quoted in Kumar, 1987, pp. 225-226). George Orwell, author of the classic dystopia *1984*, accused Huxley of a lack of political awareness and claimed that Huxley's imagined world, because it was stripped of the motivating power of sadism and power hunger, could not long survive (Burgess, 1978/1985). Huxley (1958/1989) believed that the society of *1984* was doomed because it relied on ineffective coercive measures.

Huxley's *Brave New World* is set six or seven centuries A.F. (after Ford). Society has been genetically and behaviorally broken down into several nonoverlapping intellectual/social classes. At the Hatchery and Conditioning Centers, which include nurseries with "Neo-Pavlovian conditioning rooms," individuals are physically altered and classically conditioned to fall into, and to love being a member of, one of the existing intellectual/social classes. Control of the population is absolute, but not through the coercive measures suggested in other dystopian works. Huxley realized early that punishment is not nearly as effective as reinforcement (1958/1989, p. 3). Discussing the difference between this book and *1984*, Huxley wrote, "In *1984* the lust for power is satisfied by inflicting pain; in *Brave New World* by inflicting a hardly less humiliating pleasure" (1958/1989, p. 29). The "humiliating" pleasures consist of shallow entertainment (e.g., the "feelies," tactile movies), extreme sexual promiscuity (at the "orgy-porgies"), and the wonder drug "soma." This drug is used by the population for pleasure and escape (a "soma holiday"). Although these pleasures are not presented immediately following behavior,

and therefore might possibly not be considered reinforcers, there is no doubt that they exert behavioral control. At a sign of slight belligerence, the supply of soma is threatened and the citizens fall into line (chapter 15). The citizens have been conditioned to love their lot in life. Revolution is unthinkable, and the citizens believe that there is nothing for which to revolt, being constantly concerned with their pleasures. Only the rare genius like Emotional Engineer Helmholtz Watson can sense that anything is wrong with this society, but even he has no idea exactly what it is.

Into this utopia is introduced "the Savage" (actually, a resident of a "reservation" that lives in a primitive tribal style). He is appalled by what he sees in the culture and by the way in which the inhabitants waste their lives in pursuit of idle pleasure rather than deeper meaning. The inhabitants, according to the Savage, have traded their liberty and purpose for the security and pleasures provided by the State (as described in a fascinating discussion between the Savage, a Controller of the *Brave New World*, and the curiously sympathetic gentleman named Watson). In the end, the Savage cannot escape from the corrupting culture into the pure existence he desires and commits suicide.

It is clear from *Brave New World* that Huxley sees science, especially behavioral science, as leading to an overorganized bureaucracy that will encroach on those precious qualities that make life worth living (a viewpoint that was probably influenced by the writings of Max Weber and Bertrand Russell-Baker, 1990). He later noted that "the future dictator's subjects will be painlessly regimented by a corps of highly trained social engineers" (Huxley, 1958/1989, p. 29).

### ***BRAVE NEW WORLD REVISITED***

In 1958, Huxley published *Brave New World Revisited* in order to update, in a discussion rather than in a fictional format, his viewpoints regarding the forces that were/are moving society toward his *Brave New World*. It is a strange piece of

somewhat eerily dated literature. DDT is extolled as a great good, Huxley mentions that "the pill" has not yet been invented, and blatant eugenical ideas are expressed at the same time that fears of totalitarianism and of threats to individual freedom are expressed. Though there is much that is memorable in the work, these are perhaps the most important words in *Brave New World Revisited* (1958/1989, p. 38): "We are forced to act on insufficient evidence and by a light considerably less steady than logic." These words may be regarded as the most important in the book because the last 30 years have shown that Huxley did not hesitate to write with limited evidence from an emotional base and that much of what he wrote was premature.

In *Brave New World*, many methods for behavioral control are described, sleep teaching and infant conditioning among them. In *Brave New World Revisited*, Huxley describes other processes, including subliminal teaching, which he "overlooked" in the original *Brave New World*, but wouldn't have overlooked if he had been writing at that point. The evidence now strongly suggests that the control techniques Huxley described and warned of are mostly fantasy (Hines, 1988) and have been relegated to the area of pseudoscience.

Huxley's lack of scientific training, which he himself regretted, shows through in *Brave New World Revisited*. He discusses how scientists ask for real, hard evidence (which he conspicuously lacks for most of the processes he describes). He also discusses how the evil "propagandists" appeal to "hidden" forces and passions, not to the intellect. Huxley's discourse, however, is full of images meant to appeal to emotion (fear and sometimes even hate) rather than intellect (e.g., calling scientists "Dr. Hydes" and discussing the threat of "congenitally insufficient organisms").

Huxley's greatest shortcoming was the ease with which he accepted case studies, which are convincing but notoriously unreliable, as evidence for the various phenomena he described (common among those who accept pseudoscientific

claims—Randi, 1982). This shortcoming was not his only one, however. His lack of training in trying to find alternative explanations for available data also showed through. He spoke of the success of individuals using subliminal and sleep-teaching tapes (1958/1989, p. 108), for example, completely ignoring the possibility of placebo effects. This was not a matter of ignorance. Only four pages later, Huxley demonstrated knowledge of the placebo effect in medicine. *Brave New World Revisited* is not totally devoid of value, of course. As will be suggested in the concluding section, Huxley was probably quite accurate in describing some of the forces he warned us of.

### ISLAND

Huxley's final novel was *Island*, published in 1962. It was regarded by Huxley as one of his most important works, and he was saddened by the lack of attention and understanding this work received. The novel was intended by Huxley to be the mirror image of *Brave New World* (Watt, 1974) and the final synthesis of his thinking (Bowering, 1968). In this case, the "savage" is a reporter from the outside world who visits the island nation of Pala. Pala is something of a paradise, perhaps the last place on Earth where consumerism has not taken hold. Residents of Pala practice a type of Eastern religion of experience, while at the same time taking advantage of everything modern science can provide on the way to their life-time goal of a Maslow-like "actualization" (1962/1989, p. 207). Trained birds constantly repeat words such as "attention," reminding the Palanese that life is to be lived in the moment and that one's focus must never be lost.

The Palanese are on the brink of change. They are an oil-rich nation, though they have chosen not to exploit this resource (having no desire for the mindless consumerism the rest of the world has opted for). Their royal family, however, consists of a self-serving religious fanatic who wishes to exploit her nation's wealth to finance her "campaign

of the spirit," and a megalomaniacal son who seeks to ally his country with a neighboring military dictator in order to obtain power and Western luxury items. There is a struggle between those forces that seek to keep Pala as it is (and change the world by example) and those who seek to force it into line with the rest of the world. In the end, the latter forces win out (as those who sought to keep Pala pure knew they must), and as the novel closes, Pala is well on its way to becoming a military dictatorship.

For present purposes, the important elements of *Island* concern its portrayal of science, particularly behavioral science. The "soma" drug is still in evidence (now called "moksha"), but it is used for enlightenment rather than mere pleasure or escape. (The recurring theme of hallucinogen use is not coincidental. Huxley's own experiences with mescaline, which he regarded as positive and enlightening, are described in *The Doors of Perception* [1960] and its sequel, *Heaven and Hell* [1960]). Selective breeding is openly practiced, and islanders openly boast of the manner in which their voluntary selective breeding, extended genetically unrelated family units, drug use, and social planning have virtually eliminated criminal behavior. Medical science has reached a sophisticated stance, being somewhat "holistic" in that mind and body are treated simultaneously and successfully. In an almost Comtean fashion, much as in Wells' *Men Like Gods* and *A Modern Utopia*, science has been brought into line with a truly humanistic philosophy, and science is used only for the benefit of the individual and society.

All things considered, and especially in view of sentiments regarding behaviorism expressed in *Island*, it is too bad that *Brave New World* and *Island* are not bound together. Together they present two sides of the same coin: the same discipline for autocracy or autonomy. If one accepts the deterministic viewpoint regarding behavior, the issue of whether or not behavior should be controlled becomes moot. These novels help to demonstrate that how behavior is controlled, and to what ends, is really the crucial issue. It is ironic that by the end of his

career Huxley came to hold an opinion regarding the positive possibilities of applied science that were not very different from that of "his old enemy" (Kumar, 1987, p. 243), H. G. Wells.

### HUXLEY ON BEHAVIORISM

Huxley's ideas on behaviorism are not nearly as clear-cut as would be supposed by those whose only exposure to Huxley comes from *Brave New World*. One can discern a progression in thought. There can be little doubt from *Brave New World* that Huxley harbored serious questions regarding the moral correctness of behaviorism at the time that he wrote that classic. Looking at some of his later works, however, one can see that his position had softened (or at least had become more confused, which is not necessarily a flaw). It seems that he heeded his own words: Mass communication is not inherently good nor bad (1958/1989, p. 39), nor are drugs (1958/1989, p. 91). He had realized that "science is divinely impartial," and that how a science is used, and not the science itself, is the crucial question (Huxley, 1958/1989, p. 91). Note the dates of the following quotes. The negative sentiments will come exclusively from *Brave New World Revisited*, the positive from both *Brave New World Revisited* (a transitional work) and *Island*.

As mentioned above, *Brave New World* portrayed behaviorism in its most unflattering light. In *Brave New World Revisited*, however, *Walden Two* is mentioned as a possible solution to problems pushing society toward that feared dystopia (Huxley, 1958/1989, p. 139). In *Island*, Huxley wrote of a society that used the findings of Pavlov, "But Pavlov purely for a good purpose. Pavlov for friendliness and trust and compassion" (1962/1989, p. 195). This represents a big difference from (1958/1989):

There seems to be a touching belief among certain Ph.D.'s in sociology that Ph.D.'s in sociology will never be corrupted by power. Like Sir Galahad's, their strength is as the strength of ten because their heart is pure—and their heart is pure because they are scientists and have taken six thousand hours of social studies. (p. 31)

Huxley (1962/1989, p. 96) continued to

wrestle with the issue of those who have "the highest possible goals, but no means of realizing them." The means were of course suggested by Skinner, who wrote, "In the behavioristic view, man can now control his own destiny because he knows what must be done and how to do it" (Skinner, 1974, p. 277). On the *Island* nation of Pala, in preparation for a fulfilling life, the school-children play such games as Evolutionary Snakes and Ladders and Mendelian Happy Families (1962/1989, p. 216). Given their appreciation of laboratory science, and their vigorous attempts to incorporate its findings into daily life, it would not be surprising to find "Skinner's Squares" in among the games. Still, we find the words (1958/1989, p. 45), "Since Hitler's day a great deal of work has been carried out in those fields of applied psychology and neurology which are the special province of the propagandist, the indoctrinator and the brainwasher. . . . Today the art of mind-control is in the process of becoming a science."

Huxley (1958/1989) was well aware of the work of Watson at the time that he wrote *Brave New World* (as mentioned above, one of the more sympathetic characters in *Brave New World* was named for him) and of Skinner's work by the time of *Brave New World Revisited*, but he did not fully appreciate their systems:

Professor Skinner is an experimental psychologist, and his . . . *Science and Human Behavior* is solidly based upon facts. But unfortunately the facts belong to so limited a class that when at last he ventures upon a generalization, his conclusions are as sweepingly unrealistic as those of the Victorian theorizer. Inevitably so; for . . . genetic factors determining human behavior are dismissed by him in less than a page. (p. 120)

To answer this charge, we find in Skinner (1989, p. 27), "Behavior has also come within the scope of a scientific analysis. It is a product of . . . selection, the first of which, natural selection, is the field of ethology. The second, operant conditioning, is the field of behavior analysis." Huxley's own ideas regarding the interaction of biology and behavior are surprisingly naive. For example, Huxley (1963, p. 86) discusses how the blood-type that is most common in a culture

can determine national character: "Societies with a predominance of AB's in their population are foredoomed to an existence of chronic restlessness, a history of permanent revolution."

Huxley regarded heredity as an overriding variable determining behavior, and especially IQ. He mentions, both in *Brave New World Revisited* and in *Island*, that uncontrolled breeding has led to a lowering of the quality of human genetic stock. Modern medicine and "the social conscience," according to Huxley, assures that those who are biologically inferior will outbreed the superior (1958/1989, p. 16). This is noted as one of the most powerful forces pushing society toward his feared dictatorship. In *Brave New World* controlled breeding is seen as a great evil, as it is in *Brave New World Revisited* (although in the latter work, it is regarded as "an ethical dilemma" and probably a necessary evil). In *Island*, however, we find the sentiment that "it's more moral to take a shot at having a child of superior quality than to run the risk of slavishly reproducing whatever quirks and defects happen to be in the husband's family" (1962/1989, p. 193). This is compatible with Skinner's statement: "I see no virtue in accident. . . . I believe that we must plan our own future and that we must take every advantage of a science of behavior in solving the problems which will necessary arise" (Skinner, 1982, p. 34).

The behaviorists are regarded by Huxley as recorders, lacking emotion or a true appreciation of reality: "When you're confronted with a sunset like this, it's impossible to look with the eyes of a J. B. Watson" (1962/1989, p. 186). To this type of comment Skinner (1974, p. 206) responded, "There is no reason why a behavioristic account could not list the reinforcing effects of works of art, music, and literature."

The planned society is regarded as reprehensible in *Brave New World*. By the time we get to *Island*, however, this view has changed significantly. With regard to criminality, residents of Pala proudly recount their understanding of human behavior and how it is used to eliminate

this problem: "A crop of potential failures and criminals . . . has been transformed into a group of useful citizens who can be governed . . . without punishment. . . . A year in jail won't cure . . . or help . . . get rid of his psychological consequences" (1962/1989, p. 155). Modern behavior analysts (e.g., Cohen and Filipczak, 1989) could probably only agree with the sentiment and envy the success.

In his later works, Huxley apparently realized that it is not the discipline, but the way in which it is applied, that is the issue. This is in marked contrast to an earlier Huxley (1946, p. 1): "Science is one of the causative factors involved in the progressive decline of liberty." It was not until almost twenty years later that Huxley (1963, p. 118) suggested that "[we] advance together, men of letters and men of science, further and further into the ever-expanding regions of the unknown." Behaviorists have written philosophical works that address this theme. The reader is referred to Day (1971), Holland (1978), MacCorquodale (1971), Newman (1992), and Skinner (1971, 1972, 1976) for such explorations.

## WHAT TO DO?

To avoid the disaster he outlined, Huxley suggested preventive education and laws banning the use of the controlling technologies (1958/1989, p. 133). To analyze this suggested course, I examine a case study of an attempt to act on Huxley's idea. Stemming from misunderstandings of the processes involved (see Bourbon, 1987-1988), attempts have been made to outlaw "subliminal" materials. Acting on the claims of religious fundamentalists (e.g., Aranza, 1983; Godwin, 1985; Peters & Peters, 1985), an Arkansas law (which has since been struck down) required that tapes and records of rock performers carry the message: "Warning: This record contains backward masking which may be perceptible at a subliminal level when played forward." A similar law was proposed in California, and congressional hearings

have been convened to address the issue (McIver, 1988). In 1973, the FCC denounced subliminal advertising as deceptive. Interestingly, they did allow the phrase "give yourself up" to be flashed during an announcement about a murderer. (He did not comply.) In 1974, the United Nations Human Rights Commission task force denounced the use of subliminals and called for a prohibition of their use.

This has all happened despite scientific evidence that the claims for the behavior-altering subliminal effects are near-fantasy (e.g., Bernstein & Eriksen, 1965; Caccavale, Wanty, & Edkell, 1981; Chessman & Merikle, 1984; DeFleur & Petranoff, 1959; Kelly, 1979; Spence & Ehrenberg, 1964; Vokey & Read, 1985). An ad hoc committee of the British Institute of Practitioners in Advertising conducted a series of studies, none of which provided support for subliminal influence (Dean, Wayner, & Wulff, 1958, cited in Seagert, 1987). The suggestion of reviewers of the controversy is that those who claim to find subliminals in virtually everything (Key, of *Subliminal Seduction* [1973] and *The Clam-Plate Orgy* [1980] fame, even found them in a picture in one of his own books) do so as a result of overactive imaginations and the power of suggestion (e.g., Thorne & Himelstein, 1984). Perhaps the knowledge that there is a dollar to be made (Creed, 1987) must also be seriously considered. Bernstein (1978) has gone so far as to ask advertisers not to discuss the issue and lend it unwarranted legitimacy. Greenwald, Spangenberg, Pratkanis, and Eskenazi (1991) confirmed that conclusion, finding nothing more than a placebo effect.

Huxley-like alarmism will presumably be dispelled in time, as the evidence piles up against the effectiveness of some of the processes he warned against. However, what if the evidence goes the other way? At least some of the processes he discusses have the potential to be abused (e.g., the "sound bite"). No doubt Huxley's legislation to outlaw such things would be unwieldy, difficult to enforce, and possibly counterproductive.

For the most part, Huxley warns against

processes that are deceptive and that take advantage of processes studied by social psychology. Beliefs in topics such as the "paranormal" are created and maintained in manners similar to those described by Huxley (and, as mentioned, many of the processes mentioned by Huxley are now relegated to the area of pseudoscience). Such beliefs have been counteracted by efforts to teach the behavior necessary to analyze and question the assumptions and assertions of the "paranormal" (Gray, 1984; Tobacyk, 1983; Woods, 1984). Elimination of the processes feared by Huxley would be more easily accomplished through such education than through legislation. Given the effectiveness of behavioral education (Binder & Watkins, 1989; Watkins, 1988) and given his desire to see "Education for Freedom" (chapter eleven of *Brave New World Revisited*) Huxley no doubt would concur.

Time has shown that much of what Huxley warned us about has proven to be at least less harmful than he suggested (to be charitable). However, that is not the case with some of the other problems he discussed. The dangers of over-population (although possibly not his emphasis on heredity as the dominant determinant of IQ) and overconsumption come to mind immediately and have been supported by more recent work (e.g., Fornos, 1987, 1990; see Cone & Hayes, 1984 for a behavioral perspective). The lack of critical thinking skills (e.g., the influence of advertising and the "sound bite") and widespread education difficulties within the populace likewise still seem quite relevant. Early in his career, Huxley considered behaviorism another problem rather than a solution. He came to realize, however, that behaviorism in service of a humanistic philosophy could help prevent the *Brave New World* he feared and help to create the *Island* he desired.

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