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FOUR GREAT OUTRAGES AGAINST HUMANITY: CHALLENGES FROM SCIENTIFIC MATERIALISM OVER THE PAST FIVE CENTURIES

Claudio Violato[1]
University of Minnesota
Università Ambrosiana, Milan, Italy

Abstract

In the present paper it is argued that the radical behaviourism of B.F. Skinner reflects the fourth major triumph of scientific materialism in human history. While scientific materialism has its roots in the work of Democritus and Aristotle, it did not play a significant role in explanations of the universe until the Renaissance. For more than 1500 years, Plato's dualism - in various forms including Christian theology - prevailed. The work of Copernicus and Galileo was the first great triumph of scientific materialism over mysticism and dualism and therefore represents the first great "outrage" against humanity. The second and third great outrages are the theory of natural selection and psychoanalytic theory attributed to Darwin and Freud respectively. B.F. Skinner eliminated mental phenomena as explanatory modes in human behaviour and thus produced the fourth great outrage. Each of

[1]Correspondence to: Prof. Claudio Violato PhD, Ma,,Ma LD Hon.sc. Professor and Assistant Dean Office of Assessment & Evaluation | medtest.umn.edu
University of Minnesota Medical School MMC #293, 420 Delaware St. SE
Minneapolis, E-mail: cviolato@umn.edu
Director- Department of Medical Education Medicine, Università Ambrosiana, Vle Romagna 51, 20133 Milano (Italy) email cviolato@unambro.it

these great ideas encountered fierce resistance because they were blows to humanity's megalomania and forced a rethinking of humanity's nature and role in the universe.
Freud remarked more than once that in the history of scientific thought, his psychoanalytic theory represented the third great outrage against humanity (Gay, 1989, p.xvii; Vivas, 1965). With this remark Freud was suggesting that his theory offended not only the sensibilities and conventional wisdom of his epoch, but mankind's megalomania as well. Therefore this represented an "outrage" against humanity. (In a similar vein, Neitzche characterized the work of scientific materialism in the following manner: "All sciences today work for the destruction of man's ancient self-respect.") The preceding two great outrages that Freud was referring to were Charles Darwin's theory of natural selection and the Copernican/Galileo revolution in physics.
Like Freud's own challenge to the prevailing views of human nature itself, the work of Darwin and Galileo shook the grounds from under the foundations for the accepted conception of human nature and humanity's place in the universe (which gave man a privileged place apart from nature). Each of these ideas - psychoanalysis, natural selection and the earth's motion - provoked controversy and consternation. The latest such idea is B.F. Skinner's behaviorism.

In the tradition of Galileo, Darwin and Freud, Skinner produced the fourth great outrage against humanity. His work has challenged the foundations of the beliefs about the nature of humanity and what governs behaviour. Skinner took the implications of scientific materialism - that matter is the source of everything in the universe including life and consciousness - to its logical conclusion when he expelled "mind" from human behaviour.
The main purpose of the present paper is to trace the evolution of thought about the nature of humanity and our role in the universe from Galileo to Skinner. These thinkers have been selected for analysis because they have come to represent each of the four great outrages.1 While many others in history have professed scientific ideas that were controversial in their time (e.g. Pasteur and the "germ theory"), the present theorists that have been selected are clearly associated with a revolutionary point of view - with what Kuhn (1962) called a new paradigm- which arises from or is the result of, the application and explication of scientific materialism.

There are two main reasons for the vehemence of attack that these theories and views of humanity elicited during their epochs: (1) as Freud said, each was a blow to humanity's megalomania, and (2) perhaps even more importantly, each of these four "outrages" challenged the legitimacy and political authority of the major institutions of their day. Copernicus and Galileo as well as Darwin directly challenged the relevancy and authority of the Church; Freud went further and asserted that a belief in God was either a form of neuroses or a childish fixation. By this time, however, the Church's authority in explanations of nature was already seriously undermined though it still claimed authority in matters of human affairs. Freud's greater threat was to the legitimacy and authority of important institutions such as medicine, education and government. Moreover, he exposed the "true meaning" of conventional social and moral customs of the family, interpersonal relations, and sexual behavior.

Similarly, Skinner criticized many institutions of the twentieth century including government, legal systems, psychotherapy, education, and economic structures. In the tradition of his predecessors (Galileo, Darwin, Freud), Skinner also attacked the Church and its practices. The main thesis of the present paper, then, is that these thinkers and their ideas received such strident criticisms because (1) they promulgated unpopular accounts of humanity, and (2) they challenged political authority of their day. We begin with an examination of scientific materialism.

Origin and Rise of Scientific Materialism

No discussion of scientific materialism can be adequate without acknowledgement of recent developments in the philosophy of science. Since the 1960s there has been debate among historians and philosophers of science on the nature of "scientific progress". Kuhn (1962) introduced a provocative thesis wherein he postulated two distinct types of activities, "normal science" and "revolutionary science" (Nickles, 2003). Normal science proceeds within the framework of a "paradigm" which consists of a variety of ontological, epistemological and methodological principles, laws and assumptions. The history of science can be understood as the succession of paradigms that disrupts normal science during the revolutionary phase as a new paradigm - which essentially defines reality - succeeds the old paradigm that has outlived its usefulness. Kuhn (1962) has argued moreover, that paradigms are incommensurable - there is no common

basis for comparison across paradigms. The implication of this is that no paradigm is necessarily superior to another and that science must deviate from the "narrow path of rationality" if progress is to be made. Knowledge is relative according to this view.

Kuhn's views have not been accepted without criticism (Fuller, 2000). Masterman (1970), Popper (1970), and Lakatos (1970, 1978) are among Kuhn's most notable critics. Masterman (1970) has argued that Kuhn's concept of "paradigm" is far too vague to be useful since at least twenty-two different uses can be found in Kuhn's work. Popper (1970) has charged Kuhn with irrationalism, grossly over-emphasizing discontinuities in the history of science thereby obscuring the cumulative and rational nature of progress. Lakatos (1970, 1978), perhaps the most incisive of these critics, has argued that it is more appropriate to speak of a research programme that involves a succession of theories rather than a paradigm. What Kuhn has called a scientific revolution, Lakatos has described as the defeat of one research programme by another. Laudan (1984) has provided a similar critique of Kuhn.
Gholson and Barker (1985) in reviewing the works of Kuhn, Lakatos, Laudan and others and their applicability to physics and psychology, concluded that "it is now possible to give a sophisticated account of the development of scientific disciplines that avoids the problems of incommensurability and retains a clear sense in which a science may be said to progress, even when fundamental commitments are modified" (p. 767). One of the central contentions of the present paper is that science has progressed because knowledge is to some extent cumulative, notwithstanding the popularized Kuhnian ideas of incommensurability and extreme relativism which have been readily embraced by social scientists (Gholson, Shadish, Neimeyer & Houts, 1989; Krauser & Houts, 1984). The contention is that thought about human nature has been cumulative from Galileo, finally culminating in Skinner's behaviorism.

There is no attempt in the present paper to discuss the "four great outrages" from the perspective of paradigms (Kuhn, 1962), research programmes (Lakatos, 1970), or research traditions (Laudan, 1984) since to do so would be to invoke a confused and irrelevant (for present purposes) argument. Moreover, Kuhn's ideas have by now been so widely popularized, misread and misapplied (Peterson, 1981),

that to use them would be to introduce confusion rather than clarity. Rather than saltatory developments, the outrages are seen as progressive applications of scientific materialism that has its origins in antiquity.

Plato (428 B.C. - 347 B.C.) developed a rather extensive theory of human nature with a dualism assumption as the cornerstone of his theory (Field, 1930). His famous dictum, soma sema sums up the division of body and soul. While the body is the seat of the soul, it also fetters it. The soul can achieve high rational and critical thought but it must triumph over the pull of the body. The Platonic School encouraged mysticism and dualism.

Democritus (460 B.C. - 370 B.C.), a contemporary of Plato, anticipated much of 19th and 20th century science including the idea of the unity of nature which was forcefully argued by Charles Darwin much later. This idea - that there is nothing unique and different in humanity's constitution from any other matter in the universe - forms the underpinnings of scientific materialism. Democritus believed that all things are made up of "atoms" - tiny particles of many sizes and shapes moving at different speeds. Humans were composed of "soul" atoms that were more spherical but otherwise did not differ from any other atoms. Thus Democritus put forth a monistic theory of human nature (Robin, 1928).

Aristotle, (384 B.C. - 322 B.C.) one of Plato's most successful students, diverged from his teacher and agreed with Democritus on the point of dualism or mind-body separation. He began with a doctrine of monism or the unity of the physical and mental worlds. Like modern material psychologists such as Skinner and Freud, Aristotle saw the soul as the function of the body that provides the structure. This then is the origin of a materialist interpretation of humanity - mind or soul does not exist independently from the body and matter (Charles, 1984).

Plato's dualism however triumphed during the first and part of the second millennium of history since Christ. Particularly during the epoch called the Medieval Period, for nearly one thousand years the view of the world and human nature was based largely on Christian theology and religious dogma. From the total collapse of the Roman Empire in the 5th century to the 15th century and the Renaissance, the dualistic view of humanity prevailed.

The Renaissance or rebirth after the Middle Ages marked a sharp break with Medieval ideals and practices, particularly in the arts, in literature,

in science and in the concept of human nature. These changes began in Italy primarily during the 15th and 16th centuries and later spread throughout the world. The major break of Renaissance thought with medieval doctrine was over the doctrine of dualism. As this was the cornerstone of religious dogma, the Church was challenged directly. Monism, the central theme of scientific materialism, was embraced by many thinkers during this period and reached its apogee late in the 19th century and early in the 20th with the works of Marx, Darwin and Freud. Skinner - embodying behaviourism with its origins in the work of St. Thomas Aquinas, John Locke, I.M. Shecenov, V. Bekhterev, J.B. Watson, E.L. Thorndike (McLeish, 1981) - took to its natural conclusion the materialist philosophy when he declared "mental life" to be irrelevant to behaviour (Skinner, 1990).

Modern scientific materialism may be characterized as consisting of four interrelated postulates (Novack, 1965, p. 4-5).

1. Matter is the primordial substance, the essence of reality.

2. Mind or consciousness is a manifestation of matter and arises from it. Mind can never exist apart from it.
3. Nature exists independently of mind, but mind cannot exist apart from matter. As Feuerbach observed, "Thought springs from Being, but Being does not spring from thought."
4. The foregoing three postulates preclude the existence of souls, spirits, deities or other immaterial constructs in the operations of nature, society and human behaviour.

Materialism can be brought into sharper focus by contrasting it with its polar opposite, idealism, which can be also be summarized by four postulates (Novack, 1965, p. 4-5).

1. The basic element of reality is mind or spirit.
2. The material world has been created by a spirit or mind.
3. Spirit or mind preceded matter that is no more than a passing phase or illusion.
4. The immaterial emanates from the supernatural or divine that governs nature, society and human behaviour.

Materialism and idealism have been, and are, the two dominant points of reference in philosophy although of course, there are other view-points. The history of philosophy exhibits many combinations of this idea which occupy a spectrum of positions between these extremes (Feyerabend, 1963, 1978; Malcom, 1964)2. Each of the four great outrages represent a victory of scientific materialism over idealism and

the social institutions which derived their legitimacy and authority from the latter. The first major challenge to idealism embodied in the dogma of Christian theology came from the work of Galileo Galilei who provided supporting data for the mathematical model of the universe developed by Nicolaus Copernicus.

Copernicus, Galileo and the First Great Outrage Against Humanity

Copernicus was born in Poland in 1473 and studied law and medicine in Italy. In 1543 after many years of dedicated service to the government and Pope, Copernicus published his mathematical description of the heavens, De Revolutionibus Orbium Coelestium wherein, the sun - rather than the earth - was placed at the centre of the solar system (Kuhn, 1957). Copernicus died that same year and never witnessed the impact of his ideas.

The final blow to the Ptolemaic model of the solar system (the earth at the centre with the planets revolving around it) came from Galileo more than half a century later. When in 1608 Galileo made his first telescope, he was already a renowned and famous scientist throughout Europe (Stillman, 1970). He soon perfected the instrument and turned it skyward to make several sensational discoveries - the satellites of Jupiter and the topography of the moon - that he published in Sidereus Nuncius (1610). As his data accumulated, Galileo became convinced that Copernicus was right and the Ptolemaic solar system of the Roman Catholic Church was wrong. This challenge mounted by Galileo was disastrous to himself of course, but was the first main triumph of scientific materialism over dogma and superstition. Galileo naively assumed that the truth would prevail over doctrine (Stillman, 1970), but the issue was not one of doctrine but of authority.

The Catholic Church had felt embattled by the Protestant Reformation and in the 16th century, it mounted a Counter-Reformation. So when Galileo proposed his tendentious view of the universe, the Catholic Church was in no mood to accept it. It believed that the Church's authority should dominate while Galileo believed that truth should prevail. In espousing his view of epistemology, Galileo revealed his commitment to scientific materialism:

I think that in discussions of physical problems we ought to begin not from the authority of scriptural passages, but from sense-experiences and necessary demonstrations (Bronowski, 1981, p.130).

Galileo, of course, was silenced and lived out the remainder of his life in imprisonment after his trial in 1633. His legacy to humanity was the triumph of reason and data over dogma and idealism and hence a victory of materialism over idealism.

When Freud referred to the Copernicus/Galileo revolution as the first great outrage against humanity (Gay, 1989), he was suggesting that human nature was henceforth altered forever and that humanity's position in the universe was diminished. In the Ptolemaic system of the Catholic Church, the earth was the centre of the universe. And since according to Christian theology, humans are above all other living things just below God and the angels, humans are de facto the centre of the universe and God-like. Humans, after all, had been characterized in the Old Testament as follows: "What is man that Thou art mindful of him...Thou hast made him a little lower than the angels, and hast crowned him with glory and honour" (Psalm 8). Galileo changed the perceptions of humanity's place in the universe forever.

More important than proposing an alternate and less flattering view of humanity than had been maintained by the Church, however, was Galileo's direct challenge to the legitimacy and authority of the Vatican. Had Galileo not pressed the confrontation by publishing his highly offensive book (to the Pope), Dialogue of the Great World Systems, in which he characterized the Pope as un scioco (a dunce), the trial would probably never have taken place. Indeed, the Vatican was able to accept Galileo's views themselves as non-threatening. It was Galileo the upstart, the megalomaniac, and the arrogant who had to be repressed and silenced. So vehement was the Church's reaction to Galileo that it was not until 9 May, 1983 - 450 years after the trial - that Pope John Paul publicly declared that Galileo was correct after all. But more telling than this was the Pope's observation about the Church that the "Galileo affair and after it has led to a...more accurate grasp of the authority proper to her" (emphasis added) (Grove, 1989, p. 154).

The second Great blow to humanity's dignity and challenge to idealism came in the middle of the 19th century.

Darwin and the Second Great Outrage Against Humanity

In the wake of the Copernican revolution completed by Newton, humanity made its peace with its diminished stature and the Church adapted to its undermined authority. When The Origin of Species was published in 1859, it was an instant sensation and a best seller that still reverberates through time to the present. Darwin, of course, had

anticipated how deeply shocking the theory of natural selection would be to his contemporaries and indeed, had delayed publishing it for more than 20 years (Stebbins, 1971). As Darwin (1872) himself said in the sixth edition of The Origin of Species:

That many and grave objections may be advanced against the theory of descent with modification through natural selection I do not deny. I have endeavoured to give to them their full force. Nothing at first can appear more difficult to believe than that the more complex organs and instincts should have been perfected, not by means superior to, though analogous with human reason, but by the accumulation of innumerable slight variations, each good for the individual possessor (p.435).

Darwin's masterpiece transformed attitudes toward God and humans. The criticisms from the Church on the grounds that Darwin's theory contradicts the story of creation in Genesis, led to vituperative polemics that continue to the present. Darwin's idea that evolution proceeds by natural selection from accidental variations holds in it the denial of purpose and thus the irrelevancy of a Deity. By an accidental and natural selection, variations and differences favouring survival would be preserved. Survival of the fittest based on natural variation thus provided a completely mechanical and material system by which to account for the changes in living forms.

There was no need for purpose either from a Deity or even a single individual other than survival or reproduction in this view of the world. Mind and consciousness were by products of evolution, gradual, incremental and very recent and unimportant in Darwin's system in which he proclaimed "Natura non facit saltum" (Darwin, 1872, p.435). In this modo di vedere even the most sublime phenomena - mind and consciousness - were reduced to a material explanation. Scientific materialism thus reached its apogee in the middle of the 19th century.

Notwithstanding the reaction to Darwin's "mechanistic" universe, Darwin himself saw not soulless, ugly, mechanistic and bleak results. Rather he marvelled at the processes and results of "natural selection from accidental variation". He concluded his magnum opus, which he regarded as "one long argument", with grandiloquent prose:

Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a fewer

forms or into one...from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved (Darwin, 1872, p.459-460).

The objections to natural selection and evolution by Darwin's contemporaries and many since were numerous. In order for evolution to have occurred the Earth had to be much, much older than many people assumed. Moreover, nature and its products - living forms - were highly dynamic and ever changing; not static and fixed since the beginning of time. And finally, humans - the pinnacle of life - were not separate and above other life forms, but were part of them, governed by the same natural laws. No purpose and no Deity was necessary in Darwin's universe. Life had no purpose and no meaning; it was pointless change - a cycle of birth and death without a guiding Providence.

The reaction by the Church to the theory of evolution by means of natural selection was fierce. It was the last major battle between materialism and theological idealism. The legitimacy and authority that had remained for the Church after the Galileo - Copernican victory, was now threatened. According to materialist view the story of Genesis was wrong and no God or purpose was necessary in creation. Thus the Church, its teaching, ministrations, and even authority on moral matters, became superfluous. In one last but futile attempt to maintain authority over explanations of nature, the First Vatican Council of 1870 proclaimed the infallibility of the Pope, and reasserted the unshakable opposition of the Church to evolution, "Darwinism" and liberalism. Nevertheless, idealism in the form of theological doctrine had forever lost its authority over explanations of nature. By the time that Freud was formulating the third great outrage, however, idealism had re-emerged in new forms: the idea of the absolute had been rejected. A new reign of consciousness, purpose, teleology, relativity and pluralism was born with the new century. Knowledge itself was relative. Both of Skinner's and Freud's battles, therefore, were not with the old familiar foe of materialism, the Church, but with the new idealism.

Freud and the Third Great Outrage Against Humanity

Sigmund Freud was born in 1856, three years before Darwin published The Origin of Species. By the time Freud entered the University of Vienna to study medicine in 1873, evolutionary ideas had saturated

intellectual life in Europe (Gay, 1989). Biological determinism, instincts, homeostasis and other biological principles are strongly reflected in Freud's theory of the psyche.

No single book or publication can be readily pointed to as capturing and representing all of Freud's ideas or even his main ones as his output was prodigious. He spent nearly fifty years developing his ideas and theories, but his first major work which essentially laid out the whole framework of his psychoanalytic theory (and the book he considered his best) was the misleadingly titled, The Interpretation of Dreams (1900). Initially this book was largely ignored but his Three Essays on the Theory of Sexuality in 1905 aroused animosity from Freud's contemporaries. Psychiatrists and neurologists assailed these (and later) works as ludicrous, filthy and more a matter for the police than scientific congresses (Jones, 1953).

What is it about Freud's theory that has so offended and outraged many? Freud's theory of humanity is so comprehensive and original that it is difficult in a brief space to identify all that is controversial about it. In brief, however, there are at least 9 main elements of his theory that arouse indignation and controversy.

Freud adhered to the principle of determinism. All behaviour and mental states are determined by hidden causes in the mind. This includes slips of the tongue, memory loss, dreams, feelings, thoughts and all of mental activity and behaviour. Therefore, nothing a person does or says or feels or thinks is accidental, haphazard or without a cause; everything can be traced to its origin in principle (Freud, 1900, 1910a). Many have objected to this principle of determinism on the grounds that it denies humanity's "free will" (Vivas, 1965). As we shall see, this is also a profound objection to B.F. Skinner's radical behaviourism.

The second main element - the unconscious - arises from the first principle of determinism. By definition, the unconscious aspects of the mind cannot become knowable under normal circumstances. But the unconscious is the main part of the human mind that exerts it influence on the conscious mind (Freud, 1900). Virtually everything that humans do, then, is governed by unconscious desires that cannot be explained rationally (or even known) to the self or others. Indeed, much of the functions of the conscious mind is to justify or rationalize (partially through defence mechanisms) behaviours which are

irrational and governed by the unconscious. In this characterization, then, humans are slaves to unconscious impulses (Freud, 1900, 1910b).

The unconscious impulses are comprised of instincts and drives. In his later work (1920 on) Freud classified all the instincts of the unconscious into two categories: (1) Eros or "life" instincts (sexual, self-preservation), and (2) Thanatos or "death" instincts (aggression, self-destruction). The third point in this theory which many find offensive, then, is that human behaviour is essentially instinct driven but particularly by base instincts: sexual and aggressive.

If this were not enough, Freud asserted that the sexual theme predominates and exists from birth. In this way Freud introduced the concept of infant sexuality (1910b). The main theme governing life even for seemingly "innocent" appearing neonates is that they are sexual just as they surely are later on even though at first sexuality is expressed in infantile modes (i.e. oral, anal and phallic). Infant sexuality is a fourth point of offensiveness.

The fifth point of contention and controversy is the prepotency of early childhood experiences (Freud, 1900,1905). According to psychoanalytic theory, the prototype for later personality development is complete by about age five. Thus all later behaviour, development and personality must be understood on the basis of early childhood experiences (particularly traumatic ones). Many find this early childhood determination objectionable.

One of the main conflicts of that all human children must face is the Oedipus complex (for males) and the Electra complex (for females). With this idea - and the sixth point of offence - Freud asserted that all children have incestuous feelings for their parents. Moreover, the male child has murderous feelings and impulses for the father as he sees him as a rival for the mother's affection. Freud outraged Victorian sentiments (and modern day ones as well) with these dual impulses of sex and murder of children for their parents.

Theologians and religious people have also been outraged by Freud because of his characterization of religion. Freud was an avowed atheist (Jones, 1953) who asserted that a belief in God and an afterlife reflected not a truth about the universe, but a human neurotic response to the fear of death. Thus humans created God and an afterlife as a way of neurotically coping with death. While corporeal death is undeniable and inevitable, humans have invented a "soul" or "spirit" to

deny death (Freud, 1912, 1927) that shall live on in perpetuity. The God of Judaism and Christianity for Freud was paternalistic and reflected a regression of humanity in the face death to a childish stage and the need for a protective father (Freud, 1912). Such assertions represent a seventh point of offensiveness.

Freud has been referred to as the greatest pessimist in history (Gay, 1988). This of course comes about because of his bleak depiction of humanity and contemporary life. In Civilization and Its Discontents (1930), Freud depicted a gloomy picture of humanity ever destined to misery because unconscious drives could never be satisfied due to the constraints of civilization. The individual could never be happy because of the restrictions and impositions of civilization on the gratification of human "needs" and drives. By the time Freud wrote this essay, he had lived through World War I and was witnessing the Nazi rise to power together with their persecution of political enemies and particularly Jews (Freud was to flee Austria when the Nazis invaded and settle in London where he died in 1939). Thus Freud depicted humanity as not only at war with civilization but also with itself (Eros vs. Thanatos). In the concluding paragraph of Civilization and Its Discontents, Freud proposed that: "The fateful question for the human species seems to me to be whether and to what extent their cultural development will succeed in mastering the disturbance of their communal life by the human instinct of aggression and self-destruction" (p.92). Freud went on to argue that humans must struggle for self-preservation. The outcome, however, was anything but clear: "But who can foresee with what success and with what result?" (p.92). This pessimism about the future of humanity is the eighth point of objection to Freud.

Finally, a more recent condemnation of Freud has come from feminist critiques (e.g. Gilligan, 1982). Many have objected to Freud's characterization of women. Freud asserted that "anatomy is destiny" and, therefore, one's psychic life can never transcend one's gender. Some feminists have argued that women in psychoanalytic theory are depicted as inferior, defective and degenerate male forms who suffer from penis envy (Ruble, 1984). This point of outrage, then, is Freud's putative sexism and unfavourable depiction of women vis a vis men.

In addition to the contentious views of humanity, Freud also directly criticized important institutions of his day such as the family, government, religion and education. Civilization as a whole he saw as

too repressive thus condemning humans to a perpetual state of misery (Freud, 1930). Freud attacked religion as "distorting the picture of the real world in a delusional manner" (1930, p. 31). The pretensions surrounding the family came under attack since its primary goal was to satisfy the "need for genital satisfaction". For the male, the family functioned to keep "the female...his sexual objects, near him" (p. 46). For the female it provided shelter, protection and help with child-rearing. Freud (1930) also criticized education:

...the education of young people...conceals from them the part which sexuality will play in their lives...and does not prepare them for the aggressiveness of which they are destined to become the objects...education is behaving as though one were to equip people starting on a Polar expedition with summer clothing and maps of the Italian lakes (p. 81).

Unsurprisingly, many people responded with hostility to Freud's descriptions and criticisms for he was challenging directly the legitimacy and authority of these institutions.

Despite Freud's "outrage" towards humanity, he still left humans with a mental life, notwithstanding a dark one. It was the 20th century behavioral psychologists who committed the fourth great outrage against humanity by dismissing mental life as a causal or significant factor in human behaviour.

B.F. Skinner and the Fourth Great Outrage Against Humanity

B.F. Skinner was born in 1904 at the time when Freud was formulating and refining his essential principles of psychoanalysis. Skinner's psychology, however, took a radical turn away from psychoanalysis or other mentalistic psychologies and he championed behaviourism over the course of 50 years of professional activity. Two weeks before he died in 1990 and in his final public address, Skinner unwavering to the end, still dismissed mentalistic explanations of behaviour and perfunctorily rejected cognitive science as "the creation science of psychology" (Skinner, 1990, p.1209). During the course of his career Skinner published more than 175 papers and a dozen books and yet was still widely misunderstood and attacked. He was called "the new Machiavelli", "a Nazi", "a high priest", "a parochialist" and so on (Epstein & Skinner, 1982, p.5.). What is it about Skinner's work that can arouse such hostility?

The most crucial and fundamental point of Skinner's behaviorism that elicited "outrage" and hostility from his critics was his dismissal of mental life as unimportant and irrelevant to an understanding of human behaviour. This of course was not original with Skinner - J.B. Watson among others wanted to ban consciousness - but he became the champion and most forceful, persuasive and prolific spokesperson for this radical view. Skinner never tired of reiterating this point. Thus, throughout numerous works he said: "mentalistic explanations explain nothing" (1953, p.33; 1971, p.145; 1974, p.224). This rejection of mental life as an explanatory entity was crucial to Skinner. This was the only way to establish a science of behaviour that was the proper subject matter of psychology as Skinner saw it. The eternal search for explanations of behaviour via mental states for Skinner was a waste of time. Thus, he said:

When the important thing is a relation to the environment, as in the phylogeny and ontogeny of behaviour, the fascination with an inner system becomes a simple digression...We have not advanced more rapidly to the methods and instruments needed in the study of behaviour precisely because of the diverting preoccupation with a supposed or real inner life (Skinner, 1975 p.46).

Skinner did not deny the existence of a mental life; he asserted only that it is in the realm of private events and thus has no special significance to the explanation of human behaviour. In contrast to Freud who, though he had characterized humanity in very unflattering terms nevertheless put great importance on mental events, Skinner re-classified the role of mental life into a subordinate position. In this way, Skinner broke from the early behaviours of Watson and included mental activity as a repertoire of covert private events or private behaviours.

Three essential postulates about the nature of human nature can be identified in Skinner's system. First, and as we have seen, mental life is unimportant. It is, therefore, unnecessary to look inward to discover "mental states" that cause behaviour. Skinner simply assumed that "the organism behaves" (Skinner, 1953, p.284). A second postulate is that humans learn from the interaction with the environment and that behaviour is selected by consequences (Skinner, 1981). Indeed, Skinner (1987) regarded his analysis as a natural extension of evolutionary theory where "there is no longer any need for a creative mind or plan, or for purpose or goal direction" (p. 783). The third

postulate which derives from the second, is that behaviour is under the control of the environment and not individual mental life (Skinner, 1953, 1960, 1975, 1977, 1981, 1990). Thus he replaced creation with the principles of variation and selection. In these postulates, Skinner depicted humanity in a way that eliminates what most religions, philosophies and psychologies have always held to be sublime (consciousness and mental life). By asserting that mental life is unimportant and its pursuit a mere "digression", Skinner dismisses the work of modern day cognitivists, personality theorists, psychoanalysts and any other psychologists who also focus on mental events, not to mention most philosophers, theologians, poets and other writers, as a waste of time. As far as understanding human behaviour is concerned, Skinner saw these activities as frivolities. Indeed, in one of his last systematic statements, Skinner (1987) identified humanistic psychology, psychotherapy and cognitive psychology as major obstacles to psychology becoming a science of behaviour:

...the antiscience stance of humanistic psychology, the practical exigencies of the helping professions and the cognitive restoration of the royal House of Mind have worked against the definition of psychology as the science of behaviour (p.784)

Is it any wonder that his views are met with indignation, hostility and vituperation?

If this characterization of humanity weren't enough, Skinner proposed applying principles of operant conditioning to controlling human behaviour for particular purposes. In order to do this, Skinner first criticized and attacked several institutions of society and the people who work in them. He maintained a relentless and systematic criticism of education over a forty-year period for example. In the Technology of Teaching (1968), operant conditioning was to be applied to the classroom to improve American education. Skinner acknowledged that this would be difficult because those responsible for education continued to discuss "learning and teaching in the language of the layman. It is almost as if those who are concerned with improving medicine and public health were to talk about disease as a lack of balance among the humours" (p. 259). Moreover, "the teachers are not competent" and there "...is a shortage of good teachers" (p. 250). Skinner went on to assert that teaching "does not attract or hold good teachers. At times the profession has been tolerable only to weaklings or those who enjoy treating others aversively." (p. 99). Finally, on

pedagogy Skinner said "the subject has...fallen into disrepute (1968, p. 255). It is not surprising that the educational establishment and teachers reacted with hostility.

In Beyond Freedom and Dignity, Skinner (1971) proposed a programme for improvement of society. This had to begin by a direct challenge:

Governments are said to promote justice, security and peace, religious piety and salvation, economic wealth, educational knowledge and skills, and psychotherapeutic mental health...There is no absolute truth in value judgements...these values are now being challenged (p. 176-177).

Skinner (1971) proposed the elimination of autonomous man as the first step in achieving his programme since "he has been constructed from our ignorance" (p. 200). The legal system came under criticism for inefficiency and punitiveness, religion for maintaining illusions and superstition, and child-rearing practices as misinformed and damaging. The main problem as Skinner saw it, was that major institutions

such as governments, religions, and economic systems, and to a lesser extent educators and psychotherapists exert a powerful and often troublesome control (1974), p. 190).

This control is troublesome because it is aversive. Skinner's programme for social change was political and revolutionary in nature. How a better society might be developed was hinted at in a work of fiction, Walden Two (1948). These ideas of control are based on the proposition that "a person's behaviour is controlled by his genetic and environmental histories rather than by the person himself as an initiating, creative agent" (Skinner, 1974, p.208). Skinner realized fully, however, the force of reaction that such assertions elicit: "but no part of the behaviouristic position has raised more violent objections" (p.208). Such objections have included accusations of totalitarianism, advocating use of punishment, suffering from megalomania, extreme environmentalism, and naivete about human behaviour. Arthur Koestler called behaviorism "a monumental triviality...[having] returned psychology into a modern version of the Dark Ages". Peter Gay spoke of the "innate naivete, intellectual bankruptcy, and half-deliberate cruelty of behaviorism" (Skinner, 1971, p. 158-159).

Skinner has received much great condemnation. But like every great idea - especially the other three great outrages - Skinner's view shakes

humanity's conception of itself to the very core. Mental life has for centuries been considered the quintessence of humanity. Any denial that it lacks importance is likely to outrage many. Possibly the most serious objection to Skinner's approach is the positing of humans as empty organisms; "Skinner's error, of course, is the empty organism" (Hershberger, 1988, p.823). This was also one of the main objections to behaviorism of Carl Rogers who saw the inner life as all important and that behavior is consistent with the internalized notions of self (Rogers & Skinner, 1956). Noam Chomsky was also a frequent critic of Skinner's especially over issues of verbal behavior and language development. Jerome Bruner as well frequently clashed with Skinner on central issues of psychology. Much of the attack came from so-called humanists. Ironically, Skinner has been frequently referred to as a great humanist by many (Mahoney, 1991) and when queried about his own view on this, Skinner gave the following response:

I often wonder whether I am a humanist. If it means someone concerned with the maximization of freedom and dignity, I am not. If it means someone who is concerned about the fate of the human species in the not so distant future, I certainly am." (Note 1).

Skinner's behaviourism is the logical outcome of scientific materialism with its central assumption of the unity of nature and the principle of monism. Skinner himself regarded his operant analysis as the natural heir to evolutionary theory which itself has been the subject of so much controversy and debate (Skinner, 1981, 1987). Perhaps what is surprising is that Skinner's radical behaviourism did not emerge earlier in human history but seems to be a peculiarly 20th century phenomenon.

Summary and Conclusions

Scientific materialism has its origins in the work of the early Greek philosophers, particularly Democritus and Aristotle. For more than 1500 years, however, Plato's dualism was favoured as an explanatory mode of human nature. This dualism found its authority not only in Plato but also in the Scriptures and Christian dogma. The first real great challenge to this view of humanity came from Copernicus and Galileo - the first great outrage - who rejected the Ptolemaic view of the universe. This was a great blow to human dignity as humans no longer occupied the centre of the universe. Charles Darwin and his theory of natural selection represents the second great outrage against humanity. Once again, humanity had to rethink its nature and its role

in the universe. Freud provided the next great blow to humanity's megalomania. He depicted humans as slaves to unconscious libidinal impulses. Finally, Skinner took the next logical step in the spirit of scientific materialism when he banished mental activity as an explanatory factor in human behaviour.

In the first two outrages, the struggle was between materialism and idealism in the form of Christian dogma. With the triumph of evolutionary explanations over the account in Genesis, scientific materialism reached its apogee. By the close of the nineteenth century, however, it had degenerated into "mechanistic materialism" or "crude" materialism and had fallen into disfavour. Some of the strongest proponents of earlier materialism such as Huxley and Spencer had doubts and closed their careers with statements of scientific uncertainty. Alfred Wallace actually declared himself a believer in God.

Developments in a number of fields were setting the stage for a new idealism. William James in psychology dismissed "simple-minded evolutionists" like Spencer. Nietzche had re-introduced relativism in truth among philosophers. In economics, Veblen anointed ideas as causative factors. In physics the quantum theory of Planck and Einstein's relativity theory undermined simple mechanistic materialism. The principle of uncertainty formulated by Heisenberg became a matter of popular culture and seemed to indicate that nothing was precise, knowable or fixed. The absolute was dead and relativism ruled. This new idealism of the twentieth century was the environment in which Kuhn's (1962) relativism and incommensurability thesis could eventually thrive.

Freud was still partially engaged with the old foe of materialism (religious dogma) but was fighting a more serious battle with the new idealism. Skinner though was fully engaged with the new idealism first manifested as clinical psychology, then as humanistic psychology and finally as cognitive science. While Skinner's behaviorism had prevailed for a time in American psychology, the pendulum has now swung back in favour of idealism. In his last years, Skinner felt he was suffering the anti-scientific attacks of cognitive, clinical and humanistic psychologists (Skinner, 1987, 1990). The place of scientific materialism in modern psychology is far from secure.

Skinner championed scientific materialism and the idea of the unity of nature for more than 50 years. He saw mental life and consciousness

as nothing more than by products of material processes: "mind is what the body does... it is behavior" (p. 784). In the past five hundred years, scientific materialism has won some tentative victories over ignorance, superstition, mysticism, religion and speculative philosophy. The decisive victory, however, has still eluded us. Novack (1965) has observed that materialism and idealism in our time "stand arrayed against each other in mortal combat for complete possession of the provinces of rational thought and scientific knowledge" (p. 16). Novack's forceful comment, which is less than sanguine, does remind us that advances in scientific materialism are neither guaranteed nor permanent.

Endnotes

1 To use the five names associated with the four great outrages is not to suggest the "great man" view of history. This is done more for convenience than to imply single-handed creation. The mathematician Keppler and subsequently the physicist Newton obviously contributed to the Copernican/Galileo revolution. Darwin's work drew from his own grandfather's ideas, in part from the work of Lamarck and was assisted by others like Spencer and Huxley. Moreover, the theory was proposed independently at about the same time by Alfred Wallace. Freud's ideas for the development of psychoanalysis, of course, were influenced by Charcot, Janet and Breuer. Many colleagues such as Jung, Adler, Jones, and others helped refine and propagate psychoanalysis. Skinner in his work with behaviorism owed a great deal to the foundations laid by others such as Pavlov, Watson, Thorndike and Guthrie. No person alone obviously establishes and propagates such important and profound ideas, methods and movements as
embodied in the four great outrages.

2 There are a number of important philosophical traditions that occupy a middle-ground between the polar opposite of pure materialism and pure idealism. These include the American Pragmatists such as William James and John Dewey, Existentialists such as J. Paul Sartre and phenomenologist such as Husserl.

Reference Notes

Note 1. B.F. Skinner, Personal Communication, Sept. 28, 1988.

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