Evolutionary Humanism: Possibilities and Limitations of a Scientific Meaning Frame

Introduction

Visiting the United States in 1997 I was struck by the important role of natural science in American humanism. This struck me because in the Netherlands, the country I live in, humanism is primarily connected with philosophy and the humanities. Psychology and the social sciences also have their influence, but the natural sciences are ignored. There are a few exceptions and around 1900 it may have been different, but the general picture is one of neglect. This difference between the American and the Dutch situation made me wonder.

The aim of this paper is to get a clear view of the possibilities and limitations of a scientific ‘worldview’ or ‘meaning frame’. I prefer the last phrase, which was probably coined by the American sociologist Robert Wuthnow. There are many reasons for this preference. First and foremost it is important to see that this terminology not only reflects progress in the study of culture, but also changes in culture itself. In the Netherlands the number of people between 21 and 70 years of age who are not a member of a Christian church has risen from 25% in 1958 to 60% in 1997. Many of these people believe in a personal God, many others are avowed atheists, and many do not know what to think of him, her or it. To be able to talk adequately about what these people think, feel and practice a new theoretical apparatus is needed. The rise of the theoretical concept of ‘meaning frame’ reflects a change in modern Western society away from God as a person, away from churches and away from ‘religion’ as a static, collective system of explicitly formulated beliefs, attitudes and values primarily having an objective explanatory function.

Because I like to identify myself as a humanist, and because especially humanists like to present themselves as having a scientific worldview, I will take humanism here as the main example of a meaning frame. Because neo-Darwinist evolutionary theory is one of the most successful scientific theories and because it is often presented as a scientific theory with large consequences for one’s worldview, I will focus on this theory as representing science.

Meanings of life

Humanism is a meaning frame which is open, rational and universally human and, of course, as a meaning frame it determines or expresses
meanings of life. In his book *Meanings of Life* the American social psychologist Roy Baumeister develops a theory which is useful here. According to Baumeister an educated Victorian gentleman was assumed to have developed and articulated a philosophy of life that covered all the ultimate questions. Today such an expectation would be absurd. It is clearly not necessary to have a fully worked out, coherent, and logically consistent notion of the meaning of life. People are quite capable of living happily in modern society without any coherent or explicit philosophy of life. But that does not entail that their lives lack meaning. Most people most of the time seem to be satisfied with fragmented, specific answers to specific needs, and they simply do not work everything out to a fully elaborated system. Nevertheless, people have a strong need for life to make sense in certain ways. Meanings of life refer to ideas that connect things together. One function of meaning is to enable people to discern patterns in the world around them and so to explain, predict and influence what might happen. Meaning creates order out of chaos and enables a human being to change its environment to fit the self. Science has proven to be of great help in this regard. Another main function of meaning is self-control. People use meaning to liberate themselves from the impulses and instincts evoked by their immediate environment and to regulate their emotional states. Often illusion is involved, but meanings of life create or contribute to feelings of stability, controllability, identity, orientation, psychic well-being and motivational commitment.

According to Baumeister the ways in which people want their lives to make sense can be described as needs for meaning.

'Four basic needs for meaning can be suggested: purpose, value, efficacy, and self-worth. A person who is able to satisfy these four needs probably will feel that his or her life has sufficient meaning. A person who has not satisfied them is likely to feel a lack of meaning.... A person’s meaning of life is the sum of ways he or she has of satisfying these needs for meaning.'

The exact number of four needs is irrelevant. It might be possible to combine them or to make finer distinctions within them. The important thing is the total conceptual space that they cover. Baumeister’s claim is that all human beings have these needs for meaning and that they make it possible to explain why people feel their lives to have meaning or not. In the rest of his book Baumeister explains a wealth of empirical data using these meaning needs. People want their lives to have purpose. They want to interpret their current activities in relation to a desirable future state. The important thing is that people can connect their present experiences and activities to possible future events, which can be objective goals or subjective fulfill-

ments. The goals may never be achieved and the promises of fulfillment may turn out to be illusions. The purposes do not have to be realized or achieved in actual fact. People also want their lives to have positive moral value. They want to feel that their present and past actions are right and good and justifiable. In many cases, people are motivated by self-interest, but they still need to be able to justify their acts in the light of broad and basic principles and values. The third need is for a sense of efficacy. People need to believe that they have some control over events. To some extent at least they want to feel capable of achieving goals and realizing values. The need for efficacy often takes the form of needing to feel that one is making a difference. People achieve efficacy by changing their environment to fit the self or by changing the self to fit the environment, but also by creating illusions of control or by interpretive control. Interpretive control refers to the fact that merely understanding something provides a sense of control even if there is nothing you can do about it. The final need for meaning is the need for self-worth. People not only want their actions to have positive value, they want to have some basis for regarding themselves and convincing others to regard them positively. It is a need to have a claim on respect – both self-respect and respect of others. In practice this need often translates into the need to feel superior to others. A collective basis for self-worth refers to belonging to a superior group, based on comparison with other categories of people. In contrast, individual bases for self-worth refer chiefly to comparisons with other member’s of one’s same category.

A critical discussion of Julian Huxley’s *Religion without revelation* (1967)

Now, what are the possibilities and problems when we want to base a humanist meaning frame on the science of evolutionary biology? In order to answer this question I turn to the English biologist and humanist Julian Huxley. Julian Huxley (1887–1975) in some ways resembles Baumeister’s educated Victorian gentleman. Between 1920 and 1950 he not only helped to establish neo-Darwinism – the synthesis of natural selection and genetics – but also made a great effort to extend the new Darwinism into a broader humanist vision of the nature and purpose of human life. Of course, Huxley does not represent an up to date version of humanism nor of biology, but he certainly is one of the most well-known humanists who tried to integrate his worldview with evolutionary theory. A study of Huxley’s publications probably tells us a lot about the type of problems humanists encounter when – like him – they try to develop a “scientific humanism”10. I will focus on Huxley’s well-known book *Religion without revelation*, in which he presents “evolutionary humanism” as a non-theistic natural religion. One final
preliminary remark. Many publications on humanism keep defending it against Christianity. In this paper the humanist position is taken for granted. The issue here is not humanism compared with Christianity, but the nature of the relationship between the science of evolutionary biology and humanism as a meaning frame (or worldview or religion).

So let us see what evolutionary science according to Huxley discovers about human purposes, values, efficacy and self-respect. I will select a few points which I hope will communicate the general picture. The following, longer quotation is a good starting point:

"Biology ... has thus revealed man's place in nature. He is the highest form of life produced by the evolutionary process on this planet, the latest dominant type, and the only organism capable of further major advance or progress. Whether he knows it or not, whether he wishes it or not, he is now the main agency for the further evolution of the earth and its inhabitants. In other words, his destiny is to realize new possibilities for the whole terrestrial sector of the cosmic process, to be the instrument of further evolutionary progress on this planet.

The past history of biological evolution gives us a certain further guidance. We can justifiably extrapolate some of the main trends of progress into the future, and conclude that man should aim at a continued increase of those qualities which have been brought in the biological past - efficiency and control of environment, self-regulation and independence of outer change, individuation and level of organization, wholeness or harmony of working, extent of awareness and knowledge, storage of experience, degree of mental organization. In particular, man is likely to fulfill his destiny more successfully if he exploits to the full those improvements which have given him his position as latest dominant type, notably his properties of reason, imagination and conceptual thought, and his unique capacities of accumulating, organizing, and applying experience through a transmissible culture and a set of ideas." 11

Huxley here presents the human being as the highest form of life, as the only organism capable of further evolutionary progress, as the 'managing director of the biggest business of all, the business of evolution', 12 and he indicates what should be the ultimate aim of the efforts of this managing director: to further develop the unique possibilities of the human being, in particular reason, imagination, conceptual thought and 'the capacity to organize awareness in transmissible and cumulative form'. 13 If Huxley is right, this will clearly provide meanings of life. People, for whom these statements are a living truth, have a good starting-point to respect themselves and to feel that their life has purpose and value. What interests me here is that Huxley writes as if these judgments are no personal choices of his, which he should support with arguments. He claims that biology has shown these judgments to be valid conclusions of empirical science. But is that really so? Why is biological evolution a story of progress? 14 Why is the human being the highest form of life? What is the biological reason that all evolution in the future should be guided by the higher possibilities of the human being? According to Huxley 'a higher organism is one which has realized more of the inherent possibilities of living substance, and biological progress denotes those trends which do not restrict the further realization of those possibilities'. 15 Some examples will probably make clear what he means. Huxley writes that during the two thousand million years of life's existence

'there has been an enormous rise in level of harmonious organization - think of a bird or a mammal as against a flatworm or a jellyfish; in flexibility and the capacity for self-regulation; in physiological efficiency, as shown in muscular contraction or rate of nervous conduction, or manifested in sheer strength or speed; in the range of awareness, as seen in the evolution of sense-organs - think of an eagle's eyes or an antelope's ears as against the complete blindness and deafness of a polyp or an amoeba; and in the intensity and complexity of mental processes such as knowing and perceiving, feeling and willing, learning and remembering - think of a dog or a monkey as against a sea-anemone or a snail.' 16

I must say that I still do not understand what he means. Why, biologically speaking, is a turkey more harmoniously organized than a jellyfish? An eagle has sharper vision than a human being. Why then does Huxley rank eagles below human beings? I agree that given a particular, carefully formulated (set of) criteria one may rationally interpret many evolutionary changes as progressive or regressive, but the difficult problem Huxley does not really solve is: why is one particular (set of) criteria ultimately more important than another. And is it possible to speak about higher or lower apart from the natural environment of the animals we are speaking of? I suppose that jellyfish and sea-anemones are better equipped for living in the sea than many birds and monkeys. I agree with Provine 17 that Huxley's conception of evolutionary progress ultimately derives from anthropomorphic criteria: whatever leads to humans in evolution constitutes progress. According to Provine Huxley seemed to think that, after having given up the Christian heritage, the only hope for a meaningful life was tied somehow to progress in evolution. That is why he desperately wanted progress, and was not ready to give it up. 18 Huxley smuggled his own cultural values into the science of biology and then extracted a conception of progress from it.

Huxley not only writes that the human species is the apex of evolution, he goes even further. Evolutionary biology has shown the human being to be evolution's managing director; in Hegelian terms: in the human being evo-
lution has become conscious of itself. This, if it is true, would give humans many more opportunities to experience purposes, value, efficacy and self-worth. Part of it does seem to be true. Humans have an influence on the process of evolution on our planet. I do not have to speak about war waged with nuclear weapons. The destruction of tropical forests and underwater coral reefs causes the extinction of large numbers of species. The increase of the human population of the earth and the mass production and use of coal, automobiles and refrigerators not only changes the human environment, but at the same time the environment for other living beings. So humankind does have an influence on the course of evolution. However, a managing director is not only expected to have influence. A managing director should have influence in a certain direction. He or she is expected to have a policy. My estimation is that in the foreseeable future humanity will not be able to consciously direct the course of evolution as a whole. The history of humankind abounds with examples of unexpected consequences of seemingly well-planned actions. Moreover, it will be quite a job to get humanity agreed on concerted action. I do not want to argue that we should not do our utmost best, but I think that it will be good policy not to overestimate our power and capabilities. Our success as partner in the process of evolution will not only depend on the extent and reliability of our scientific knowledge, but also on politics and the shifting balance or imbalance of powers and interests.

The meanings someone will find in life are certainly influenced by his or her ideal of human development. Therefore Huxley's ideal of personal growth is an interesting point to comment on, especially because he presents his 'faith' in the possibilities of humankind as a conclusion from science.22 Huxley has a rather detailed conception of what constitutes the highest form of human development. In contrast with specialization and with the cultivation of every kind of fulfilment separately (what he calls 'all-roundness by summation'), Huxley champions attaining 'wholeness' or developing a 'well-integrated' or a 'full, deep and rich personality'.23 Ignoring the fact that some human possibilities are evil and should not be developed (something Huxley hardly writes about), Huxley's ideal deserves our sympathy. But we know that developing a full, deep and rich personality was already an important ideal for Renaissance humanists who had never heard about evolutionary biology. What does Huxley's ideal have to do with evolution? According to him the highest ideal of personal development refers to 'the unity and continuity of the highest types of personality, just as the mammals', separate emotional drives and their series of isolated experiences had to be brought together in consciousness before the continuity of man's mental life could be realized.

Some kind of wholeness is thus indispensable for the higher levels of human fulfilment. But there again restriction or over-specialization can have unfortunate results. The dangerous over-specialization here is emphasis on unity and harmony to the neglect or exclusion of comprehensiveness, richness, and variety. A holy life may be strongly unified, but may be sadly restricted in scope. Its pattern may be a whole in the sense of having a well-marked unity, but it may fall far short of possible wholeness in failing to utilize many of the potentials of human development.22

Huxley's references to biological evolution here seem rather thin as a decisive, scientific argument in favor of comprehensive wholeness as opposed to specialization and all-roundness by summation. I do not want to be misunderstood. Huxley's position on comprehensive wholeness as an ideal for human development is attractive and it is part of a respectable humanist tradition, but I am not convinced that the science of evolutionary biology shows this to be the highest ideal.

It is a moral ideal which should be argued for in discussion with other people and I do not think that arguments from evolutionary biology will be the most relevant and convincing arguments. Ethics is not a natural science, however much it takes scientific findings into account.

There is one last point about Huxley's evolutionary humanism that certainly deserves our attention. Huxley assumes that evolution in a biological sense is the model for evolution and development in other senses. He writes as if the psychological development of an individual human being or the cultural development of a society are part of biological evolution and are determined by the same kind of mechanisms. In other words, Huxley mixes domains, and 'endless confusion has resulted from people committing domain mixes'.23 Let me give one example. We have seen that according to Huxley the only biological organism capable of further major progress is the human being. His argument is as follows. In the course of evolution the limits of 'purely physiological' progress have long been reached. A land animal larger than the dinosaurs is inefficient, the temperature-regulating mechanism of higher mammals would not be more useful if it were more accurate, and it appears to be physically impossible to evolve an acuity of vision or a speed of flight greater than that of a falcon. The only avenue of major advance left open after this was the avenue taken by our own ancestors: 'improvement of brain and mind'.23 This improvement and the associated rise to planetary dominance of the human species are a very recent evolutionary developments. According to Huxley there is no reason to think
that our mental powers are complete and that they have reached the limit of what is possible from the standpoint of evolution:

'there is no reason...to refuse to face the possibility that mind could be developed by selection to a pitch which would bring its owners to the same height of incomprehensibility to us at our present level of mind, as is our present level to the cats and dogs who sit by the fire and hear us talking, but cannot comprehend.'

Apart from my earlier comments on the criteria for judging progress, so far so good. But Huxley’s argument goes on. According to him the future progress of the human being and thus of evolution depends very largely on the greater extension and better organization of its awareness. The organizations of awareness humanity possesses now (language, science, morality, religion) are all human productions (of course in partnership with external fact). And then Huxley writes:

'Collective awareness is thus the distinctive and most important organ of the human species. It can be improved both quantitatively, by adding to knowledge and extending the range of experience, and qualitatively, by improving its organization. Scientific hypotheses and laws are better organizations for coping with our experience of physical phenomena than are trial-and-error methods, or traditional precepts, or pseudo-explanations in terms of metaphysical principles. Monotheism provides a better organization for certain important aspects of religious experience than does polytheism.' (emphasis by P.D.)

So Huxley views the development of science, morality and religion as part of the development of the most important ‘organ’ of the human species. And according to Huxley a human individual contributes to ‘evolutionary fulfillment’ when he or she develops a ‘full, deep and rich personality.’ But what does it mean to contribute to ‘evolutionary fulfillment’ through developing your personality? From the discussions about the giraffe’s neck and the inheritance of acquired characteristics I have gathered that in a biological sense this does not happen. If Huxley means that an individual’s acquired culture can be transmitted through education, example, books and artefacts, and that in this way each of us can make a contribution to humanity as it will exist after him or her, then I understand what he means. It is a plausible thesis that the transmission of culture through books is part of the evolution of humanity. But I do not think that it is very helpful to analyze cultural developments mainly in terms of natural selection. ‘Evolution’ can have many meanings, not only biological ones. The analysis and understanding of the relation between biological evolution and the evolution of

culture is certainly an important and interesting topic, but it is not an object of biology alone. It should be studied in multidisciplinary fashion from various angles by biologists and other empirical scientists and by philosophers.

The value of evolutionary science for a humanist meaning frame

It is not satisfactory to criticize Julian Huxley’s daring attempt towards a humanist religion based on evolutionary science and leave it at that. What is the positive contribution of neo-Darwinism to an adequate and inspiring humanist meaning frame? Many of the following points should not be seen as conclusions from the empirical science of biology. They take the findings of evolutionary biology into consideration, but essentially they are ideas I put forward as helpful for a meaningful human life at the beginning of the third millennium. I am conscious of the metaphorical language that I use, but that is inevitable when we want to formulate a meaning frame. Meaning frames should not aim at pure description, explanation and prediction, but also at orientation, inspiration, guidance and prophecy. Even or precisely science is not just an ever growing pile of facts. Facts without any interpretation are useless from a scientific point of view. I suppose that they do not even exist. To quote the English philosopher Mary Midgley from her interesting book 'Evolution as a religion':

'The most general concepts used by any science – concepts like life, time, space, law, energy – raise serious headaches, affecting their use in actual problems. To resolve these, however, we often need not more facts but a better way of fitting these concepts into their neighbours, of seeing the wider problems which surround them, of ‘conceiving the world as a whole’. Science quite properly calls on the whole range of our cognitive faculties, but it is not alone in doing so; nor can it define their whole aim. It is part of our attempt to understand the universe, not the whole of it. It opens into metaphysics.'

Julian Huxley did not just present the facts of evolution, he also gave a far-reaching interpretation. His interpretation actually comes into conflict with the facts, as we understand them now. That is the main thing I have tried to show up to here. Interpretation, however, is inevitable and not wrong in itself. We should not hide or be ashamed of our interpretations. We should make them visible in order to raise the level of the debate. Here follow some attempts of mine to indicate in what way and to what extent evolutionary theory is important for a humanist meaning frame.

(1) We might regret this, but evolutionary biology does not guarantee progress in a humanly meaningful way. It does make clear, however, that the
lives of human beings are part of a natural process that has brought us into existence, keeps making our lives possible and in part has become dependent on our own actions. This does not give human beings an all-embracing superpurpose in life, but it enables us to put our lives in some more general perspective. People generally find goals, fulfillment, value and feelings of efficacy and self-worth in work (as job, career and/or calling), love (as passion, intimacy and/or commitment), parenthood and/or family life. Evolutionary theory makes it possible to create some order in the wider world surrounding an individual's work, love and family life. An order which for the time being can be accepted as 'true'. This victory over chaos gives people what psychologists call 'interpretive control'. 'Interpretive control refers to the fact that merely understanding something provides a sense of control even if there's nothing you can do about it. Interpretive control leads to a feeling of efficacy.

(2) Evolutionary theory is important in another way. In recent decades humanity has been degrading and even destroying its natural environment at unprecedented speed. And the prospects are alarming. Part of the problem is the way human beings view nature. We should not see nature as an enemy or a slave we can try to conquer, use up and plunder. In our present situation it is important that individual human beings, human societies and humanity view themselves as part of nature, as intimately connected with nature. Whether we keep spoiling nature or start to improve our attitude and behavior, in both cases this will have profound effects on the meanings we will (be able to) find in life. Knowledge of evolutionary theory can corroborate people's awareness that they are part of nature, and it will make them think in longer periods of time, which is necessary for a responsible approach towards our natural environment. We not only need swift changes in behavior and policy, but also understanding and taking into consideration of long-term processes across generations. The study and knowledge of evolutionary biology can do more. The study of the earth, plants, animals and humanity, and the history of them is apt to lead to feelings of awe, wonder, curiosity and love. This emotional and spiritual result of the scientific study of nature and its diffusion is important. It can also have social and political implications. As the paleontologist Stephen Jay Gould once remarked: 'We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well.'

(3) Evolutionary theory might have important consequences for the study and knowledge of human beings in their bodily, psychic, moral, social and political aspects. Evolutionary ethics and evolutionary psychology are two examples in this respect. Evolutionary psychology is a rather new discipline and I am not qualified to judge the prospects of it. It seems to be one of the more active areas of contemporary personality psychology. However, human beings are very complex. In personality theory e.g. many rival theories exist. All of them seem to have part of the truth and it seems hardly possible to combine them into one valid theory. I do not expect that evolutionary psychology will suddenly change this. Moreover, psychological predictions about the behavior of human beings are always somewhat ambiguous if the people concerned know what is predicted about them. They might decide not to follow the prediction. Evolutionary ethics is a very interesting philosophical project, but its prospects do not look promising. A justification of an ethical decision along teleological lines typically refers to three things: to a theory of what ultimately constitutes value, to relevant information about the present problem situation and to prognoses about the consequences of different alternative decisions. The hard problem for evolutionary ethics seems to me to find an adequate theory of value which can be explained and justified by evolutionary theory. As far as evolutionary psychology is successful, it will help us to understand other people and ourselves. This might increase our feelings of efficacy, though I cannot predict what happens if corporations, governments, and many individual human beings start using this knowledge in their dealings with each other. If evolutionary ethics through justifying a theory of value would succeed in reducing or eliminating the gap between facts and values, that would be revolutionary. But I do not see this revolution coming.

(4) Evolutionary theory does have many faces. And as I said before, evolutionary theory is more than a pile of facts. In a scientific theory facts are connected, and the connecting mechanisms involve interpretation, and the interpretations involve connections with the wider world outside science. When e.g. genes are said to be 'selfish', the use of this word in this context evokes problems. Can genes be selfish in the way people can? So, for evolutionary theory to have the good consequences hinted at above, we need evolutionary theories with a carefully shaped human face. Like Jean-Baptiste Lamarck Julian Huxley may have smuggled too much progress and optimism into biology. On the other hand Michael T. Ghiselin, David Barash, Richard Dawkins and Edward O. Wilson seem to have given Spencerist interpretations of evolutionary theory which amount to a fatalistic counsel of despair and are quite dangerous in their individualistic and selfish implications. I emphasize that I want to say nothing about other aspects and
other parts of their work, but according to Mary Midgley these authors present nature as never ending total war between individual elements, and make altruism and constructive efforts towards common goals a ridiculous affair. Thoughtful inspection of these theories by Midgley shows them not only to be morally suspect and socially undesirable but scientifically untenable too. So it is difficult to speak about the consequences of evolutionary theory. We should always be ready to ask which evolutionary theory precisely.

(5) One final remark. Baumeister makes clear that membership in a religious group is often accompanied by feeling superior to outsiders. In this way religion can be an important source of self-worth and of meaning in life. In the same way, paradoxically perhaps, people who think that their outlook on life and its evolution is in accordance with scientific (neo-Darwinian) truth, might feel superior to adherents of a religious faith which endorses the story of the Creation by God as a theory describing and explaining the origin of life and the human species. In the first part of this paper I mentioned Baumeister's remark that science has proven to be of great help in explaining the world; which is one function of meaning. Here we have a case where science possibly contributes to the regulation of people's emotional states.

Notes
11 Huxley J. Religion without revelation. (new ed.) London, 1967. The book was first published in 1927 and republished in strongly revised forms in 1941, 1957, and 1967. Here the last edition is used. In the preface to this edition Huxley himself wrote: 'In this form, the argument...'
12 Ibid. P. 165. A lot could be said about what a 'lowerdominant type' is and why a later dominant type according to Huxley is a 'higher', more advanced group of animals. 'Each new dominant type possesses some improvement in general organization, which enables it to spread and multiply at the expense of the previously dominant group from among whose less specialized members it has evolved. This progressive replacement of dominant types and groups is most clearly shown in the later history of vertebrates. The reptiles replaced the moist-skinned amphibians as a dominant type of land animal, and were in turn replaced by the warm-blooded mammals and birds.' (p. 164) I wonder how Huxley would relate this argument to the human population explosion, a problem he thought so important.
13 Ibid., P. 191.
14 Ibid., P. 177-178.
15 Huxley does not believe that future progress is guaranteed. 'There is no finality about the process, and no automatic or universal progress, but much improvement has occurred in the past, and there could be much further improvement in the future (though there is also the possibility of future failure and regression).' (Ibid. P. 6)
16 Ibid. P. 164.
17 Ibid. Pp. 163-164.
19 Ruse makes a similar point: 'With the possible exception of Herbert Spencer, no one in the whole history of evolutionism was more ardent in his progressivism than Julian Huxley... Searching desperately as a young man for a faith to substitute for Christianity, Huxley found it in progress -- and for him, progress was best manifested in and made most probable and plausible by the evolutionary process.' Ruse M. Mystery of mysteries: is evolution a social construction? Cambridge, Massachusetts / London, 1999. P. 94.
21 Ibid. P. 6.
22 Ibid. Pp. 174-175.
25 Ibid. P. 165.
26 Ibid. P. 91.
27 Ibid. P. 179.
28 Ibid. P. 6.
30 Huxley generally has a pretty empiricist conception of science (pp. 40 and 86-87), but sometimes (later in his life?) he recognizes the interpretive aspect of it (p. 178): 'Perceptions...always involve some degree of assumption and interpretation. An obvious example is the night sky: the "natural" interpretation of this was to perceive the sky as a hemisphere studded with equidistant stars; now, with the aid of telescopes and astronomer's brains, we see it as a fathomless depth of space. Interpretive assumptions modify the way in which our raw awareness is perceptually organized.'
The Possibility of Meaning in Human Evolution

We humans have established some disquieting facts: (1) humans have evolved from non-human life, meaning (2) that at one time in the past, we did not exist, and (3) according to paleontological and astronomical evidence, at some time in the future we shall cease to exist. There is no discernible scientific reason that we had to evolve at all, and there is no guarantee that we will continue to evolve successfully. The price of such knowledge has been the gnawing question of whether human existence has any genuine meaning.

The problem of meaning is easily resolved for those who embrace a pre-constructed meaning system such as religion. However, religion cannot help us find meaning in any honest sense unless it assimilates the truth about human origins, and the journey to knowledge about our biological origins has deposited us at a point which Philip Kitcher calls "painful enlightenment," a sometimes-experienced result of scientific inquiry in which "people acquire beliefs that have an impact on their values" and result in a loss of "psychological comfort."2

A fact not likely to lessen the psychological discomfort is that the problem of meaning has not always existed. It is a problem only for humans, and humans have not always had the ability to pose the question of meaning. The problem exists only because of evolution, which was taking place long before we appeared on its timeline and would have continued even if humans had not showed up at all. Moreover, if the human species is headed for extinction, which the evolutionary record and solar astronomy tell us it is, then the problem of meaning becomes more salient; indeed, for some people it becomes acute. Is the choice genuinely either to reject science, with its unhappy discoveries, or to ignore it in favor of a worldview with comfortable but less supportable foundations? If we accept what science shows us about ourselves, does human existence mean anything?

Can evolution serve as the basis of meaning in human existence? The word "meaning" conjointly denotes "purpose," "value," and "significance." The "purpose" of human existence is generally understood as a plan or agenda, advanced either during the course of individual life or by the mere fact of collective human existence. The "value" of human existence refers to whether it is of any merit or account, whether it is important. The notion of "significance" is roughly the same as "value," but may include the idea that human existence indicates something beyond itself. "Meaning," in the higher sense I shall specify, includes these connotations and is referred to as "existential meaning." So the question of meaning is whether human existence is
SCIENCE AND SOCIETY
Edited by Prof. H. James Birx & Prof. Eduard L. Kolchinsky

ST. PETERSBURG
2000

НАУКА И ОБЩЕСТВО
Под редакцией Дж. Берка и Э. И. Колчинского

САНКТ-ПЕТЕРБУРГ
2000


Сборник состоит из статей, подготовленных на основе докладов, сделанных на международной конференции "НАУКА И ОБЩЕСТВО", проходившей с 21 по 25 июня 1999 г. в Санкт-Петербурге и организованной Санкт-Петербургским филиалом Института истории естествознания и техники РАН и философским факультетом Санкт-Петербургского государственного университета.

Тематически сборник включает четыре раздела: наука и этика, наука и религия, эволюция и гуманизм, современное прочтение философии Фридриха Ницше, которые соответствуют общему замыслу конференции — рассмотреть предельно актуальную (особенно для России) проблему соотношения и взаимодействия науки и общества через призму четырех аспектов — наука и этика, наука и религия, наука и гуманизм (в том числе эволюционный гуманизм), наука и философия с логической и исторической точек зрения.

The volume consists of articles prepared on the basis of reports which were made at the International conference "SCIENCE & SOCIETY" held June 21–25, 1999 in St. Petersburg. The conference was organized by St. Petersburg Branch, Institute of the History of Natural Sciences and Technology, Russian Academy of Sciences and by Philosophical faculty, St. Petersburg University.

The book has four sections: science and ethics, science and religion, evolution and humanism, modern interpretation of Friedrich Nietzsche which are arranged according to main idea of the conference — to look through an actual (especially in Russia) problem of correlation and relation between science and society through the glass of four aspects that are science and ethics, science and religion, science and humanism including evolutionary one, and science and philosophy from logical and historical points of view.

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