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FROM THE CONCEPT OF NOOSPHERE TO THE CONCEPT OF NOOETHICS

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ОТ КОНЦЕПЦИИ НООСФЕРЫ К КОНЦЕПЦИИ НООЭТИКИ

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В статье изложен анализ формирования нооэтики как современной стадии развития биоэтики. Философской и мировоззренческой основой нооэтики признается современная этическая оценка последствий трансформации биосферы в ноосферу в результате жизнедеятельности человека.

Представлены исторические предпосылки формирования концепции ноосферы и нооэтики в рамках эволюционной теории ряда исследователей-предшественников.

Значимость концепции нооэтики определяется анализом успехов и неудач в работе по защите окружающей среды, а также созданием этической платформы менеджмента в сфере биобезопасности ноосферы.

Концепции ноосферы и нооэтики рассматриваются как составляющие вектора развития цивилизации XXI ст. и современного мировоззрения.

Ключевые слова: ноосфера, нооэтика.

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However, the idea of a "noosphere" of Teilhard de Chardin is perceived by some today, it was a concept that did not gain ground, although it had its eminent champions such as Huxley, Lerua and Vernadsky. The notion of de Chardin was too ephemeral a concept to take on board, especially with its spiritual basis that did not fit with scientific thinking. This underlying idea, however, did help us nevertheless to focus on a newly emerging era in evolution, one that would change the direction in which "natural" forces might have led us. It has become increasingly obvious that this new direction could be largely under human control and this could impact many different ways on the future of planet Earth (and probably beyond). As a wake-up call, the noosphere was therefore important in one respect, which emphasised the fact that man must set about regulating the "knowledge-sphere" and taking greater responsibility for his action in the evolutionary process, i.e. in the behaviour through which he applies this knowledge. Little seems to have been done constructively about this matter, but the knowledge-sphere is now with us in the guise of the internet and other media systems that could never have been perceived by the 20th advocates of the noosphere concept. Evolutionary development has to be considered in much greater depth because it is hereafter going to be central to any debate about the future. It follows that the problems of what constitutes useful knowledge and how to control of its application have become increasingly urgent, otherwise possible scenarios would include some that would definitely be detrimental to future existence of mankind, as was faced when atomic warfare was first let loose. The wake-up call today should not be through such drastic measures. The general public is greatly in need of education about the issues facing mankind and the planet. Concerted action on a global scale is needed to put in place constructive approaches, bottom-up and top-down, that might help human society, the biosphere, and our planet (and things beyond) to face the future with confidence and understanding. It is hoped that what is presented here goes some way to opening up a fuller debate of an underlying deficiency in the present state relating to our control of human knowledge and where it might take us, rather than proffering solution to the problems.

Key words: noosphere, nooethics.



When it is clear what true morality consists of, everything else becomes clear.

Confucius

Dialogue is not primarily concerned with providing a platform for scientists to explain to the receptive layperson how the world works. It is instead a context in which society (including scientists) can address the issues that are arising from new developments in science.

*Sir Roland Jackson
(Science and Public Affairs, March 2005, p. 12)*

Introduction

The noosphere means knowledge sphere; it is the sum total of mankind's understanding, with endless facts that have accumulated since communication in words, spoken and written, became a feature of the human species. The concept of a global cognitive layer generated by the formation and development of human consciousness and understanding was proposed at the beginning of the 20th century by Tielhard de Chardin [1]. This essay will make several points that lead on from this germinal notion, namely that

(1) *mankind's development means that this species can now control to a large extent many things that nature, left to its own devices would have dealt with in other ways,*

(2) *as a consequence, we have moved into a new era of evolution that will have a very different character from the past,*

(3) *the information available to us should have led and will lead to improved understanding of ourselves, and our relationship with the rest of the biosphere, this planet, and indeed the whole Universe, and finally,*

(4) *the content of the knowledge sphere accessible to all must be regulated such that it is used for better rather than worse, and consequently leads to some important moral and ethical issues.*

The proposal and development of the *Noosphere* concept was considered by some to be one of the greatest, but chequered, philosophical achievements in the 20th century. The noosphere — from Greek “noos”, reason — is the ethereal layer in the cumulative consciousness of man and society makes knowledge available to all, which may bear great benefits to future development in the material and abstract nature of existence. But the emphasis on human *consciousness* (and presumably understanding) was based on a spiritual notion by Tielhard de Chardin [1]. Call it whatever, the concept was nebulous, with no tangible evidence of its existence; it was literally conjured up. Today we might refer to some such “strange” ine-

ther as the technosphere, anthroposphere or sociosphere. According to Lerua, the noosphere is the evolutionary successor of the biosphere, but this is to divorce knowledge from substance, which gets us nowhere. A knowledge sphere created by man can be used by mankind (and any greater intelligence), otherwise it has no relevance.

Whether these ideas tie in together or are seen as not exactly congruent with one another is open to debate, with little chance of an agreement being reached. Anyway, things have moved on; there is no doubt that du Chardin and his disciples could not possibly have conceived of an accessible store of facts, information and knowledge that has been developed large through the scientific and technological advances by many outstanding figures mostly among the computer pioneers.

However, the original noosphere concept was considered fundamentally flawed and nothing more than bombastic prattle by other eminent people, including Medawar [2]; indeed, he slated it as little more than vacuous rhetoric by someone who knew very little about the subject matter compared with those scientists who tried to bring it closer in line with the nature of human development and our future evolution. Had it indeed been one of the greatest philosophical achievements of the 20th century, it should be as prominent today as it was in the 20th century, but it faded rapidly in the late 1900s and is scarcely mentioned nowadays in science or philosophy, with only a few devotees with little background knowledge posting mostly bizarre remarks about it on the web. But that does not mean that the noosphere concept is dead, for we do indeed have a knowledge sphere in existence today, undreamed of in the middle of the 20th century, and it is certainly not based on vacuous rhetoric. Thus we should retain the term, but use it to refer to all means of communication that allow us to pass information and knowledge from one person to another, for one place to another, and to use it responsibly. This word *responsibly* is the one that leads to the need for us to have in place a firmer means of dealing with the moral and



ethical issues that can arise in all forms of media of communication. The word that we use here to refer to it is *nooethics* [3].

An accessible knowledge sphere cannot but help in advancing human society, hopefully for the better than the worse if used wisely. The repositories for all forms of information and knowledge in pre-du Chardin's days would have amounted almost exclusively to just one main source, viz. our libraries. These are tangible entities that played their part and still do. However, it was instrumental in mobilizing others regarding the implications that rapid advances in knowledge led to it *technological applications* whereby human activity would quickly become the main determinant of not only mankind's future development, but that of the entire biosphere and the whole planet. It is said today that more earth is moved by man than by the forces of nature. This simple but astonishing fact alone should make us sit up and take notice of what is happening around us and to us. *[At this point, we ought to consider briefly an awkward conundrum that comes up repeatedly in some of the further discussion below. If mankind does shift more earth than "nature" does, is what our species does "unnatural"? Has not our domestication and cultivation of animals and plants already changed vastly the surface of the Earth and much that would otherwise have happened if it had been left wild? Mankind has already markedly changed the future destiny of this planet in this way, and will continue to do so even more than before. Is this not a natural development, and part of the process of evolution taking its own course, however different from that it seems from what has happened in the past? To suggest that man directing future evolution is unnatural effectively alienates him from the rest of the biosphere, and in some eyes would elevate him once again to a more god-like figure.]*

Huxley's Involvement and Interpretation

One of the pioneers with a thorough grounding in evolutionary theory who fully appreciated the problems of the limited resources of our planet after Malthus was Julian Huxley [4]. He had shown great concern about exponential population growth and became one of the founders of "eugenics". The general public and politicians had, until WW2, taken little cognisance of the importance of science in shaping the future, at least not until the Americans dropped two atomic devices over Hiroshima and Nagasaki. Suddenly the impact of science on our future as a species came home to everyone

and the morality (or rather the immorality) of war made people think about the impact not on just technological advance, but also the consequences in terms of the ethics of human behaviour. Huxley approached these issues from the humanist viewpoint, much like his forebear, TH Huxley. Man was clearly becoming increasingly powerful in controlling his environment. Humanists believe there is no supernatural ultra-sentient being; the most sentient being in evolution of life as far as this planet is concerned being the aptly named *Homo sapiens*, both conscious of himself and his relationship to the rest of nature. It is therefore the responsibility of human beings to look after not only their own future, but be *responsible* custodians of the planet. As mankind gains power over the environment, so this duty becomes increasingly apparent and pressing as technology advances apace, faster than any of us might have imagined since Julian Huxley's days. Left alone, chaos could soon result, and our future would be totally uncertain. Humanism today is a weak movement because it is the default position, in which man rejects the notion that his future is preordained by some external agency to which he may call upon in times of dire need to wrought some sort of miraculous deliverance from "evil" or disaster. The theist authority usually portrayed by religious people is that God does not abide only by the laws or rules of nature as we know them; God can work miracles, can work outside and beyond the laws that we find can explain the Universe, and through some mystical means can decide our individual and collective destinies.

"Huxley surveyed the progressive development of humanity, but did not make any analogies with biological evolution. Social achievements, he claimed, are connected with the development of more and more liberal laws and *ethical principles*. Huxley openly agreed with Herbert Spencer (1820–1903) that *moral principles* have evolved, but at the same time denied that *the evolutionary process provides any basis for forming the very criteria of ethics*. Fanatical individualism, according to Huxley, attempts to explain itself as analogous to, or in the application of, cosmic principles to society. As if already criticizing Spencer, Huxley wrote that in such analogies and applications, there is nothing new. In his correspondence, Huxley noted that: 'The essence of my lecture is to place Christian doctrine on a scientific grounding.' [quoted in Gall [5]; our emphases].

And again:

"...in '*The Individual in the Animal Kingdom*' (1912) that he had tried to show how individuality in the animal kingdom shed light on the study



of man. With this book, he wanted to lessen the existing gap between science, philosophy, and everyday questions. He noted first that humans, by using supplementary evolutionary mechanisms (he later called this “psychosocial evolution”), *had left the framework of biological evolution*. With the help of speech, and later writing, according to Huxley, man was effectively able “to escape death”. It is also important that, thanks to words and actions, a person’s intellect could influence other people in space and time. *The ideals of active harmony and mutual aid, he suggested, were the strongest means for progress*. This writing was evidence that the ideas of humanism and evolutionary ethics, which Huxley actively reworked later, were already contained in this small zoological book.” [5, our emphases].

It is undoubtedly the case that two walks of life most prominently involved in this increasingly rapid advancement in human *dominance*, through rationally gained factual information and its understanding, are the development of *science*, and the remarkable ability of mankind to apply the findings to his advantage, largely through the world of *technology*. These two “disciplines” actually feed off one another. Technology is finding out how to do something basically with tools, and this often opens up a rigorous inspection of the application by experimentation which can lead to deeper scientific understanding. The other way is the more obvious, which is that findings achieved through scientific methodology (by hypothesis and experimentation) are turned into technological advances. We must leave aside what humanities and other disciplines have contributed because that is outside the field of expertise of the authors. However, other viewpoints have to make their contribution in the debate about the nature and control of this noosphere, not just from scientists, doctors and technologists. This is why, as previously mentioned, we wish to open up this debate rather than suggest any prescriptive approach to the tackling of the underlying difficulties. Nevertheless, the point that can be made here is that, when it comes to ethics and knowledge, we will see that the scientific discipline is streets ahead of most other fact- and knowledge-based systems. It had to be so from the start otherwise advances would be slow and contentious.

Information on its own, no matter how much is posted on an ethereal layer we may call the noosphere, or what must now be seen as by far its major component — the internet or worldwide web — only becomes useful when it applied. The knowledge-base available on the internet arose as computers were made capable of communicating with each other through the ether, and on this ac-

count we have in place a valuable resource that has a “reality”, and is not just an idea or vague conceptualization. There is no hypothesis or concept that can be seen as equivalent to that of du Chardin; the internet has been a *natural* development of information technology (IT). But we are back to the word “knowledge”; knowledge of a train time as an example is useful when a particular person wants to travel from A to B, but otherwise it is worthless. However, this emphasises the point that, before we can proceed any further, the words *information*, *fact*, *supposition/hypothesis*, *experience*, *knowledge* and *wisdom* need to be carefully considered, especially as some of them are used interchangeably; this cannot be so if any clarity is to be achieved. As scientists, each term should be accurately defined so that there is no misconstruing of what is meant when one person communicates with another. The words of Einstein probably went too far: “Knowledge is experience. Anything else is information”. Teller amusingly remarked of another two of the words: “A *fact* is a simple statement everyone believes. It is innocent, unless found guilty. A *hypothesis* is a novel suggestion that no one wants to believe. It is guilty, until found innocent.”

There are a self-selected band of human beings that take an interest in factual information, but not for its own sake. They are the synthesizers, the data-miners, who delve into this information but with a vested interest — they have a hunch, a hypothesis, based on an inquisitive and intuitive grounding. This is because they constantly try to make correlations, a process that, when significant, can rapidly advance our understanding, i.e. effectively creates new *knowledge*. They gain experience in doing this, which increases their ability to make wider and wider correlations — to see the bigger picture as to how the Universe and everything it works. Information leads to knowledge (the latter being more easily interchangeable with understanding); and with experience this leads to *wisdom*. The role of the *correlators* is extremely important in the evolution of mankind. They are often the deep thinkers who can have a truly philosophical, and hopefully philanthropic, mien. But almost all scientist try to get the bigger picture through correlations, usually on a less grand scale than the select band just mentioned; like Darwin, there are men and women whose theories took shape from piecing together observations to make informed guesses to how they work together. Darwin took extraordinarily detailed notes on great swathes of nature, and along with his vast collection of biological and geological, formulated one



of the major theories of all time, that of the theory of evolution by natural selection [6].

The Problem of Knowledge

Facts are bits of information, but they are not written in stone, as Teller emphasised, otherwise we might still accept that the sun goes round the Earth. They are usually our conception of something relatively stable for the moment; tomorrow a fact may not be true or it might be radically changed. Furthermore, knowing a fact (a piece of information) like the example of the train-time does not mean that the train will definitely be at a particular place at the appointed hour. Facts are therefore mutable and often just approximations to the truth.

There are two issues relating to information and knowledge going into the internet, just as we put information into our personal computers. What goes in largely determines what comes out. A new dawn is truly upon us as computers become more adept at learning and correlating things themselves. In due course they could take some element of control, but that argument is for another occasion. If rubbish goes in, rubbish will come out. Everyone decides what goes into his or her computer that is potentially of use presumably at a later time. Each person should be in control of his or her machine, and largely in his or her interactions with anyone else. If there is a general repository of information accessible to the whole world, the most gigantic computer imaginable that constantly grows exponentially in size, the Herculean problem of what goes in and what comes out has to be addressed, for it certainly needs very carefully monitoring and control. This is because the application of information can change things for better or worse, with outcomes that could affect the whole of existence. We will presume that this particular type of device is *accessible* to everyone suitably equipped at all times. The other scenario is that there are multiple knowledge repositories which can only be accessed by certain privileged persons, an awkward consideration on which we have no space to expand in this article, however much it creates additional problems (e.g. where the state as a faceless entity takes control on some ideological basis that is generally unacceptable to humanity). Nevertheless, there are a multitude of databases of this kind in existence, and if for the present they are not made part of the noosphere, then they are being carefully controlled and guarded by people with vested interests in facts and knowledge for some ulterior motif (usually business or political reasons). Hence there is much knowledge that is unlikely to be integrated, at least

for considerable periods of time, into the noosphere.

The issue of prime importance in this new evolutionary era is that access needs to be controlled where information/knowledge is going in (being deposited), and access out equally regulated where this can be seen as potentially dangerous — an obvious case being privacy. A simple example would be the release of information about a person where highly sensitive information on a medical condition might reveal his or her identity. The danger is epitomised by the phone hacking scandals currently afflicting “celebrities”, but equally can occur for the man in the street. If these matters are not regulated, there is the potential for huge amounts of misinformation, misuse of data, fabrication of data, scandal, etc., not to mention the constant amassing of useless information that will bury the truly important data and create greater hindrance than a help. Input is already controlled in many ways for these reasons and many others, e.g. the uploading of pornography. However, the fundamental questions are: *who is in control, and how does (should) the control system(s) operate?*

Nowadays we move feverishly fast in technological developments, and have made enormous amounts of information available to all on a worldwide basis. With easy access to this information, it can be responded to and acted upon in amazingly short times, and as the name implies, globally and universally (where these two words have intentionally *not* been used interchangeably). We have to address the question as to who regulates what is stored in our new-found electronic libraries, what should be “archived” or discarded, and about how it is accessed, by whom and when, if it is not permanently available to all. While most people know something about what a library is and how it functions, fewer know in general how its content is regulated. It is difficult to imagine finding vast collections of pornographic literature in a civic or university library, but there is much on the internet and this is where ethical considerations be carefully considered on a much wider basis than hitherto.

The content of much literature itself, as just mentioned, is regulated by the compiler/editor (also by web managers in the case of the internet). The Oxford English Dictionary vets everyone who is engaged in making an entry and checks each of these in an editorial office. Wikipedia has to carry out a similar task to avoid including subversive or pornographic material, racist and sexist propaganda, etc., but it is not easy to see how it can control misinformation and misleading information. The



issue here is that supposed “experts” adding to the universal encyclopedia are vetted by other experts in the same field, and therefore the operation is one of self-regulation, from the bottom up, but this does also not occur without a top-down regulatory control. So the wider problem of the knowledge sphere is its overall regulation, which will be discussed more fully below. However, two points need to be stressed at this juncture. First, much information/knowledge in books or files on the internet is potentially dangerous when it leads to destructive or negative action, and therefore the laws of society will only be upheld if we also control who, how and when it is accessed, especially in cases that lead to unlawful behaviour. The world now dislikes all nations arming themselves with atomic bombs, but the information as to how to make one is available to all.

Second, the knowledge sphere or internet is a product of mankind that has enormous power in its application, but its control in the wrong hands could lead us closer to a police state and restricted freedom of action. The consequences of not putting in place the appropriate controls could so easily be disastrous. Scientific ideology is a striving for truth and understanding for the benefit of all mankind and beyond. Political ideology ought to have the same direction, but it is too often seeking power and control that is not in the best interest of all mankind, or even sectors of mankind. Transparency is essential in this regard, and the process of regulation as part of nooethics will need to be, as already indicated, both bottom-up and top-down, and without compromise. It must be coordinated and have a general set of guiding principles rather than be of the ad hoc nature that we see today. It should not be piecemeal and ad hoc, especially where vested interest in the vehicle sending information into the noosphere is the main motive. The knowledge sphere or internet is becoming increasingly anonymous in many ways, i.e. who post the information/knowledge and who has monitored/edited/censored it; few of us know what is going on behind the scenes. The problem therefore is one of having this clear regulatory system operating before things get out of hand. An analogy might be with the Airlines, which would be in chaos without the Warsaw convention being firmly in place. Is it not the right time to consider a similar global convention regarding the regulation of mankind’s collective and cumulative knowledge-base?

Knowledge is power is a well know adage; or rather, it can give power; However, it is important to know how to use this power wisely and responsibly. As Huxley remarked:

“We approach a great change in the life of mankind which cannot be compared with the whole its previous experience. That time is near, when man will receive atomic energy, such a power source as will give him an opportunity to build his life in any way he wants... Will man manage to take advantage of that force, to direct it towards kindness instead of self-destruction? Has he grown able to use the power that will *inevitably be given him by science?*” [4, our emphasis].

Ethics and Evolution

Human activity and its consequences take central place in *Nooethics*. In man, the laws of matter have led to the properties of acquisition and accumulation of knowledge, production of new knowledge by means of invention, programming of actions and their realization by means of labour (manual functions), i.e. altering material objects and creating new ones. This advancement was seen by Vernadsky [7; 8] in the early 1940’s as the new epoch in the evolution of life on Earth. He interpreted the concept of the noosphere in the context of his doctrine of the biosphere, humanistic ideology and the role of scientific ideas as a global phenomenon. Huxley argued this in a slightly different way, but there is considerable convergence between the views of these two eminent figures:

From the beginning of the WW2, Huxley had intensified his humanitarian activities. In 1941, he published his earlier notes on humanism as a new separate book “*The Uniqueness of Man*” (Huxley, 1941). In 1943, like his father fifty year earlier, he delivered the Romanesque lecture on “*Evolution and Ethics*”. In it, he claimed that ethics is not only the result of evolution, but it is also a factor in future evolution. In his own words, “*a man is able to inject his own ethics into the heart of evolution*”. [quoted in ref. 5, our emphasis].

The real problem here is our interpretation of such remarks as man being “able to inject his own ethics into the heart of evolution”. This alone requires a dissertation if the consequences were to be discussed.

Future Success or Pending Failure?

Assuming that mankind does much more in directing evolution in future, there is the possibility that this can be either by working with “nature” as it has been up to the time before conscious thought entered the equation or in some new manner, which might even be against nature. (As remarked earlier, if man had not domesticated animals and plants, the biosphere today would look totally different; but we cannot go back as evolution, like time, is unidirectional.) The former is the scenario that many would prefer rather than see the planet



overrun by an almost entirely technological driven “programme” that veers towards a complete change in more than just the biosphere. The word *programme* has been used because advances would be channelled to attain some new goal for mankind, and here we meet another difficult problem that Huxley had also addressed, i.e. teleology and evolution. We have indicated elsewhere [9] that in biology there is an element of teleology that has to be construed as part of the evolutionary process (in simple terms a degree of purposefulness), although in general most of evolution is not seen to be purposeful. In contrast, there is absolutely no question that teleology will be heavily involved in all future developments, and what has been argued here is that the proportion it assumes might be kept within certain limits, otherwise it will take over completely. If mankind has a deliberate programme or plan for future evolution, we return yet again to the thoughts and arguments of Julian Huxley because evolution tends to result in increasing complexity, the “conquering” of ever more remote habitats by living creatures, and the notion that it *advances* with time, and within it he also saw a degree of purposiveness. Huxley and many other evolutionists have always had a problem with what constitutes “progress” in biology; to most it is the more perfect adaptability to its environment in which an organism can survive and proliferate. Thus none of us can be sure what truly constitutes progress or an “advance” prior to conscious beings deciding these matters not by chance, but by design. Today, we expect advances all the time, especially from technological know-how, and we generally know what we mean by something being an “advancement”. If there is some grand scenario or objective in mind, then there has to be a masterplan. It will require the purposeful action of the collective intelligence of mankind, which inevitably must not only be self-organizing, but self-imposing. If this is not done through the concerted action of everyone involved, then we may be at the mercy of a few self-selected architects of the future, rather like the power lords of the past (and to some extent present), and there may be no knowing whether their plans lead to success or doom for many aspects of this planet and beyond.

The Issue of Culture

We also have to consider culture among human society in all its diversity. The future, as always, is undecided or unpredictable, unless one persists in a belief in predestiny. Japanese culture and philosophy have differed traditionally from that of the Western civilization. The Japanese believe

that you have to plan and make your future, whereas it was often said of Westerners that they can wait and see what happens. There is little doubt now — since even politicians have started to take heed — that we can no longer sit back and “see what happens”. If human society collectively shapes the future, there will be cultural rivalry in many cases and the political impact of this will be difficult to resolve. This makes it all the more imperative that mankind does shows cooperative action for ensuring the future will allow not only his own species to survive and thrive, but that all other life forms will have their right to exist without unnecessary conflict.

The Emergence of Nooethics

From the point of view of nooethics, the sole model for the steady development of mankind and the continuation of life is a controlled socio-natural system based on communal intelligence and the nooethical education of society with regard to the crucial significance of the noosphere/internet wherever evolution is going to take us, directed or not.

The main directions in the development of nooethics should be: (I) a cultural-moral and global outlook as the essence of human technocratic activity. (II) Formation of nooethical principles of education, and (III) humanistic cultural understanding. It must rise above cultural differences. It will be necessary to study the influence of information technologies on the formation and development of the noosphere with regard to the moral education of man.

Nooethics is an ethical component of the laws of development of the noosphere, which should not contradict, but sustain the laws of evolution of the biosphere. However, the principle of natural selection is being constantly subverted by the way in which mankind can foster the weak and vulnerable in society, protecting them from encountering life-threatening circumstances — not exactly the survival of the fittest. The main role in this process should be played by an association between *science and the ethical mind (conscience) of mankind*. Extending the development of Vernadsky’s theory of the noosphere, nooethics unites three components — the scientific mind of mankind, his moral reason, and his technical progress — with the objective of preventing a global ecological crisis.

The Importance of the Role of the Scientist in Our Regulation of Knowledge Base

The choice of strategy in the development of any branch of human activity *rests on the con-*



sciences of individuals and on their collective responsibility, leading to decisions that are jointly acceptable (consensus). The issue is one of morality and ethics; in terms of the noosphere, we have called this “nooethics”.

If the activity of man regarding the noosphere does not begin to be regulated by sound ethical principles, old and new, the consequences might well be catastrophic. Nooethics is a concept concerning the rules of behaviour in relation to the Noosphere that is crucial for stable existence and development in the post-modern era. As the supreme stage of development of bioethics, it should organically incorporate ethics into philosophy, becoming its most integral and important part. It will even promote the further development of medicine and biomedical science, which reasonably permits us to denote the present stage of development of medical ethics as nooethical. Transgressions of medical ethics already leads to severe problems and penalties; they cannot be tolerated and are considered totally unacceptable violations of reasonable and responsible human behaviour. Again it comes to a matter of who will formulate system, guidelines, rules, etc. that already apply in this section of the populous to the noosphere that take account of much wider ethical and moral issues.

The Challenge

It is now important in practice to establish fully the role of scientists, inventors and innovators in the management of human communities; and actively to nominate candidates, from among scientists, inventors and innovators who have displayed their talents, for election to bodies of authority as some of the key players in this business. Scientists, inventors and innovators holding state posts should concentrate on the practicalities of nooethics to ensure constant support of favourable ecological conditions, introduction of ecologically safe use of natural resources usage, struggle against pollution of the environment, and degradation of our cultural heritage in society. But the control of information and hence knowledge by implication remains mainly in the hands of others than these people. So why do we single out scientists in particular?

Science as a systematic process of acquiring knowledge has to play a central and pivotal role in these activities; *some would say the role of science is paramount, as it deals with the use of information gathered objectively in improving our understanding of the Universe.* Horrobin [9] considered the case in his book that “*Science is god*”, basically arguing science is itself a religion since,

like other religions, it purports to be a path that seeks the truth. Science and closely allied professions have traditionally operated by reporting worldwide the findings from rationally designed experiments, corroborated by repeated inspection and through the consensus of the findings of others, from which our hypotheses and theories emerge. Not only is it rigorous in the experimentation, for almost every report is peer-reviewed and sanction by the worldwide community of scientists and related professions. The amount of misinformation, fraud, plagiarism and other unethical practices is far lower than in almost any of the other unrelated profession, and when it occurs, it can usually be exposed relatively quickly. Indeed, with modern IT techniques and the appropriate new software, these unethical practices are being eliminated closer to source and far faster than hitherto.

The track record of science is such that it provides the most suitable paradigm that can be used to ensure that information, ideas and knowledge posted on the internet, in libraries or any other accessible stores (all noosphere components) are clean and ethical. The current era is one based firmly on scientific understanding and technological know-how, a fact that still escapes many who still view science with suspicion and danger; but its place is not going to change, for it is society that has to clarify its viewpoint and become educated on these matters. The mystical aspects of our Universe do not represent some realm that scientific endeavour cannot deal with; mysticism to the scientist is simply another way of saying that some phenomenon or other as yet cannot be explained, just as a radio today might still be a mystical device to an uncivilized human being.

It was on this rational basis that Joseph Needham and Julian Huxley argued for “UNECO” (an organisation that was going to leave out science) becoming UNESCO following WW2, which was precisely the sort of organisation that the next generation of mankind needs to foster the atmosphere in which he can do good for the future and not see our planet being ripped to pieces:

“Further, the text of Huxley’s letter and Needham’s memoranda (on UNESCO) are entirely similar in content. Huxley, however, soon wrote a conclusive program, or manifesto, for the new organization in his brochure “*UNESCO, its Goal and Philosophy*”. In it he literally insisted that the organization could not resort to religious doctrines or on any kind of conflicting systems of academic philosophy. The organization should rely on “scientific humanism”, which is based on proven facts of biological adaptation and social progress. All these phenomena were introduced by Darwin-



ian selection and continue to act in the human sphere on the basis of “psychosocial pressure”, which in the final stage would lead to the growth of human control over nature and the preservation of natural forces.” [quoted in ref. 5].

The famous American economist, Harrington Emerson, wrote that human activity should have this particular type of organization:

“Protective-creative, as exists in the world of terrestrial plants, instead of military-destructive, which is actively cultivated now. Reasonable economic activity should correspond to what in the world of plants is photosynthesis and should be as ecologically harmless and energetically balanced, as seen in the productive activity of green plants. The reward is the lasting existence of the whole community” [11].

It is much more difficult to define criteria of rationality in the sphere of personal consumption. Society treats our call for the care of the future of our children and grandchildren rather inertly. This turn of mind can be overcome by solving the following tasks implicit in nooethics to:

1. organize a system of upbringing and education orientated towards ethical values;
2. determine nooethical norms of culture;
3. formulate the ethics of reasonable needs as part of the formation of the individual, as a step towards a new civilization.

To date, it has often been asserted that any moral criterion supposedly limits the principle of freedom itself, but human society cannot operate without limitations on individual freedom. There is and will always have to be compromise in a gregarious species such as *Homo sapiens*. Therefore, the regulation of our mutual relationship with nature, its care and its restoration is the cause of literally everyone living on our planet to ensure that it also respects our individuality as well as our collective rights as far as that is (literally) humanly possible.

In Conclusion

The human race has accumulated vast amounts of information and knowledge which can be put to good use. The present day storage of this informa-

tion is available from servers throughout the world and can become accessible to all suitably equipped via the worldwide web. How all this information and knowledge can be managed involves highly important regulation and careful control that is based on moral and ethical principles. The way in which science handles this problem can be seen as a paradigm that should guide us towards firm principles and codes of practice (conduct) that will ensure that the noosphere is not corrupt in the widest sense of that word. To move ahead in this matter, a global convention ought to be considered, and this needs to be undertaken sooner rather than later for the good of mankind and the rest of this planet.

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