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Editorial: Towards ABC8 / BBRT2

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From 19-23 March 2007 in Bangkok around 150 regional ethics experts will convene for the Eighth Asian Bioethics Conference (ABC8) concurrent with the Second UNESCO Bangkok Bioethics Roundtable (BBRT2). The regional conference follows on from a regular series of UNESCO Bioethics Roundtables that have been conducted around Asia and the Pacific over the past two years.

Networking partners in the development of ethics in the region passed a critical phase with the recent establishment of UNESCO Asia-Pacific School of Ethics to bring together many active institutions and individuals who are collaborating with the Regional Unit in Social and Human Sciences for Asia and the Pacific (RUSHSAP) of UNESCO Bangkok, to meet needs and priorities of the region for bioethics research. Currently the school includes around 20 partner institutions and 70 individuals who are involved in collaborative research and activities (website: http://www.unescobkk.org/index.php?id=asia-pacific_school_of_ethics). The development of the regional school is the result of recent focus in the region on ethics, to build upon earlier origins in the development of dialogue across the region, since the 1997 UNESCO Asian Bioethics Conference. These meetings provide a forum to the neutral but practical elaboration of how we can implement global bioethics standards into the cultural realities of each community, and help each society re-discover their long-standing ethical traditions in a way that they can apply them to the merging ethical dilemmas of modern science and technology.

The papers in this issue of include results of a survey of ethical concerns of Chinese geneticists and the call for clearer regulatory policy for large genetic databanks. Then there is a questioning of ES cell research, and the way the media has reported it. There are several papers discussing ethics and evolution. The body trade is also discussed, as well as comments on mental mapping and bioethics. Finally there is an essay on the separation of medicine and philosophy. It is hoped that these papers from different perspectives will help build a more ethical future for reflection and progress. Comments and responses are invited from all readers.

Ethical reflection on the Creation of Human Genetic Database: Based on a National Survey on Chinese Genetic Scientists

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Abstract

Chinese health authorities have not set up a very clear legal framework or ethical guideline on genetic research involving a huge number of human genetic samples. A nationwide mail survey was conducted to identify whether Chinese research communities identified the fundamental ethical issues. This paper provides in-depth analysis about the attitudes of target groups towards ownership, commercial conflict of interest, international cooperation and ethical review mechanism that may be used to inform national guidelines related to genetic databases in China.

Key words: genetic database; ownership; ethical review; China

1. Introduction

In the 1990s, China as the only developing country joining the international Human Genome Research Project. The so-called "1% Project" wais successful and attracted great attention of not only the biomedical community but also among the highest policy makers in China. In 1998, to catch up with the latest developments in this highly competitive field, China's Ministry of Science and Technology (MoST) established two National Human Genome Research Centers which are located in Beijing and Shanghai. These two national centers, together with many other genetic bases at provincial level, have announced the establishment of several special disease-related databases.[1] For instance, Chinese geneticists have constructed the database for Genomic Polymorphism of Chinese 56 Ethnic Groups (GPCEG).[2]

The international debates indicate that national databases established to collect, process, use, and store human genetic samples have raised a lot of ethical, legal, and social issues in many countries.[3] UK and Iceland have discussed those complex issues and then set up ethical guidelines and/or regulation in the course of creating a national database. Undoubtedly, the regulation of this field has become an important political topic for parliaments and regulatory bodies. Unlike the UK BioBank or Icelandic Health Care Database, Chinese health authorities have not set up a clear legal frameworks or ethical guidelines on those genetic research involving huge human genetic samples.

Until now, little knowledge is available over the attitudes and perceptions of Chinese biomedical communities regarding the creation of genetic databases. A nationwide mail survey was conducted in National Human Genome Research Center (Beijing and Shanghai) and several other provincial genetic bases.[4] The objectives of the survey were to know whether the Chinese research communities identified the fundamental ethical issues that have been heatedly discussed over years in the international level? What are their opinions and attitudes about ethical issues arising with developing genetic databases in China? What proper interventions and strategies do the research community think are best to avoid the ethical constraints? We hope our research will be critical for establishing national ethical guidelines on genetic databases and the tentative results may contribute to the international discussion on the significant and sensitive issues.

In the survey, a total of 300 respondents returned back the valid questionnaires, with a response rate of 77%. The respondents included 166 males and 134 females. 52% were aged between 31and 50. 38% had studied or worked abroad. 36% of them held Ph.D.s. 74% used human genetic samples directly in their work. 53% claimed that they have been involved in databases more than one year. 14% said they had reviewed protocols related with genetic data collection and usage. As part of our final finding, this paper provides analysis about the attitudes of target groups towards ownership, commercialization, international cooperation and ethical review mechanisms that may be used to inform national guidelines related to genetic databases in China.

2. Ownership

In the Icelandic Health Care Database, the licensee shall not be counted as the owner of the biological samples, but has rights over them, with the limitations laid down by law.[5] The Estonian Genome Project Foundation has the right of ownership of the tissue

[1] www. chgb.org.cn

[2] Ghen X, Zhang Y, Wang JM, Huang Y, *et al.* GPCEG-A database for genomic polymorphism of Chinese ethnic groups. *Yi Chuan Xue Bao.* 2003 Jun;30(6):509-14.

[3] Austin MA, Harding SE, McElroy CE. Monitoring ethical, legal, and social issues in developing population genetic databases. *Genet Med.* 2003 Nov-Dec;5(6):451-7.

[4] Xinqing Zhang, Human Genetic Databases in China: Ethical Issues and Scientist's Attitudes Science [in Chinese] 2007 56(2) in press

[5] Ministry of Health and Social Security, Act on Biobanks No. 110/2000, (2000), http://www.stjr.is/interpro/htr/htr.nsf/pages/Act-biobanks, (date accessed : 16 April 2002), 10.

samples.[6] In China, any institution or individual who holds important pedigrees and genetic resources in the specified regions shall immediately report to the relevant departments, and no institution or individual may sample, collect, trade, export human genetic resources, which has been regulated by Interim Measures for the Administration of Human Genetic Resources issued by MoST and Ministry of Health (MoH) in 1998. Although the Interim Measures did not say directly about the ownership of the genetic samples, in most cases this reporting and registration system on important pedigrees and genetic resources indicates that those samples are controlled by the governments at different levels and belong to the central public institutions, rather that a kind of public goods or a property of the donors themselves.

The following scenario will help us to identify the sampling population's attitudes about the ownership of the collected genetic samples/data. Suppose there is a big genetic sample collecting project related to hypertension, sponsored by Chinese MoST and carried out by a prestigious Chinese public institute along with a top public hospital. The question is that: Who should be the owner of the samples. The result of this multi-choice questionnaire indicates: 41% of respondents agreed that the central government should be the owner; 37% argued that the samples/data is global public goods; 20% thought they should be shared by the hospitals and institutions which collect and store those samples; 8% said those samples belong to donors themselves. The result shows that the sampling population held a diversity of opinion regarding ownership.

In this scenario, almost half of the respondents thought those genetic samples/data should belong to the central government. Partly it is because the current genetic databases are state-owned. However, the practical issue is who has the right to represent the central government? It goes without saying, MoST and MoH will play a key role in sponsoring and monitoring of genetic databases. The Chinese qualified hospitals and institutions could have the right to store and utilize samples they collected, with the limitations laid down by Interim Measures, which claims that the Chinese institution who collected samples shall have the priority to access information about the human genetic resources, any transfer of important pedigrees and genetic resources and the relevant data to other institutions shall be prohibited without permission. Even though these did not say that the institution are the owners of the genetic material, researchers may eventually acquire intellectual property rights or commercialized products, according to the Interim Measures.

Still, about two thirds of the Chinese respondents regarded the samples/data as global public goods. The Interim Measures also claim that no foreign collaborating institution that has access to the above mentioned information may publicize, publish, and apply for patent rights or disclose it by any other means without permission. Therefore, in a symbolic sense, the collective human genetic sample is the heritage of humanity as mentioned in UNESCO and HUGO statements. In reality, many question whether these genetic samples are global public goods.[7]

3. Commercialization and conflict of interest

Although there is little critique about the development of genetic databases in China, still many worry about how to balance protection and utilization of Chinese genetic resources. For one thing, in such a socialist country as China, a fundamental assumption is that only state-owned databases might maximize rare Chinese genetic resources. For the other hand, in such an economic transition period, the expansion in the construction of genetic repositories could not be sustainable without the positive participation of private sectors. We are living in an interesting time. There are a lot of ethical and political issues which are worth discussing, such as: Should a national genetic database be a public or private one? Who will look after the benefits of Chinese donors in any commercial agreements?

There are different opinions about the sensitive issue of commercialization in China. Some worry that commercialization would bring bad effects on the development of Chinese genetic databases. Others argued that private genetic databases should be encouraged because it will contribute to solve the problem of financial shortcoming. Stakeholders such as investigators, Ethical Review Committees (ERCs) members, and policy makers should be aware of the tension between encouragement and discouragement of private databases. In the survey, we pose a question: do you think our central government should set limitation for the commercial investment in the establishment of genetic databases? 38% gave a positive answer, 49% said no, and 13% could not make a choice.

It goes without saying that commercialization may raise the problem of conflicts of interest. A conflict of interest is a situation, rather than an action. It is not necessarily illegal or immoral. In addition, China could not close the door to the private investment in this highly competitive field. The key issue is how to avoid the bad consequences of conflict of interest. One of the main areas of conflict of interest in the field of research rooted the relationships between scientists and pharmaceutical companies, which may give researchers

[6] ESTONIAN GENOME FOUNDATION, "Gene Donor Consent Form," http://www.geenivaramu.ee/mp3/Geenidoonorinousolek-ingl.doc (date accessed: 10 May 2002), 3.

[7] Knoppers BM, Fecteau C. Human genomic databases: a global public good? *Eur J Health Law*. 2003 Mar;10(1):27-41.

and their institutions a variety of financial benefits. [8] Commercial interests should be disclosed to the ERCs and to sample donors via consent forms. Disclosure of financial conflict of interest is a proper measure. It helps the donors and ERCs to make a sound judgment.

How do our Chinese scientists think about disclosure of financial arrangement? Supposing a public research hospital sponsored by a private pharmaceutical company collects data related to hypertension, 59% thought it is necessary for the researcher to tell the donor that it is sponsored by a private sector, while 37% thought it is unnecessary. 4% had no idea. The result indicates a significant proportion of respondents do not take financial conflict of interest for granted. In fact, until now "conflict of interest" has not appeared in any dictionary or encyclopedia in China. It is incumbent upon researchers to explain to the potential donors and/or their family about the commercial arrangements regarding the development of products with commercial application derived from the research as well as the commercialization of the bank itself. However, mere disclosure of commercial interests does not solve the problem entirely. Since conflicts of interest need to be managed properly, there may be a need for other mechanisms for regulation.

4. Benefits sharing in international cooperation

Scientists in different countries often collaborate on research involving the collection of human genetic samples. Seeing the following scenario, a developed country posed to provide technology and to train Chinese local researchers. The question is should China's government support such kind of international cooperation? 37% discouraged that kind of cooperation; 40% encouraged it; while 23% had no idea. The result shows that the sampling population did not develop a clear approach on the proper mechanism for sharing benefits in international cooperation. Interim Measures do not close the door on international cooperation. It requires that the rights and obligations of each party should be explicated in order to fully and effectively protect their own respective intellectual property rights. For instance, the right of utilizing, transferring and sharing scientific findings from the collaboration shall be specified in the collaborative contract or agreement signed by both parties.

In consideration of the principle of justice, benefits should be distributed fairly in the process of international cooperation. The unsolved problem is: How to make an equitable use of genetic data? [9] For example, one donated his/her genetic samples, in general he/she may not take part in any profit-sharing process, especially in those genetic research using public funds. In a sense it is unfair when donors consent to sampling but not to the ownership and not eventually commercial benefits. The Human Genome Organization states that even in the absence of profits, immediate health benefits as determined by community needs could be provided that "profit-making entities dedicate a percentage (e.g. 1% - 3%) of their annual net profit to health care infrastructure and/or humanitarian efforts.

Actually, benefits could be the prompt diffusion of research results, collaboration with members of the scientific community, attribution of licenses when the invention resulting from the research is patented, for example. If a research project yields profits, the distribution of benefits could include access to future treatments resulting from the research or donation of a part of the profits to a local humanitarian organization or financial support for research or contribution to health technology infrastructures.

Compared to the increasing growth of creation of genetic databases, no clear guidelines or regulation are available to benefit sharing mechanism. Chinese policy makers should develop a kind of genetic sample transfer agreement which specifies collaborators' rights and responsibilities with respect to the collection of samples. The key point is that, before both sides agree on the MTA, it is a precondition to set up several basic ethical criteria for sharing benefits among different stakeholders. Unfortunately, the Interim Measures did not provide such clear criteria, which only prohibits those protocols where the proportioning of ownership and share of intellectual property right is unfair or unclear.

5. Attitude about ethical review capacity

It is of importance to review protocols involving human genetic sample collection and usage. In China, however, many ERCs have no extensive policies and procedures regarding human genetic research In addition, procedures and requirements of those responsible ERCs differ from place to place, between protocols and may reflect inconsistent treatment of different types of genetic research. However, we know little about Chinese scientists and ERC members' attitudes about ethical review from current literature.

This survey attempted to identify how Chinese scientists, policy makers and Ethical Review Committees (ERCs) think about the value of ethical review. In this multi choice questionnaire, 86% of the respondents said it is to protect the rights and benefits of the subjects in genetic sample collection and usage. The majority of the respondents had a good consensus on the fundamental role of ethical review. In the survey, 67% said that the ethical review mechanism is to protect and exploit Chinese genetic resources reasonably. The result reflects a sense of nationalism. In order to fulfill the national interests, in a sense China has taken somewhat strict measures to safeguard Chinese genetic resources which has been reflected in the Interim Measures in

[8] Ren-zong Qiu Conflict of interests in research ethics: a Chinese perspective *The Journal of Clinical Ethics* Spring 2004 Vol. 15 No. 1.

[9] Sulston J. Beyond release: the equitable use of genomic information. *Lancet*. 2003 Aug 2;362(9381):400-2.

1998. The administrative department of both MoST and MoH are jointly in charge of the administration of human genetic resources of China to carry out routine duties on international collaborative projects. State-owned Institutions apply to the relevant administrative departments for examination and approval prior to entering into an official contract. The province-owned institutions apply to the local administrative department for approval. The underlying assumption of this claim is that there are significant difference between human genetic research and other types of research.

It is necessary to develop the review capacity in China. Appropriate measures should be taken to improve the ethical quality of China's human genetic databases. In the survey, 55% reported that the data storage process should be standardized for fear of wasting resource. 54% appealed for the sharing of benefits in international cooperation. 39% argued to take measures to protect the welfare of donors. 38% said it is important to clarify the ownership of samples and data; 21% agreed that China should take steps to encourage the free flow of genetic information.

6. Recommendation

The survey provides a complex picture of respondents' perceptions and attitudes in general. There were obvious disagreements over the issues such as ownership and commercialization. Because of the actual ethical and regulatory problems identified and addressed in China, proper measures should be taken to build up ethical review capacity. Without national guidelines of sample collection and usage, we will not protect the welfare of the research participants. It is time to establish national ethical guidelines and regulations concerning genetic databases in China. China should develop her own guidelines to address her own ethical concerns, rather than just copy international guidelines, such as the HUGO Statement on Genetic Databases. The ethical issues in the creation of UK BioBank and Iceland Health Sector Database are not the same, the regulation and guidelines are different. The proposed guidelines should be built into the current ERC system, so that it becomes a useful tool to promote the Chinese capacity of ethical review on genetic research involving databases with identifiable information.

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Stem Cell Research: Science, Ethics and the Popular Media

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Abstract

Few advances in the history of science and technology have generated as much ethical controversy and captured as much public attention as research on human stem cells. This paper distinguishes two parallel research programs involving stems cells: embryonic and adult stem cell research programs, then surveys the ethical arguments advanced for and against human embryonic stem cell research. The popular media has tended to exaggerate the therapeutic potential of embryonic stem cells. Adult stem cell therapies are already available for different kinds of cancer and a host of autoimmune diseases such us lupus, multiple sclerosis, Crohn's disease and rheumatoid arthritis. Furthermore, recent research has shown that human adult stem cells have more plasticity than previously thought. Taking this into consideration, and using the principle of subsidiarity which states that if the same results can be obtained by two types of research, one should undertake the research that is least offensive or problematic, I argue that a moratorium on human embryonic stem cell research should be considered. In the meantime, I suggest that research on human adult stem cells and both animal embryonic and animal adult stem cells should continue.

Introduction

The successful derivation of human embryonic stem cells in 1998 (Thompson et al 1998) triggered an intense debate over the morality of destroying human embryos for therapeutic purposes, a debate that continues up to the present day. After describing the science behind stem cell research and distinguishing between adult stem cells and embryonic cells, I will survey the arguments advanced for and against human embryonic stem cell research. I must point out at the outset that it is not my intention here to take sides in this debate. My main aim is to show that embryonic stem cell research raises serious ethical and social questions that should not be dismissed lightly.

The biology of stem cells

Before discussing the ethical issues surrounding stem cell technology, a basic understanding of the underlying science is called for. Stem cells are the essential building blocks of multicellular organisms that are capable of differentiating into all the adult tissues of the body under the right environmental conditions. In addition, they have the unique capacity for self-renewal.

Two research programs involving stem cells can be distinguished: embryonic and adult stem cell research programs. Embryonic stem cells are found in the inner cell mass of the early embryo. The harvesting of these cells raises ethical problems because in the process, an embryo has to be destroyed and some people believe that human embryos have the same moral status as human infants. The cells that are produced by the first few divisions of a fertilized egg are said to be totipotent because they have the total potential form a fully functional organism. As the totipotent cells develop, they become more specialized and are considered pluripotent, which means that they can give rise to cells that are specialized for a particular function.

Pluripotent embryonic stem can be harvested from embryos created either through in vitro fertilization (IVF) or through somatic cell nuclear transfer (SCNT). Indeed, most of the existing human embryonic stem cell lines were derived from excess embryos from IVF clinics. Somatic nuclear transfer is the technology that was used to clone Dolly the sheep in 1997. This technology involves injecting the nucleus from an adult's somatic cell into an egg from which the nucleus has been removed. After the egg has grown into a blastocyst, researchers are then able to derive pluripotential stem cells from the inner cell mass. It is important to point out that so far no human embryos have been created using SCNT.

Unlike embryonic stem cells, adult stem cells are found in the tissues of a fully developed organism such as the placenta, skin, and bone-marrow. These cells play a crucial role in maintaining and repairing the tissues in which they are found. Adult stem cells are mostly multipotent, which means that they can only produce cells of a closely related family of cells although recent reports indicate that they may have the potential to transform themselves into practically all other cell types. It must be emphasized that unlike embryonic stem cells, adult stem cells are ethically non-controversial since their derivation does not involve the creation of embryos in the first place.

Arguments in support of human embryonic stem cell research

In what follows I am going to survey some of the arguments that have been advanced in support of human embryonic stem cell research. Proponents of embryonic stem cell research appeal to the potential benefits that may result from such research. Indeed, stem cell research promises remedies to a number of debilitating diseases and conditions such as diabetes, Huntington's chorea, Parkinson's disease, cancer, rheumatoid arthritis, burns and spinal injury. Eventually, medical researchers hope to grow whole organs from stem cells for transplant.

Proponents of this argument get their inspiration from utilitarianism and evolutionary ethics. According to the former, the sole criterion of what is morally right is the balance of pleasure over pain and happiness over unhappiness. On this view, the end goal of healing justifies the destruction of the human embryo to procure stem cells. Supporters of embryonic stem cell research consider healing as 'the greatest good' because it will promote the happiness of the many people who suffer from debilitating diseases and conditions. This argument assumes that even if human embryos are morally equivalent to fully developed human beings, their destruction can be justified as long as this results in the greatest happiness for the greatest number of people.

Despite its initial appeal, utilitarianism has been the subject of important criticisms. One of its main weaknesses is that it assumes that no means are bad as long as the end results are good. The truth of the matter, however, is that some means to achieving certain goals are clearly morally suspect. Indeed, even research that achieves great good can be unjustified if it comes at the price of violating fundamental rights. As some critics have pointed out, a strict utilitarian would, for example, judge gang rape as either moral or immoral depending upon the amount of pleasure or distress experienced by those affected. But clearly the reason why rape is wrong is because it violates the rights of the victim (Horner and Westacott 1999). Likewise, opponents of embryonic stem cell research might argue that the reason why this research is wrong is because it involves the destruction of the lives of nascent human beings. The point is that a particular act cannot be judged right simply because it leads to good consequences. The means for achieving that end must also be justified by some objective standards of morality. Another problem with utilitarianism is that of predicting the consequences of a particular act. Embryonic stem cell research is still at a nascent stage and it is hard to accurately predict its full therapeutic value. It might turn out that the anticipated gains are not as great as the scientists would have us believe. Also in applying the calculus of pleasures and pains, it is not at all clear whether the emotional distress suffered by those who believe that an embryo is a person should be taken into account.

Ricardo Baschetti, a retired medical inspector of Italian State Railways, has argued in two separate papers that the evolutionary ethic that enabled humankind to survive the environment of evolutionary adaptation was primarily aimed at preventing and reducing the suffering of its members (Baschetti 2004 and 2005). For Bascetti, ethical codes evolve the survival of the human species. Consequently an action will be considered good if reduces social suffering, thereby favoring the survival of the group, and bad if it consciously causes social pains thereby potentially hastening the extinction of the community'. Bascetti further argues that if therapeutic use of human embryos been available during the early days of our evolutionary history, our ancestors would no doubt have used them to save the lives of the suffering members of the society (Baschetti 2005). Baschetti goes on to dismiss any to opposition to therapeutic research

on human embryos as 'an immoral evolutionary nonsense' (Baschetti 2004: 371).

Appealing to evolutionary ethics to justify embryonic stem cell research is problematic because evolutionary ethics itself has always faced some critical problems and objections (see for example O'Hear 1997, Woolcock 1999). In the first place it is difficult to reconcile evolutionary ethics, a trait that was developed under the pressure of natural selection, with the notion of free will, which is required for morality to be possible. Another problem with evolutionary ethics is that it attempts to derive 'ought' from 'is' thus committing the naturalistic fallacy, a problem that was first addressed by David Hume in the 18th century. The truth of the matter is that although evolutionary theory can shed light on how certain morals and values came into being, it cannot tell us whether such morals and values are right or wrong. Thomas Huxley expressed this view forcibly when he wrote: 'The thief and the murderer follow nature just as much as the philanthropist. Cosmic evolution may teach us how the good and evil tendencies of man may have come about, but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil' (Huxley 1906: 80). It is worth mentioning that nowhere in his two papers does Baschetti attempt to address these valid objections to evolutionary ethics.

Arguments against human embryonic stem cell research

The main objection to embryonic stem cell research is that since it results in the destruction of embryos, it cannot be morally justified. This argument is sometimes called the equivalence argument because it assumes that a human embryo has the same moral status as a fully developed human being. According to this view, destroying embryos in order to harvest stem cells is to violate the well known Kantian dictum that 'one ought not to treat other people as mere means to the ends of others'. Thus the need to alleviate human suffering should not override the moral imperative to treat human beings (including embryos) as subjects and not as objects. This would be equivalent to removing organs from infants to save lives.

The same sorts of ethical concerns that can be raised against embryonic stem cell research can also be raised with respect to abortion since in both cases a 'potential' human life is destroyed. It is also important to note that the Kantian argument against abortion and embryo experimentation will only get going if it can be established that embryos are persons. Unfortunately the question of when an embryo attains a moral status comparable to that of a normal adult human being has elicited variety of answers. While some believe that it is at the time of fertilization or at the moment of implantation (i.e. when the embryo attaches itself to the uterus), others believe that an embryo acquires moral status when it develops sufficient neural structure to feel pain.

Another argument that has been advanced against embryonic stem cell research is the so-called argument from potentiality. According to this view, although an embryo is not a human being, it has the potential to develop into a full human being given the right environment. For this reason, an embryo must be accorded all the same rights and protections that are possessed by actual human beings.

But two main objections have been advanced against the potentiality argument. Just because something will become X is not good reason for treating it now as if it were already X. As John Harris puts it, 'we will all eventually die but that is an inadequate reason for treating us now as if we are indeed dead' (Harris 2003). Thus the fact that every person begun as an embryo does not prove that embryos are persons. Indeed, this is the position taken by Michael Sandel. Using the analogy of an oak tree, Sandel argues that although every oak tree was once an acorn, no one would possibly treat the loss of an acorn as the same kind of loss as the death of an oak tree. The point of this analogy is that the developmental continuity of an embryo and a fully-grown human being does not necessarily mean that the two have the same moral status.

But there is a second problem with the potentiality argument. Employing the method of *reductio ad absurdum*, critics have pointed out that if embryos should be respected because they are potential persons, then gametes (the sperm and the egg) should also be respected because they are potential embryos. This argument could also be extended to cover somatic cells given that the technology of somatic cell nuclear transfer has shown these cells have the potential of becoming embryos if fused with an enucleated oocyte.

Alfonso Gomez-Lobo has unsuccessfully tried to show that this *reductio* is flawed. For him, the biological potentiality of each one of the two gametes considered separately to develop into a full human being is zero. Gomez-Lobo asks us to consider the ovum in the body of a young woman in Germany and a sperm of a young man in Mexico. He contends that if the two persons never meet, it would be absurd to put the theoretical considerations of their gametes fusing on the same footing as the 'dynaminism' found in an already existing embryo (Gomez-Lobo 2004: 202). Thus the potentiality of the male gamete to fuse with a female gamete should not be confused with the potentiality arising from that fusion. On Gomez-Lobo's view, separate gametes lack what he calls the 'biological potentiality' of embryos to develop into an adult. But this argument can be countered by pointing out that what Gomez-Lobo calls 'biological potentiality' is nothing but passive potency. Contrary to what he would have us believe, the potentiality of an *in vitro* embryo becoming a human being is not inherent. It has to be implanted into a woman's uterus for its full potentiality to be realized.

Indeed, *in vitro* embryos like separate gametes have passive potency to become persons. This is not to suggest that human embryos and human gametes should be granted the same moral status. Compared to a fertilized egg, the sperm and the egg have a remote potentiality of becoming a person and for this reason one might decide to confer the embryo a higher moral status than the two gametes considered separately.

Another objection to embryonic stem cell research is the so-called slippery slope argument. Proponents of this argument justify prohibiting stem cell research because they are afraid of sliding down the slippery slope towards reproductive cloning. Of course this argument only applies to stem cell research involving somatic cell nuclear transfer (SCNT). The fear is that the creation of embryos through SCNT will lead to reproductive cloning, where the cloned embryos are re-implanted into the womb of a surrogate mother to produce a human being that is a genetic replica of somatic cell donor. There are several problems with this argument. In the first place the slope may be as slippery as we have been made to believe. As a number of critics have pointed out, a law could be enacted that will draw a firm barrier across the slippery slope. Moreover, there is a huge difference between cloning and stem cell research. Very few people are so lacking in moral understanding that they would ignore this distinction. At no time in the harvesting of stem cells is the embryo ever implanted in a woman's uterus. Embryonic stem cells can only be harvested *in vitro*. Indeed, the best way to deal with this problem is not to put a ban on stem cell research but to ban reproductive cloning itself. The second flaw in this argument is that it assumes that reproductive cloning is inherently bad. But an argument can be made that reproductive cloning is morally acceptable. My own view, argued elsewhere and not developed here, is that there will be no strong ethical justification for forbidding human reproductive cloning once the technology is perfected to the point where it is no more risky than conventional reproduction (Mbũgua 2006). Indeed, gametically infertile couples should be encouraged to make use of this technology as this will help ensure that that their genes are not eliminated from the gene pool.

Spare embryos from IVF clinics

Another issue that needs to be addressed at this stage is the derivation of stem cells from excess embryos from IVF clinics. It is interesting to note that some opponents of the derivation of stem cells from embryos purposely created for research endorse the derivation of stem cells from leftover embryos in IVF clinics. They justify their position by appealing to the avoidance of waste principle. The argument is that since the excess embryos will die anyway, it is better to use them for therapeutic purposes than simply to throw them away.

But there is a flaw in this line of reasoning. If one holds that human embryos should be respected, and hence not destroyed, then one should also be prepared to ascribe respect to leftover embryo since an embryo's moral status (if at all it has such a status) is not contingent on how it came into being. The two are physically indistinguishable. In any case, as Brock has rightly pointed out, 'the surplus embryos from IVF will not inevitably be destroyed; they will only be destroyed if someone makes the decision to destroy them, otherwise they will remain frozen indefinitely, retaining the biological potential to develop into human beings if implanted' (Brock 2006:37). In fact, they can remain frozen in an embryo bank and some people think that this would be more ethically acceptable than using them for research (Annas et al., 1999). The excess embryos could also be donated to needy couples or allowed to die on their own. Furthermore, if we assume that human embryos are equivalent to full human beings, destroying leftover embryos in order to harvest stem cells would be tantamount to benefiting from evil. It is also important to bear in mind that the reason why the harvesting of organs from executed prisoners and aborted fetuses is discouraged is because such harvesting can be seen as encouraging executions and abortions. In the same vein it could be argued that the use of leftover embryos for stem cell research would encourage the creation of embryos for the sole purpose of research.

A similar objection to the use of spare IVF embryos to derive stem cells could be raised against the use of the already existing stem lines that were themselves created through the destruction of human embryos. Some people would be opposed to such use because it can be interpreted as an endorsement of the initial act of destroying embryos. This kind of research can be compared to the use of materials and data from Nazi experiments. To use such materials and data today is to legitimize the ethically objectionable work of the Nazi era.

Is an ethical compromise possible?

Incidentally, even those who believe that human embryos are beings deserving respect would not possibly treat them with the same reverence as they would an infant. Certainly people's moral intuitions do not conform to the view that human embryos have the same moral status as adult humans.

As Michael Sandel rightly argues 'if harvesting stem cells from a blastocyst were truly the same as harvesting organs from a baby, then the morally responsible policy would be to ban it, not merely to deny federal funding as is the case in the United States (Sandel 2004: 208). Sandel has also noted that natural procreation results in the loss of embryos for every successful birth but the way we respond to this loss clearly shows that we do not regard this event as morally equivalent of the death of babies. Sandel puts it well she says 'if embryo loss that accompanies natural procreation were the moral equivalent to infant death, then pregnancy would be regarded as a public health crisis of epidemic

proportions and alleviating natural embryo loss would be a more urgent moral cause than abortion, in vitro fertilization, and stem cell combined' (Sandel 2004: 204). This point is reinforced by the observation that we do not have elaborate burial rituals for dead embryos.

I believe that if a cure for AIDS or any such lethal disease were to come from embryonic stem cells, very few people would be opposed to stem cell research even if it involved the destruction of human embryos. The devastation caused by the AIDS epidemic has already led many staunch Catholics to soften their hard-line stance against the use of condoms. Indeed, when push comes to shove, most people would place a fully grown person above the human embryo on the moral scale.

Adult stem cells and the media

Despite the demonstrated promise of adult stem cells, the popular media has continued to create the impression that only embryonic stem cells can be used for therapeutic purposes. In fact, adult stem cell successes have been given a near total blackout by the liberal media.

The dramatic attention that embryonic stem research receives from the media is partly occasioned by the conflation of stem cell research with cloning. Most people tend to equate embryonic stem cell research with therapeutic cloning and are fascinated by the possibility of implanting an SCNT-created embryo in the womb of a surrogate mother to produce a human being that is a genetic replica of the somatic donor. However, as we have already seen, embryonic stem cells can be harvested from either SCNT-created embryos or IVF-created embryos. Indeed, many of the existing stem cell lines today were derived from excess embryos from IVF clinics.

It is important to note that whereas human adult stem cells have been successfully used in therapy, no successful clinical trials using embryonic stem cells have been carried out in humans. To be fair, part of the reason for this is the restriction put on human embryonic stem cell research. However, research on the existing human embryonic stem cell lines is not as promising as the popular media would have us believe. Indeed, the therapeutic potential of adult stem cells has been grossly overestimated. A survey of recent articles appearing in the leading science journals reveals major breakthroughs in adult stem cell research. Adult stem cell transplants are already being used in the treatment of certain types of cancer and a number of autoimmune diseases such as rheumatoid arthritis, lupus, multiple sclerosis and Crohn's disease (Burt et al 1999, Verburg et al 2001, Wulffraat et al 2001). A recent review of diseases treatable by adult stem cells reveals that in the past decade over 700 patients suffering from a variety of autoimmune diseases have been treated using adult stem cells and a third of these patients have been successfully cured (Laar and Tyndall 2006). Another report suggests that adult stem cells may be more versatile than originally thought (Grove et al 2004).

Putting the ethical considerations aside, there are technological advantages of using adult stem cells instead of embryonic stem cells. Deriving stem cells from a patient's own tissue entirely circumvents the problem of immune rejection. To overcome this problem, proponents of embryonic stem cell therapies will have to create patient-specific stem cells through SCNT. Unfortunately this technology is yet to be perfected. Creating embryos through SCNT requires vast quantities of human eggs whose harvesting is itself both painful and risky. Moreover, some people are worried that cloning for stem cell research might lead to reproductive cloning.

The concern over the biased media reporting on stem cell research has been raised by a number of writers. For example, Willke and Mattes have pointed out that 'To-date, there have been no human successes in the use of embryonic stem cells. Yet, nearly all that we hear from the so-called mainstream press and biotech industries is the promise of embryonic stem cell research' (Willke and Mattes 2005: 3). The two authors then go on to give a long list of diseases that can now be treated using adult stem cells. Wesley J Smith has expressed similar concerns:

The pattern in the media reportage about stem cells is growing very wearisome. When a research advance occurs with embryonic stem cells, the media usually give the story the brass-band treatment. However, when researchers announce even greater success using adult stem cells, the media reportage is generally about as intense and excited as a stifled yawn (Smith 2002).

And in a letter to the editor of *Nature* journal, James Sherley argues that the decline of public enthusiasm for any type of stem cell research has been caused by the hype over embryonic stem cells (Sherley 2003: 381).

The excitement that advances in human embryonic stem research generate is best exemplified by media reports on the now discredited findings of the South Korean scientists led by Wu Sook Hwang. In a paper appearing in the *Science* journal, Hwang and his co-workers claimed to have succeeded in deriving 11 stem cell lines from human embryos created through somatic cell nuclear transfer (SCNT) (Hwang et al 2005). These findings were later shown to be fraudulent. When Hwang's paper was published, the popular media was awash with sensational news claiming that creating stem cells that will not be rejected by the patient's immune system was now a reality. Some newspaper editors went as far as accusing President Bush of allowing America to lag behind South Korea in science by putting restrictions on federal funding for human embryonic stem cell research.

Biased media reporting has continued to undermine the quality of the public debate on the ethics of stem cell research. If the citizenry is to develop informed opinions on important issues such as stem cell research, without

imposing the unrealistic expectations that they be trained as scientists, the popular media must ensure that scientific findings are accurately and objectively reported. The public must be made aware of the two main sources of stem cells and their distinguishing characteristics.

Conclusion

In the light of the forgoing considerations, I strongly question why medical researchers continue pursuing embryonic stem cell programs when an ethically less problematic alternative exists. Indeed, the principle of subsidiarity should apply in this case. This principle states that if two or more types of research can attain the same results, then one should pursue the research that is least offensive or least problematic (Doerflinger 1999, Fletcher 2001, Pennings and Steirteghem 2004). Adult stem cell research program is the least morally offensive of the two research programs. I suggest that we reconsider the ethics of having a moratorium on human embryonic stem cell research as society looks for a moral consensus. There are serious points of ethical disagreement between the supporters and opponents of human embryonic stem cell research. The popular media can enrich a new public debate by reporting accurately and without bias on the advances being made in both embryonic and adult stem cell research.

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Morality – Innate or Acquired?

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What makes a person moral or immoral in their behavioural attitude, nature or nurture? This has long been a puzzling question. A recent book by Hauser (2006), "*Moral Minds"*, of about 500 pages, has stirred up discussion, especially among psychologists and sociobiologists, some of them holding that an evolutionary biologist has trespassed into their field. (Hauser is Professor of Psychology, Evolutionary Biology and Biological Anthropology at the Harvard University).

The hypothesis, on which Hauser has built his book: Morality is wired in the human brain in neural circuits, and this has happened through evolution. Hauser offers evidences from psychological experiments, in support of his views, but philosophers and psychologists, rejecting his views, cite examples of extreme immorality acquired through cultural environment. Porty (2006) begins his review of the Hauser's book by pointing out, "Nazi parents found it easy to turn their children into conscientious little monsters. In some countries, young men are raised to believe that they have a moral obligation to kill their unchaste sisters".

In support of an evolutionary origin of morality

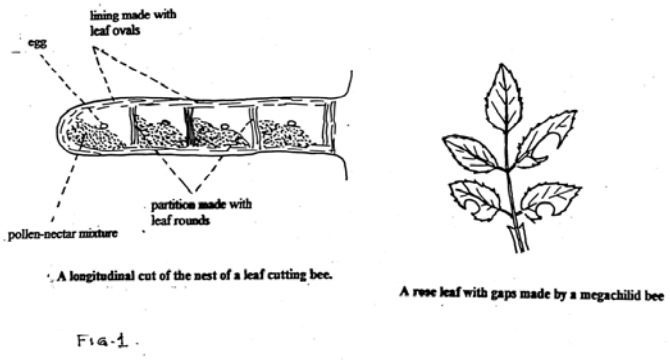
The base of morality is altruism. A practical definition of altruism would be subjugation of self to a community life (gregarious/semisocial/social). Wade (2006), in his review of the Hauser's book, quotes Frans de Waal, who has pointed to morality in group living mammals, describing it thus: "feelings of empathy and expectations of reciprocity are essential ….for group living". In the context of animal groups empathy is altruism.

In addition to a human typical 'society' living (Eusocialism, as E. O. Wilson, 1971 prefers to call this pattern) is seen in ants, bees, wasps and termites among insects. (Wilson, 2006 has rightly included siphonophores, in addition to the insects, in the category of eusocial animals.) Costa (2006) has pointed to hundreds of species of insects and other arthropods showing a primitive level of social organization or a semi-social pattern. Altruism is seen even among members of such semi-social or even gregarious forms, and their study suggests the way eusociality has evolved.

One such case of altruism among group living forms, though not eusocial, has been observed by the great French entomologist J. H. Fabre (1908) in leaf cutting bees or Megachilidae. The megachilid bees cut away with great rapidity, using their scissors like mandibles, circular and oval pieces from leaves of rose and other plants. These pieces are used in making of a nest. A nest is made in a short tunnel like gap in various objects, such as rotting wood, hard wood, in soil, even in nail holes in a wall. The tunnel is lined with oval pieces of leaves. After placing a mass of a pollen and nectar mixture at the blind end of the nest and an egg over the mass, the female bee makes a partition across the tunnel, using several round leaf pieces. Next to the partition another mass of pollen and nectar mixture, with another egg over it, is placed. Then another partition with round leaf pieces is made. Thus the tunnel is divided into several chambers, each with an egg and the larval provision in the form of pollen and nectar mixture. Then closing the mouth of the nest with several round pieces the mother bee flies away, leaving the developing progeny to themselves.

Among the eggs in the nest the oldest is the one at the blind end of the tunnel like nest. This egg goes through developmental stages of larva and pupa, and becomes an adult, while the sisters in their chambers are still developing. The first formed adult bites its way into the next chamber, in which the sister individual is in the pupal stage. But it does not disturb the pupa; it simply waits here till an adult has ecloded from the pupal skin. Now the two adults make their way into the next chamber. Here they will wait till an adult has emerged in this chamber too. This altruistic behaviour is repeated till adults have come out in all chambers. Now several adults will emerge from the nest together. Thus the gregarious developmental stages of a megachilid bee show definite altruism.

Figure 1



Some herd or group living vertebrates take to what we may call "round defense", when a predator is around. Males make a circle, with their heads outward, and with females, young ones and weaker adults within the circle. For example penguins, musk oxen and Canadian deer show such behaviour. Some gregarious insect larvae are also known to show this altruistic defensive behaviour. Some galerucines and cassidines among leaf beetles, some wasps and some flies show this phenomenon. The gregarious larvae of these insects, when they are not

active, that is they are not feeding or moulting , take to round defense, which has been given the name "cycloalexy" by entomologists. The larvae form a circle, with some larvae in the middle. The larvae, in the circular arrangement, may have their heads in the periphery or, as seen in some species, their tail ends. The larvae of the Oriental tortoise beetle *Aspidomorpha miliaris* carry a chain of shed skins at their hind ends. The cast skins are filled with black excretory matter. In this cycloalexic species the larvae keep their caudal ends at the periphery of the arrangement (Verma, 1996). When a predator or a parasite approaches, the larvae curve their hind ends upward in threatening manner. The threatening behaviour, shown by the peripheral larvae in different cycloalexic species, includes biting movements of jaws, regurgitation of a glandular secretion through the mouth, curling the outer part of the body upward, reflex bleeding etc. In the cycloalexic arrangement of larvae of saw flies (Tenthredinidae, Hymenoptera), older larvae form the circle, with younger ones in the middle. When the latter have grown older, they will take the peripheral position. Jolivet (1991) has referred to this behaviour of the saw fly larvae as "altruism with reciprocity".

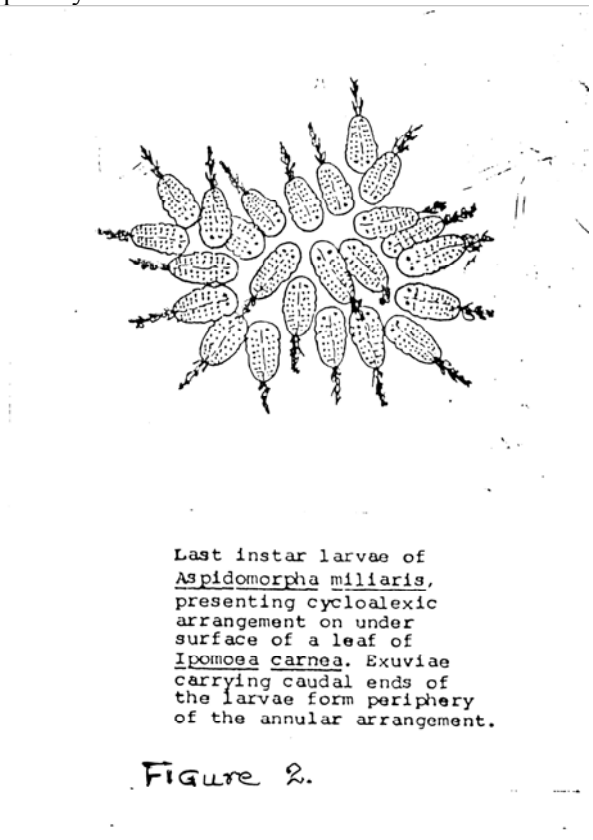


Figure 2

The digger wasp (*Bembyx*) makes her nest in the form of a hole in the ground. The females of this wasp are gregarious in their nest making, that is a number of females make their nests in a relatively small area, and thus there is a village of nests. In a nest the maker lays an egg, and then waits near the nest to guard it. When the egg has developed into a larva, she starts bringing in food (bits of caterpillars) every day for feeding the larva. If a parasite or a predator approaches the village of nests, the female wasps fly en mass towards the intruder to drive it away. This coordinated action has been referred to as intimidation flight by wasp biologists.

Honey bees are typically social. In a colony of honey bees there is a definite agewise work schedule for workers. This schedule, as per Rodionov et al. (1986):

First two days: No work, as the workers are too weak to work. .
3rd and 4th days: Cleaning cells and feeding older larvae.
5th day: Maxillary glands well developed now, hence feeding younger larvae.
12th day: Maxillary glands now maximally developed, hence wax secretion starts. Feeding of larvae continues. In addition they help comb construction and defending the hive.
18th to 20th day: Foraging.
Older bees: Water collection. They stop going far the hive.

Under certain circumstances this schedule may be altered. For example, when a swarm has left for establishing a new colony, and there is paucity of older workers, as the older ones have left with the swarm, younger workers start foraging, an altruistic switch over.

The following is specially notable from Rodionov et al. (1986), "There are never any conflicts between the members of the bee community, as if all of them were guided and governed by some laws accepted once and for all…"

Group behaviour and altruism have been repeatedly observed by primatologists among apes and monkeys. Jane Goodall has devoted her life in field study of social structure and behaviour of chimpanzees, the closest living relative of humans. In 2003 she was in Bangalore, and there in an interview she said, "Chimpanzees show "pure altruism"; they are known to help chimpanzees, who are not family members" (Patil, 2003).

Phyllis Jay of the University of California has extensively studied the habits and social behaviour of the Indian langur monkey (*Presbytes entellus*). Quoting the work of Phyllis Jay, Barnett (1971) says, "One representative group (of the langur monkey) consisted of 28 monkeys, of which six were adult males, and nine were adult females. If we call the males A, B, and so on, then A has priority over the rest, B takes precedence over all except A, down to the apparently unfortunate F, who has to give way to all other males." Thus there was a hierarchy among males in the group. Barnett further writes, "fighting is extremely rare and wounds are infrequent…" Thus altruism and moral behaviour are well expressed in the community life of the langur monkey.

Altruism in human society.

Humans have an innate altruistic tendency. In support of this notion Hauser mentions some psychological experiments with 4 year old children, as sense of 'fairness' starts appearing at this age. He points out results in 'trolly problems' experiments with such children. Imagine that five persons are moving along a railway track. There is another track with one person walking along it. There is a lever to change the path of the approaching train from the first track to the second one. If the train continues along the first track, the five walkers would be killed. If a 4 year old child is asked what he would like to do in this situation. In most cases the young subject will choose to divert the train to the other track, so that instead of five only one person is killed. In another experiment it is shown that five people are walking along a track, and there is an approaching train, which will kill them. If, however, a heavy object is thrown on the track the train may be stopped., and the five walkers will be saved. But the only heavy object, available nearby, is a fat person. Would the child choose to push the fat man on to the track to prevent death of the five walkers ahead? Most young subjects would not do it, as they can distinguish it between 'incidental' and 'intentional' killing, the former being more acceptable than the latter. But some young subjects will not be able to make out this difference between the two killings. This suggests that, like any other heritable trait, altruism also presents variation.

A rough analogy of inheritance of altruism is with the learning of a language, which is both through nature and nurture (Karmiloff-Smith, 2006). While a growing human learns a language through his cultural surroundings, in this he/she is helped by his/ her genetic make up. FOXP2 has been called 'language gene'. As Karmiloff-Smith points out, this gene is not directly involved in language learning, but it helps learning, perceiving and expressing in a language, as its function is "rapid coordination of intricately timed motor sequences".

The social pattern of life is most highly developed in *Homo sapiens*. Altruism is, therefore well pronounced in the human psyche. But man, guided (or misguided?) by his well developed intelligence, often becomes so much obsessed with his personal ambitions and desire for social, economic or professional climbing that altruism becomes pushed to a back seat. This situation makes a person intensely individualistic, and, so possessed by individualism, he may not hesitate to elbow or push back others to achieve his social and professional ascent. Much of unrest in the human society is due to this situation.

Remmel (2006), reviewing the Hauser's book, has pointed to an extended period of psychological immaturity in humans. Humans definitely take longer to mature as an adult than other mammals. This, coupled with his learning capacity and impressionable mind, profoundly affect his mental attitude. Somewhere we read that in days of Mao his 'red book' was much respected and studied with great devotion in China. In one case a man with firm conviction in the Mao's version of communism chose to face a thoracic surgery without anesthesia. Thus what of altruism, even the basic instinct of self survival was put aside through indoctrination.

Among the various environmental factors, influencing expression of the inherited basic altruism, an important one is religion. Every organized religion has a significant ethical component. It is notable that the main features of the ethics of different religions are much the same. Hauser points out that all religious societies are expected to "do as you would be done by; care for children and the weak; don't kill: avoid adultery and incest; don't cheat steal or lie". In one more way a religion helps following of morality; as Remmel (2006) points out, "….they (religious beliefs) provide a motivation to behave well even when no other person is looking: because God or some other supernatural agent may be watching".

Dissection of terrorism

An incisive thinking on the aberrant behaviour of terrorism is necessary, because in some parts of the world it is being viewed in a coloured perspective. In Turkey, taking a cue from the US creationists, The Theory of Evolution is being challenged, and vigorous efforts are on to replace it with a little different version of creationism (Reuters news, 2006). This somewhat revised version of creationism, denying organic evolution, has been discussed in a large volume book "Atlas of Creation", splendidly illustrated and being distributed among Turkish readers free of cost. The author of the book is Harun Yahya, which is probably a pseudonym for a pool of writers, who are writing a series of books with a similar message. One of the books says that terrorism is not a product of any religion, but a product of atheism and Darwinism, which speaks of "struggle for existence" and "survival of the fittest". Perhaps it is needless to point out that the Darwinian selection has been badly misunderstood in this context, as often by others in the past. In fact in vast majority of cases the selection is a subtle phenomenon; it is only bearers of different genotypes contributing differently to the gene pool of the next generation. The Darwinian selection has an adaptive value for the concerned population, whereas terrorism leads to destruction, resulting in indiscriminate killing. Terrorism clearly results from deep indoctrination, which has been mentioned earlier.

Conclusion

From the above discussion it may be inferred that nature has provided humans a well developed altruistic tendency, which is the basis of a well organized and healthy eusocial pattern. But man's greatly developed intelligence, pronounced capacity to absorb cultural

influences, and a prolonged period of psychological immaturity may strengthen or weaken this inherited altruism, the latter change to the point of almost complete obliteration.

The Yale University psychologists Bloom and Jarudi (2006) find the Hauser's hypothesis still awaiting enough evidence in support, but they say, "…it (the Hauser's book) is also a deeply significant intellectual contribution: everything that's done in the new science of moral psychology in the coming years is going to be response to this important and enjoyable work". As Macer (1998) said in *Bioethics is Love of Life*, our morality has roots in our biological, social and spiritual heritage.

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Misconceptions of evolutionary biology and its ethical implications

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Abstract

Evolution is the unifying theory of biology. It is one of the most revolutionary ideas in modern thought, it holds repercussion in several fields of the human knowledge and it usually sets controversies and misconceptions. Some of these misconceptions are discussed in the present manuscript. Although extremely useful in many fields of the human knowledge, it is important to remember that evolutionary biology supplies descriptions of how the world in biological terms is, and that it cannot be used as ethics or morality justifications.

Misconceptions of evolutionary biology

Evolution is considered the unifying theory of biology. "Nothing in biology makes sense, except in the light of evolution" said the great geneticist Theodosius Dobzhansky[1]. It also integrates knowledge of other areas such as medicine, agronomy, geology, mathematics, statistics and even though the computation, sociology and philosophy. Evolutionary biology is one of the most revolutionary ideas in western thought[2]. It holds repercussion in several fields of the human knowledge and it usually sets controversies and misconceptions.

Among all the basic concepts of sciences of the life, evolution, besides being the most important, is also most badly comprehended[3]. This understanding occurs even in the scientific and academic areas. Such knowledge is often a misunderstanding for the majority of specialized professionals, including those involved with its transmission: the teachers. In one research carried through with Brazilian biology teachers, 60% of those interviewed admit some type of difficulty in teaching evolutionary biology; most of them often reported lack of preparation, lack of didactic material and lack of time to teach this specific point in the curriculum. Most of the teachers (62%) consider that the students are immature and/or do not have sufficient theoretical basis to understand evolutionary biology[4]. These problems concerning the study of evolutionary biology are not only in the formation of pupils or professors, being also present in didactic materials. Even in several books of biology, the concept of evolution is still not accurate[5].

The idea of evolution was present in the early nineteenth century, but it did not become a coherent, influential scientific theory until Charles Darwin published *The Origin of Species*, in 1859. In its broad sense, evolution simply means "change", or descent with modification, and often with diversification[6]. In genetic terms, evolution can be defined as any change in the frequency of alleles in populations of organisms from generation to generation and it is the process by which new species develop from preexisting ones, to over time. In a similar way, evolution explains how life on earth has changed. The fact is that the evolution is so well registered as something that we know in science. However, the mechanism of the evolution still sets controversies[7]. So, evolutionary biology is a fact, and the temptations to explain its mechanisms are the theories of evolution.

The great revolutions of the history of science had in common the falling of the arrogant human being, first when Copernicus removed the Earth from the center of the universe and second when Darwin removed the humans from the "apex" of the nature[8]. It is important to remember that the term "evolution" was used in 1744 by the German biologist Albrecht von Haller to describe the theory that the embryos grew from pre-formed little humans ("homunculus"), present in the germinative cells. When this theory was discredited, the term "evolution" was reused for the process of descent with modification, described by Darwin[9]. However, evolution is not a synonym for progress, it does not bear motivation or trend to move towards the biggest complexity, greater intelligence or any another definition of progress[10]. From the biological and evolutionary point of view, the human being is only one of the millions of other species sharing the planet.

Science is an institution integrated and influenced by the society and the problems that it handles. The ideas involved and even the results are influenced and reflect the values and opinions of the society at each time. The people gain their lives through science; as a consequence, the social forces and economic they influence to a large extent what science makes, as makes, and assumes of the adequate ideas the maintenance of the social structures of which they are part[11]. These influences and appropriation of ideas related to evolutionary biology can be seen very clearly in the end of the 19th century and beginning of the 20th century, when natural selection, not properly used, was the argument that validated extremely harmful actions of social Darwinism. It was a failing attempt to scientifically justify the social competition, class stratification and imperialism; also, it had great support in the United States and Europe lives because of its political application that would be its scientific side[12]. Social Darwinism can be defined as an application of the biological evolution to social theories and moral codes of society. The principle of this thought is that human beings must follow the patterns that occur in nature where the "fight for survival" among individuals, ethnic groups and even nations prevails. However, as pointed by Werma[13], social Darwinism is a fallacy due to many reasons: *Homo sapiens* have monophyletic origin; different geographical populations have been frequently interbreeding throughout our history; intraspecific/intrapopulation variations are much larger in humans than in other animal species; in the modern human, the changes that take place have been mostly cultural and the Darwinian selection operates on genetic variations. In history, there are many examples of temptations to reduce some groups of human beings in their genes, usually with the intention to justify their exploration and discrimination, but there is not a base to believe in the existence of superior or inferior groups or populations. Superiority is a socioeconomic concept that modified very quickly, while the change of genotypes did not[14]. Even if we accept that people have different abilities or that the intrinsic capacity to win and to have success is inherited by the genes, this is will not be enough to explain and to justify the social inequalities[15].

Some misconceptions in evolutionary biology are due to the wrong interpretation and utilization of the natural selection concept. From the biological point of view, natural election can be defined as differential survival and reproduction of organisms that differ from one another and that are due to heritable characteristics. Expressions like "fight for survival" or "survival of the fittest" are popular terms that refer to the process of natural selection. However, these Darwinian slogans do not apply to human individuals because natural selection is based on genetic variations, and many variations among human individuals or populations are due to cultural and environmental factors because of the following reasons: very long period of postnatal association with parents and family; institutionalized learning; medical aid; cumulative tradition or social memory and varying environments[16]. Human beings are still under natural selection, but there are no evidences to strong directional election in physical, psychological or mental characteristics in the modern human beings[17]. Moreover, there is no reason to believe that human beings´ behavior follows "natural laws".

The knowledge of evolutionary biology is extremely useful in the food production, conservation of habitats, understanding of pathogenic organisms and illnesses, among others and besides being able to help to repair preconceptions and conceptual errors that take the political and ethical distortions of science. Evolutionary thinking could still be relevant for ethics may explain the existence of morality in man, but it is not enough to justify principles of ethics[18]. It supplies descriptions of how the world in biological terms is, but it cannot be used in ethics or morality arguments.

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Exploitation in the Human Body- Trade" and Some Ethical Issues

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Introduction

'Do people have a moral right to sell their kidneys, or other body parts? Is it wrong to receive money for being a surrogate mother? Can we - and should we - patent DNA? How ethical is the 'commodification' of the human body'? Stephen Wilkinson asks what is it that makes some commercial uses of the body controversial. (Wilkinson: 2003). In this article, we are addressing these questions from a philosophical and an ethical perspective in order to understand what makes these issues controversial. For us, equally important is the question:' is it ethically wrong for the rich to exploit the bodies of the poor and to treat these bodies only as' organs ready for sale'? At a time when our value systems have lost their meaning apart from being of service in the global market, we can treat such issues as non –controversial understanding human bodies only as commodities in the global market. The poor people have at times nothing else to sale save their blood or some extra organs which are marketable. On the other hand, those who have money can look for these organs to meet their urgent needs and requirements and under such circumstances there is apparently nothing wrong if the poor voluntarily donate their organs and are paid for it. There will always be such demands. "The shortage of organs and the number of patients awaiting transplants is growing. In the US, 90,000 patients are on the waiting list, of whom 6,000 die every year; in cities, there is a 5–7-year wait for a cadaveric organ, and some patients take matters into their own hands by advertising for a donor on highway billboards, by consulting websites, by making personal pleas in the media, by listing themselves in multiple registries and by relocating" (Daar, 2006). Living donation is the only recourse, and often has to be paid for by the recipient.

But what needs caution and sensitive handling is the prevention of the commercialization of the trade of human organs that may lead to large scale exploitation of the poor by agents and middlemen who play crucial role in this trade. More the numbers of commercial transplantations and centers involved is increasing, there is greater demand for organs, blood, cells, tissues, liver, kidney and any other human organ, it is a booming situation for black marketers. "If the buying and selling of organs is as unstoppable as it appears to be, then leaving it totally unregulated causes more harm than good, which is arguably unethical—especially as it encourages only the rich to benefit."

Globalization

Globalization is already well on its way and is not a reversible process. We have witnessed the globalization of markets for resources, technology, manufactured goods, ideas, labour, and capital (Drache and Gertler, 1991; Stubbs and Underhill, 1994). But globalization is also political, tied to changes in state roles and functions; cultural, in its extension of certain Western ideas of modernization; and ideological, especially in its neo-liberalist espousal of capitalist relations of exchange (Mittelman, 1996; Boyer and Drache, 1996). One result of globalization has been that existing relationships of unequal exchange and domination have been reinforced, while in some instances others have been created, together with new forms of commodity fetishism (McNally, 1981). In the world of globalized capitalism, all objects lose distinction. They stand apart merely on the basis of their relative equivalence, each with a price,

or rather an exchange value. We want to discuss this fundamental contradiction from a biological perspective. Little analyses, but symptomatic of these changes, has been the emergence in recent years of a global trade in human body parts (HBP). The HBP trade is precisely notable because of its generality to recent processes of globalization.

The overwhelmingly growth of commodification or objectification of body in this New World, is well known. Due to increasing technological development in the fields of bioscience and biomedicine along with scientific and economic exploitation, a novel regime of values now dominate the scene, which makes it possible to productively merge depersonalized humans with machines, "treat their bodies as sheer sources of extractable values, and terminate their lives solely in regards to considerations of utility only" (Rabinow, 1999). Andrew Kimbrell argues that developments in medical and scientific research have led to the commodification of body parts.[1] This whole process of commodification of the body parts, cannot be fully addressed unless we touch upon the wider backdrop of the "marketization" of human interrelations, and its impact on different aspects of contemporary global life. What follow is an exploration of this commercialization and the co modification of human body parts in the context of a global marketization.

Marketing the Human Body:

Markets are inclined to reduce everything - including human beings, their labor and their reproductive capacity - to the status of commodities, things that can be bought, sold, traded, and stolen. And nowhere is this more dramatically illustrated than in the current markets for human organs and tissues to supply a medical business driven by "supply and demand". Bodily holism and integrity have given way to the divisible body and detachable organs as commodities, and as fetishized objects of desire and of consumption, such objects have been rendered only as saleable market commodities. Wilkinson explores a series of core themes on the conceptual side of "commodification" debates: "exploitation", "objectification", "harm", "consent", and "coercion". Commodification of body-wastes is big business. "From the sale by hospitals of infant foreskins (used to manufacture artificial skin) and aborted embryo gonads (a source of stem cells), to the patenting of infected cell lines as research materials, to the sale of celebrity DNA-rich saliva, body wastes are fully integrated into the structures of late capitalism, and many of us "buy back" these wastes in the form of placenta-enhanced shampoos and drugs developed from patented cell lines (Robert Mitchell: 2001)". Commodification is ultimately a transformative process or more specifically a medicalized processes that transforms human body parts into objects of intense desire and, on the other, the subversive social responses that ultimately challenge the mystification of commodified organs' origins (Lesley A. Sharp:2000). The 'commodification' of body parts implies that the body is a form of merchandise (Rabinow, 1999). Prostitution, commercial surrogacy, pornography—all of these represent ways in which the body might be commodified. Thus, wombs are rented; sperm is sold; and human organs, "harvested."[2]

Since the early 1980s, the number and variety of organ transplantations has increased enormously worldwide. Accompanying this increase has been the emergence of a market for human body parts. While technological advances condition the trade in human body parts, it must be understood in the broader context of globalization, specifically the extension and intensification of a capitalist mode of exchange. In this regard, it is argued that the trade in human body parts mirrors the "normal" system of unequal exchanges that mark other forms of trade between the developed and undeveloped regions of the world. In general, the flow of organs, tissues, and body parts follows the modern routes of capital: from South to North, from third to first world, from poor to rich, from black and brown to white, and from female to male bodies. In the very worst instance, this market has resulted in theft and coercion, as in the case of China, to a self-serving belief in rights of the rich to the "spare parts" of the poor, as in the case of the many transplant junkets arranged to carry affluent patients from Saudi Arabia, Israel and North America to Turkey, India, Romania, and the Philippines where kidney sellers are recruited from prisons, unemployment offices, and urban shantytowns. Such a market would definitely create a relative disadvantage for the poor, who would feel disproportionately greater pressure to sell their organs than would the wealthy. Secondly, the possibility of realizing a profit from the organs of the dead could provide an incentive for murder or for doing less than we might to save lives. Thirdly, an organ market, where parts of a person are viewed as commodities, could lead to a general cheapening and coarsening of human relationships, raising quality control problems. Fourthly, the economic system would drive out the volunteer donor system, sapping the altruistic bond that draws people together. Finally, an organ market presents a metaphysical threat in that it demeans our bodies to the status of articles to trade.

Some Description and Reviews:

In advanced industrialized countries, more often than not, transplant surgery for those who are waiting to receive an organ can be a difficult process because there are not enough organs (or corpses) to go around, let alone persuading willing donors. Coupled with the shortage of organs in places where the demand is high, destitute, coercion, and greed in developing countries have created the supply base of much needed organs; ready to be serviced for those willing to pay. It is easy, according to American values and standards to denounce the sale of kidneys for money as a deplorable

and immoral practice but given the fact that the poor in India, don't have the liberty of being altruistic because of their harsh existence, the distinction between ethics and survival becomes blurred. The United States House of Representatives is considering laws to encourage organ donation, something all sides' support. The proposed laws call for financial aid for living donors who give away a kidney or part of a liver and offer grants for States to encourage donation. Only half of US families asked agree to donate organs - many families are never asked. Up to 5,000 people die each year waiting for organ transplants. Almost 69,000 people are waiting for transplants. The US laws would give the transplant network total control over the rules governing how to distribute more than 20,000 organs donated each year (see: http://www.multiline.com.au/~donor/black.html). In Russia, bodies are owned by the government and must be turned over immediately to authorities. Gruesome pictures have surfaced of tables filled with bodies of men and women whose organs can be picked over for body parts. In the UK, it became illegal to pay for organs in 1984 (see: http://www.multiline.com.au/~donor/black.html).

In French reports about organ thefts go back a long way. In 1768, the family of a deformed French prince in Lyons was rumored to be kidnapping children and moving their arms to substitute for their son's withered limb. More recently a story surfaced in France of a boy lost at Euro Disney in the morning and found in the evening minus a kidney. In a German controversy involving autopsy, human body parts are smuggled out of hospital basements by shady hospital workers and sold to local drug companies for the extraction of growth hormones. The list of items on drug companies' plan does not stop there. In an investigative report by *Der Spiegel*, a liberal German newsmagazine, drug companies also buy meninges --the membranes that surround the brain and spinal cord -- by tens of thousands. They are used to make a valuable medication used in skin transplants. India probably ranks in the top among countries that are becoming great organ bazaars of the world. India has been known as a "warehouse for kidneys" and has become one of the largest centers for kidney transplants in the world, offering low costs and almost immediate availability.[3] In a country where millions suffer from abject poverty, the allure of "easy money", gained by selling a kidney, becomes an easy trade-off for the poverty-stricken individual. Consequently, the poor and destitute, victims of poverty, has either willingly sold their kidneys to pay for a daughter's dowry, build a small house or to feed their families or have been duped or conned into giving up their kidneys unknowingly or for very little sums of money. The Voluntary Health Association of India estimates that each year more than 2,000 people sell their organs for money (compared with 500 in 1985 and barely 50 in 1983 (Chandra, 1991: 53). The U.N. Human Rights Commission said in a 1993 report that more kidneys were sold in India than anywhere else to buyers from developed countries (Max). The Indian Bill: 1) regularizes genetically related live donor transplantations; 2) makes trade and commerce in human organs illegal and punishable by law; 3) allows unrelated live donor transplants only under very stringent circumstances as judged by an Authorization Committee set up by the government; and 4) recognizes brain-stem death as the sole means of establishing death (Colabawalla, 1995, see in Trevor Harrison http://www.questia.com/PM.qst;jsessionid=FflK3p427Tqh4v4PBDVsV77RyJH0Q6fkTZnlpQhTtc7527MvSjGs!-719644227!944122321?a=o&d=5001245472)

Chinese prisoners are reported to have their organs removed upon death. Bodies and their organs are confiscated after execution in China. Deaths of prisoners are tailored to transplant needs: a bullet in the head for kidneys, lungs, livers or hearts; a bullet in the chest for corneas. In recent years, China has expanded crimes punishable by death, some say because of the big money that organs bring[4]. According to Human Rights Watch/Asia, about 2,000-3,000 organs a year are cut from the bodies of executed (as well as not-quite-dead) prisoners. The extraction of organs is an open secret in China. In Bangkok, murder charges were brought against three Thai doctors and a former hospital administrator accused of deliberately misdiagnosing patients as brain dead to use their organs for illegal transplants.[5] In Ankara, Turkish Prime Minister Bulent Ecevit has ordered an investigation into reports that organs were stolen from bodies of people killed in last month's earthquake.[6] Recently, pathologists in one city began extracting muscle membranes from corpse's thighs, which is then sold to firms that market reconstructive surgery. Lastly, brains and other organs are shipped to medical schools to be used by students in anatomy classes.

What's Wrong With Buying Or Selling A Kidney & Whose Values Are These?

Medical and legal expert's intent on solving the problem of market failure evident in dramatic failure to organ supply to meet medically feasible such as well as economically effective demand. Layer and economist Llyod Cohen (1989) suggested in his much discussed article advocating the legalization of a "futures" market in human body parts to increase the supply in transplantable organs. There is justification for objectification of body from the perspective of for biomedicine. Some such arguments are:

1. There is easy finding for some human materials, such as blood when it is shown to be donated for therapeutic purposes. That way blood is more acceptably objectified than others (Waldby et al., 2004)
2. It seems that some removals of human materials are beneficial for others (as in the case of life-saving transplantation) that any objectification that this may involve is either welcomed or ignored by the recently bereaved the life of another (Beard ed al., 2002)

3. Anthropologists and sociologists who have investigated medical practices that involve physical examinations (Emerson, 1970) and surgical procedures (Katz, 1981) have noted that a reutilized attitude that designated body parts as technical objects appears necessary in order to carry out these procedures if participants are not to be overwhelmed with feelings of embarrassment, horror or disgust.

4. Lock (2001) notes that there are circumstances in which objectification of a body part can be experienced a welcome relief from the moralizing discourses associated with continuation a view of certain parts as 'self'. (cited in, Body & Society, 12 (1), 2006: 28)

There is great demand for such body-organs. A retired lawyer in Jerusalem, (report from Nancy: 2001) explained why he went through considerable expense and considerable risk to travel to Eastern Europe to purchase a kidney from a displaced rural worker, rather than wait in line for a cadaver organ in Israel: "Why should I have to wait years for a kidney from someone who was in a car accident, pinned under the car for many hours, then in miserable condition in the I.C.U. [intensive care unit] for days and only then, after all that trauma, have that same organ put inside me? That organ is not going to be any good! Or, even worse, I could get the organ of an elderly person, or an alcoholic, or a person who died of a stroke. That kidney is all used up! It's far better to get a kidney from a healthy man who can also benefit from the money I can afford to pay. Where I went the people were so poor they did not even have bread to eat. Do you have any idea of what one thousand, let alone five thousand dollars, means to a peasant? The money I paid was a gift equal to the gift that I received". No doubt, the loser in all this, human market, is undoubtedly the dead people and their loved ones who do not realize that with or without the permission for autopsy, the parts of the deceased are being plundered.

Ethical Issues: What Makes These Issues Controversial?

The new commodification of the human body represents a major challenge to the legal, ethical and religious tradition. The question of property rights in human body parts have centered around medically extracted materials over which patients subsequently tried to establish—or, in their view, re-assert—ownership. Sweden, for example, attempts to assert individual rights to corpses seem absurd, for as the state cares for its citizens when alive, the citizen's body parts are offered willingly to others in need at the time of death. In nations that have massive populations, such as China and India, body-parts have become worth much more than the lives of their owners. The problem raises complex ethical questions as to how far is enough in human's efforts to strive toward longevity and whether selling one's organ a justifiable means to fight poverty. Those willing to sell (rather than donate) a bodily organ are, for all the obvious reasons, typically going to be poor. Any organs market would thus depend on asymmetrical power relations—and for the purposes of generating trade, the more asymmetrical the better (S Wilkinson: 2003) Lastly, equally valid on a less philosophical level, the body parts trade unequivocally borders on violating one of universal human rights, i.e., the right to decide what to do with one's corpse. Technical supervisor of Hemocaribian, Werner A. Thrill, Expressed its efficiency in an interview with French newspapers. "If Haitinas don't sell their blood", he is reported to have said (quoted in Farmer 1994:51), "what do you what them to do with it?" Indeed, what to do when you are stuck with a body whose property-creating capacities you cannot realize for historical reasons, but whose parts are of eminent utility on a global market or human commodities? (See, Stephan Palmié : 2006)

As Veena Das (2000:283-4) puts it in a chilling variation on the *Marxian theme of the body as an instrument of value creation*, arguing from the case of India, that the conferring of autonomy on the poor as a necessity in order to enable them to sell their organs from 'bodies already wasted from poverty', is a convenient fiction. This masks new ways of recycling for the benefit of the rich what has already been conceptualized as social waste. A vocabulary of rights here simply masks the facts of social suffering – such techniques of survival are seen by the poor not as an acts of autonomy but a part of their everyday life in which all kinds of violence has to be turned into opportunity'. The sale of human body parts is big business, and for the right price, the more sinister side of the medical community will supply organs, even if it means having to steal them. Black market organ trafficking worldwide is happening whether we like it or not. Many donors had not been given the money they had been promised for donating their kidneys. Amritsar had become a market for kidneys. According to the police, most of the victims were poor migrant labourers from the northern State of Uttar Pradesh and the North-Eastern State of Bihar. Now the Law is coming to restrict the misuse/mal practices associated with organ trade as the Transplantation of Human Organs Act, 1994, bans all trade in kidneys and other organs with the provision that anyone found guilty of selling, buying or facilitating the sale or purchase of kidneys can face from two to seven years in prison. The Act also states that a donor should be a close relative of the patient and not below 18. There are periodic reports of sales of organs from various states, including Punjab, where poor people are lured by middlemen who give them small sums of money .The main centres of organ trade are China, Taiwan, Pakistan, the Philippines, India, Argentina, Chile and Brazil. China is particularly singled out as a prominent offender by the Human Rights Watch group.

Organ trade is morally and otherwise reprehensible. Although to the transplant surgeons an organ is just an object, a heart is just a pump, and a kidney is just a filter, a commodity better used than wasted, to a great many ordinary people around the world an organ is something else - it remains a lively, animate, spiritualized part of the self and more than a spare part to be sold or bartered on the open market to the highest bidder. She suggested that the "risks" and "benefits" of organ transplant surgery need to be more equally distributed among and within nations, and among ethnic groups, the sexes, and social classes. Organs Watch asks that organs harvesting practices should respect the bodies of donors, both living and dead. Transplant surgeons need to pay attention to where organs come from and the manner in which they are harvested so that the "gift of life" never deteriorates into a "theft of life." Organ donation should be voluntary and free of coercion, whether psychological or economic. The bodies of organ donors - living and dead - need to be protected, not exploited, by those doctors charged with their care. Since every international medical body of medical ethics has condemned the buying and selling of organs, those doctors who are involved in arranging or facilitating transplants with paid donors should face professional sanctions. Doctors posing as ordinary tourists who travel to foreign countries accompanying their patients for commercialized transplants arranged by local or international organs brokers should be prosecuted for visa fraud. "The body shop future vision permits the sale of organs and fetal parts, subcontracts out having a baby, creates a breeder class to sell tissues, organs and reproductive elements, and allows us to change the definition of life and death to suit the requirements of body parts demand." In response, Kimbrell (1993) calls for a list of specific 'biopolicies', speaking from the "empathetic body version of the future" which "focuses on a sacred image of the human form that has an appreciation and awe for the diversity of all human and other life- forms and places an emphasis on preventive medicine and more sustainable lifestyles." (Srinivasan, 1993).

Conclusions

The twentieth century has witnessed massive transformations in how we deal with individual bodies. Within this discourse, the human body and human life are represented as possessing an innate dignity that is threatened as soon as a part of the body can be assigned an economic value. The authors of *Sciences of Life: Ethics and Law* **(**a 1998 report to the French government), "[h]uman dignity forbids that man be given a right to own his own body." (Paul Rabinow, *French DNA: Trouble in Purgatory*, 98 in Robert Mitchell: 2001).

We arrive here at one of the limits of the "objectively necessary appearance" of personhood as a state of self-possessed embodiment demanded by, and normalized through, market transactions. Such forms of reasoning are becoming increasingly foundational to the vast commercial possibilities opened up by recent advances in medical technology and biogenetic engineering which have come to redefine the "utility," individual and social, of human tissue. This becomes immediately clear once we consider the legal dilemmas generated by increasingly routine medical and bio-technological practices that involve the social circulation of human bodily materials. This globalization has de-moralized humanism and it has re-defined morality. Such research tends to treat the human body as a commodity - a means to a profitable end. The dignity and sanctity with which we regard the human whole, body as well as mind and soul, are absent when we allow researchers to further their own interests without the patient's participation by using a patient's cells as the basis for a marketable product (Barry Brown: 2001). For us the real issue is not whether the rich have a right to treat bodily parts/organs of the poor only as commodities. Whether we like it or not, it is already there, the organs are ready for sale and people have accepted new vocabularies and new ways of looking at human flesh and human relations based on that bond of flesh and blood. What we should still talk about is the legal and the social/political angle of this whole organ-trade in order to give legal protection to those who are needy and who are ready to part with their very own body parts just in case it will give some other relief somewhere else. May be one organ is sacrificed for the life and well-being or for the very survival of the whole body in stead. But there should be scope for a fare deal and the organ-sellers should get the fare price for which they have taken so much risk. About the moral and the religious dimension of the whole exercise, we are at a loss to say anything definite in this direction. May be we still have to compromise with something like a lesser evil in order to avoid a greater evil, but with the reminder that there should always be a human and a better way of making a deal, even to making a deal with one's own flesh and blood.

Notes:

1. His "tour" of the "human body shop" covers the "sale and manipulation of blood, organs and fetal parts... the marketing of human reproductive materials and the new biotechnology business of selling and engineering human biochemical's, genes and cells."

2. The trade in transplant organs is a frequently cited example of such commodification (Scheper-Haughes, 2001a, 2001b0,), along with use of reproductive tissue for therapeutic and research purposes (Bridges, 2002) and the commodification of DNA (Everett, 2003).* Organ transfer is particularly well suited to discussions of body commodification because standardized clinical practices, policy guidelines, and legislation concerning rights of body ownership and access were set in place forty to fifty years ago, specifically in response to the growing success of organ transplantation (Lesley A. Sharp). Fox and Swazey (1992), Locke (2001,2003) and he contributors to Younger, Fox and

O'Connell (1996), Caplan and Coelho (1998), and Ten Have, Weiler and Spicker (1998) provide a good overview of the various contradictions in Western cultures exposed by organ transplantation practices. …….and the plugging of freshly "harvested" organs into appropriate cavities carved into their prospective consumer's body *(Fox 1996:264f). (cited in Stephan Palmié:2006).

3. In a country where one person out of every three lives with the average monthly income of $11 a month for an Indian worker, especially in a background of vast destitute underclass, trade in kidneys has boomed so rapidly that in each of the last five years 2,000 or more kidney's have changed bodies. Moreover, of the total kidney transplants, almost 10% are estimated to have commercial considerations involved in "donation." In some cities it is as high as 95 (see.,http://www.american.edu/TED/body.htm)

4. Prisoners are either shot in the head to harvest their kidneys and hearts or shot in the heart to keep their corneas available for transplant, they said. They said they knew of one case in which both kidneys were taken from a living prisoner for transplant to a wealthy Thai businessman. The reports of body part sales without consent of the prisoners or their families, as well as allegations that aborted fetuses are sold as health food, were raised this week by congressional opponents of trade with China. Dr. David Rothman of Columbia University says there is ample evidence of the practice. He noted that in the United States patients must wait months for an available organ for transplant, while in China transplants can be scheduled well in advance despite the absence of an organ donor program. WASHINGTON (Reuters) report - *"EXECUTED PRISONERS HARVESTED FOR ORGANS*", Chinese dissidents told a Senate hearing Thursday that the executions of Chinese political prisoners and criminals were timed to coincide with the need for kidneys and other organs to transplant, often for foreign patients.

5. Doctors Siroj Kanchanapanjaphol, Veeradej Lertdamrongluck and Vivat Thirapanich and administrator Nanthawit Thongchai, all from Vachiraprakarn Hospital in Bangkok, were charged with two counts of murder, a report from the West Australian newspaper, 6 April 2000 report on '*Organ Scam*'.

6. Reports of the existence of an organ mafia have been rife since the August 17 quake, which killed at least 15,600 people. The devastated North-West of Turkey was strewn with thousands of unclaimed bodies for days. Reports also were rife that orphaned children were being kidnapped for sale to childless couples in the West (report from *the West Australian newspaper, September 18 1999."Organ Mafia Probe Ordered)*

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Comments on *Cross Cultural Introduction to Bioethics*

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This paper includes some comments about Macer, DRJ., *Cross Cultural Introduction to Bioethics* (Eubios Ethics Institute, 2006) book. The comment text follows the preceding symbol; original text of *Macer in italics*. The comments frame is the "Uncertainty Gradient Approach (UGA) Approach", developed by me, as an attempt to understand the nature of ethics dilemmas, where I establish the idea that every Culture is a whole effort to reduce uncertainty.

Society is facing many important dilemmas about the use of science and technology

- Through the performance of Science, are inoculated into society all kind of ethics dilemmas. Science is the source of ethics dilemmas. At first time, dilemmas are not dilemmas "about the use of Science" but dilemmas are dilemmas by uncertainty as consequence of the inoculation of unknown information contents. At second time, they are solved and, therefore, uncertainty decrease. Society is facing many important dilemmas, a cause of the capacity to create its own options. When society find one "use of science", truly, is resolving one dilemma, or better, is *transforming one dilemma into a proposition with less uncertainty*. In daily life, this kind of propositions, are recognize as "ethics principles". This process of diminution of uncertainty, could be entitled "Uncertainty Gradient Approach". (UGA). Recently, I read a New York Times article, wrote by Marc. Hauser, a Harvard University biologist. He recently wrote a book called *"Moral Minds"*. Despite that he supports an opposite approach to UGA, because he postulates that people born with genetic ethics code; he claim, nevertheless, that peoples do not have any trouble to accept an option which consequence is expected but refuse take on one option which consequence links directly to that action. For instance, one person could push a bottom and *expect* kill one person to save five persons, but the same person will have objections to kill, directly, one person to save five persons. On the first case, the harm is *expected*. On the second case the harm is *intentional.* Clearly, the first case has more uncertainty than the other, therefore, on the second case, ethics principles are established against this action.

Autonomy is also expressed in the language of rights, by recognizing the right of individuals to make choices.

- Certainly, onto UGA, *Autonomy* is one essential condition not only to "make choices", moreover is one fundamental condition to "create options", or better, to exert freedom.

Our own autonomy is limited by balancing our desires with respect for the autonomy of other individuals in society, and in our world

- Of course, the creation options process is always social, despite individual beliefs.

Many medical and industrial technologies are challenging because they involve technology with both benefits and risks. The precise outcome of what we do in nature or medicine is not always certain. This uncertainty can be called a risk of failure or chance of success. Ignorance of the consequences should make us act with caution in using new techniques

- The balance of benefits and risk depends on the relative resistance of the ethics principles toward the uncertainty inoculated. The more resistance, the more risk and the more approval, the more benefits. Certainly, the "ignorance of the consequences should make us act with caution in using new techniques, but indeed, resistance behind some

ethics principles could emphasize our "ignorance of the consequences".

Ethics is a:
A system of principles by which human actions and proposals may be judged good or bad, right or wrong:

- This is a partial rational point of view. We must add the whole feelings of resistance or approval at the spirit of age.
-

A set of rules or a standard governing the conduct of a particular class of human action or profession:

- This is true specially, in the case of Bioethics.
-

Any set of moral principles or values recognized by a particular religion, belief or philosophy:

- Religion and some philosophies, belongs to the whole feelings of resistance or approval at the spirit of age.
-

The principles of right conduct of an individual. Ethical behaviour requires the ability to reason, to understand the consequences and to make choices about one's actions.

- Regarding the UGA approach, "the ability to understand the consequence", is a way to reduce the whole uncertainty, inoculated by Science. Any way, the scope of this ability is very restricted by the complexity of society.

One distinction between theories of ethics through history is whether they focus on the ***action****, the* ***consequences****, or the* ***motives.***

- Under UGA, *consequences* and *motives, both,* are the vehicles or containers of uncertainty. In other words, they are the "hidden" side of our behaviour. At the contrary, *actions* are the visible side of our behaviour.
-

Moral theories which focus on the ***act*** *rather than consequences consider moral rules. There are different types of rules. Instrumental rules are those that prescribe an action believed to contribute to the attainment of a goal, for example, "make sure you wash the vegetables well before eating them (so you do not get sick".*

- Every moral rule is one cultural expression with a minimal uncertainty, reached at one time and place.

Utilitarianism *is one consequentialist ethical theory that makes us think about the greatest good (pleasure) for the greatest number, and the least harm (pain) for the least number. However, sometimes it is very difficult to assign values to these pains and pleasures for different people. How do we balance protecting one person's autonomy or interests with protecting everyone else's autonomy or interests?*

- Certainly, *it is very difficult to assign values to these pains and pleasures for different people,* but every time where a ethics principles appears, that occurs.

A popular phrase in the environmental movement is "Think Globally, Act Locally". There are large and small issues that we can apply ethical analysis to. We can think of problems that involve a single person. We can think of global problems. One example is the depletion of the ozone layer. This results in increased UV radiation which affects all living organisms. This problem could be solved by individual action to stop using ozone-depleting chemicals, if alternatives are available to consumers. However, global action was needed in order to control the problem, and still is. The Montreal Protocol, an international convention to stop the production of many ozone-depleting chemicals is one of the examples of applying universal environmental ethics

- Not always, local actions are enough. Sometimes are necessaries, global actions, depending of the nature of the problem. At others cases, can only be solved by individual action. Anyway, we don't confront ethical dilemmas, because the uncertainty is minimal.

Bioethics is both a word and a concept. The word comes to us only from 1970 when first used in English by Van R. Potter in a book called Bioethics: A Bridge to the Future, yet the concept comes from a human heritage thousands of years old.
There are at least three ways to view bioethics:
Descriptive bioethics *is observations and descriptive interpretations of the way people view life, their moral interactions and responsibilities with living organisms in their life.*
Prescriptive bioethics *is to inform or try to tell others what is ethically good or bad, and what principles are most important in making such decisions. It may also be to say that someone or something has rights, and that others have duties to them.*
Interactive bioethics *is discussion and debate about 1 and 2 above between people, groups within society, and communities.*

- To UGA approach, Bioethics is the whole manner society has developed to reduce uncertainty, inoculated by the new revolutionaries Biology ´s methods.

The "love of life" is the simplest and most all encompassing definition of bioethics, and it is universal among all peoples of the world. Love is the biological heritage given to us by our genes, the capacity that evolved in us to allow us to overcome selfishness that

destroys harmony within a community. Our social heritage also gives us love, as the society tries to pursue harmony between individuals and communities. Love is the message of our spiritual heritage, across each culture they say God is love. Ethics is the concept of love, balancing benefits and risks of choices and decisions.

- The "love of life", belongs to the whole feelings of resistance or approval of the new revolutionaries Biology ´s methods.

The balancing of principles, self-love (related to the principle of self-rule, autonomy), love of others (justice), loving life (do no harm) and loving good (beneficence) can provide us with a vehicle to express our values according to the desire to love life. However, in the end, we are left with a simple fact of life, there are often no clear black and white answers to our dilemmas. Rarely can most real life situations be seen in simple black and white. As a society we need to understand the diversity which is universal, and tolerate with love what we can. There comes a time for protection of others, but we can remember the spirit of love which says do not judge.

- That is right, "there are often no clear black and white answers to our dilemmas". However, every answer must represent a diminution of the uncertainty. For example, fait is a radical way to reduce uncertainty. Therefore, fait is one kind of answer.

All people are members of Homo sapiens, one of the millions of species alive on Earth. There is a long history of coexistence of different species together on the earth, in a variety of ecological systems. When it comes to moral issues, fundamentally we should ask whether humans are a special form of life. Are humans different from other living creatures? By comparing humans with other species, we may be able to understand both the differences and similarities between living organisms.

In most people's minds there are some differences between animals and plants. One significant difference between some animals and plants is the capacity to feel pain as we know it. Beyond the motivations behind what we are doing, another important criteria we use in judging the use of animals is avoiding the infliction of pain

Pain is more than simple sensation of the environment. While plants do send ionic potential signals in response to harm, similar in some ways to action potentials in animal nerves, the difference is in the processing of those signals to become the perception of pain. Some distinguish pain from "suffering", but they are both departures from the ideal of avoiding harm. Suffering can be defined as prolonged pain of a certain intensity, and it is claimed that no individual can suffer who is incapable of experiencing pain. The capacity for suffering and/or enjoyment has been described as a prerequisite for having any moral interests.

It is accepted that humans possess unique moral wills, and most want to exercise choice and their autonomy. People have been conducting psychological experiments and observing animal behaviour in attempts to answer whether animals also have some capacity for free moral judgment. Based on animal research, it has been discovered that some animals are clearly self-aware such as higher apes, and some whales and dolphins

Chimpanzees have been taught to communicate in human languages, for example sign language or computer symbols. Some mothers also taught their babies how to "talk" to humans. This has given us a new way of looking at other species. Behaviour is determined by genes, environment, and moral choices.

*In 1993 a book called "**The Great Ape Project**" was published calling for equal rights for chimpanzees, gorillas, and orangutans with human beings (who are also a higher primate species). It is claimed that these four species of higher primates form a more natural group to confer ethical duties on, rather than humans as the only species having rights.*

- More than, will, capacity to feel pain, exercise choice and autonomy, free moral judgment and self aware, the major signal of a genuine moral world is a *undetermined world where is possible exert our freedom to create options and, by this way, suffer and enjoy the evolution process*.

We can compare the genetic differences between human beings and other animals. Our closest genetic relation is the chimpanzee followed by the gorilla. Also, the origins of our selfish and altruistic behaviour are fundamental to how we behave, and these behaviours are seen among all living organisms to different degrees.

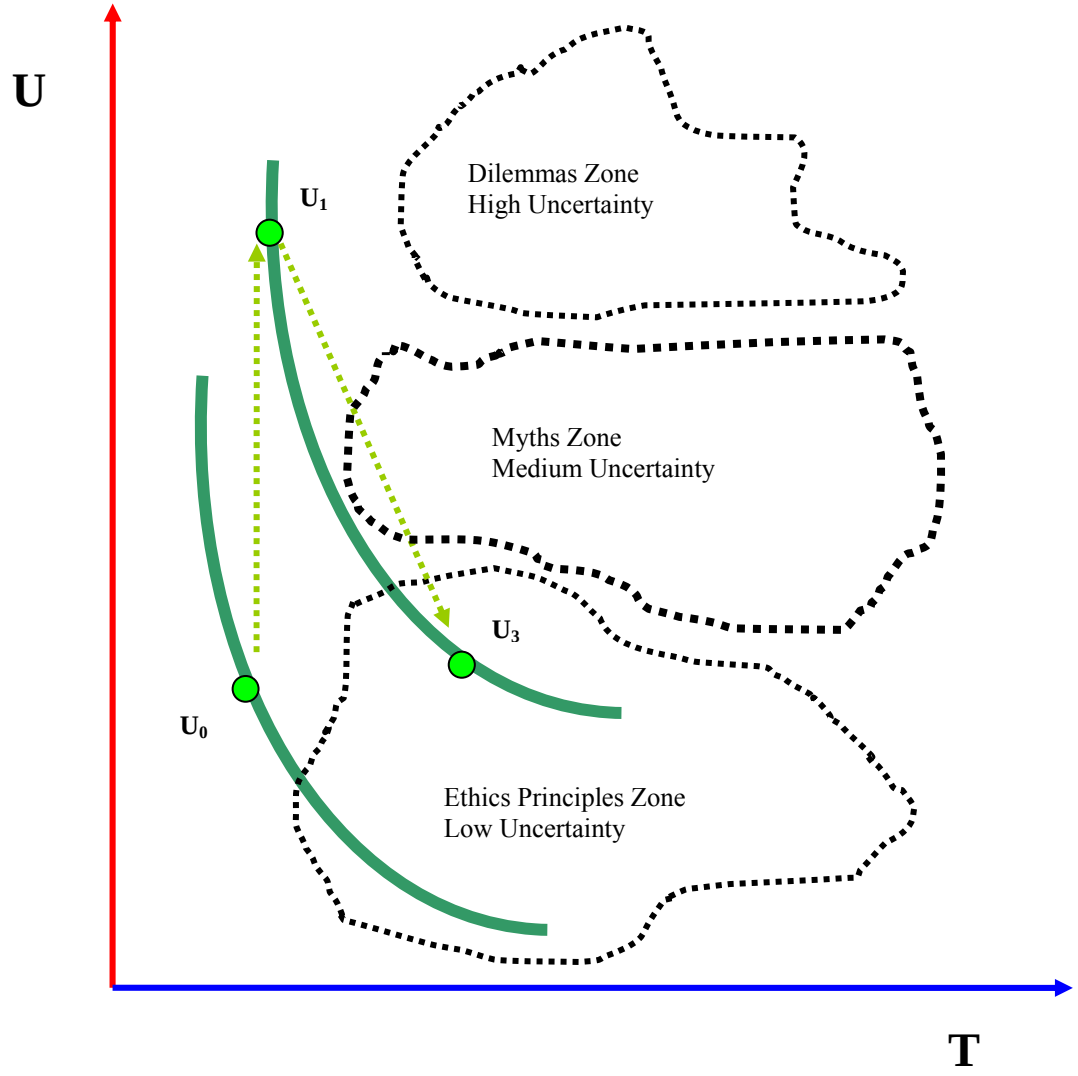
On 1 September, 2005, the first comprehensive comparison of the genetic blueprints of humans (Homo sapiens) and chimpanzees (Pan troglodytes) showed that our closest living relatives share perfect identity with 96 percent of our DNA sequence, was reported by an international research consortium (the Chimpanzee Sequencing and Analysis Consortium) in the journal Nature. The chimp sequence draft represents the first non-human primate genome and the fourth mammalian genome described in a major scientific publication. A draft of the human genome sequence was published in February 2001, a draft of the mouse genome sequence was published in December 2002 and a draft of the rat sequence was published in March 2004. The essentially

complete human sequence was published in October 2004

Animals are used in many ways by people. Do animals have a right to live without pain caused by people? Do they have a right to live free? If animals have rights then human beings have corresponding duties towards them. While we would all agree that we have some duties to animals, there is disagreement about just how many and what kind of duties we have. We come across these issues every day when we eat meat, play with our pets, or use products made from, or tested by, animals

- Certainly, we share ADN with our closest living relatives. But, this is not an ethics issue. Despite that, it seems that we do not share a little bit with our closest relatives. That infinitesimal piece, make the great difference. Perhaps, it is the capacity to transform nature, or more than this, the capacity to kill ones each others for a flag, money or a deity. Perhaps, it is the capacity to transform ourselves with a great dose of guilt. ¡What animal do that! .As human beings we are extremely different ones each others a cause of diversity but as animal beings, we are too, extremely closest ones each others.

UGA *DIAGRAM*



- An Uncertainty Shock (Evolution Pressure), move society stage from $\mathbf{U_0}$ to $\mathbf{U_1}$, along the time. Something has inoculated innovations (Options ´s Creation Process) and therefore uncertainty, into society. The answer of society, reduce uncertainty toward a new stage, $\mathbf{U_3}$. By this cycle, dilemmas are transformed into ethics principles (EP) by a struggle where some EPs are created, some are eliminated and some are modified. The velocity of uncertainty reduction is known as "gradient". A low gradient, describe a "refractory society" where risks has more weight than benefits. In the middle of the start and the end of the cycle, there is a zone call ″ Myths Zone″ where benefits and threats are magnifies. Society, create heroes and evils to responds to

challenger. Later, if society achieves the maturity, the myths are transformed to a social useful resource as ethics principles which impact laws, contracts, arts, habits and so on.

- Homer and Post-Homeric period, by example, offers a superb opportunity to describe that. At Homer period, his deeper utterances impute and advanced morality to the supreme God. His Zeus is on the whole a power of righteousness, never been himself the author of evil but protecting the good and punishing the wicked. Therefore, peoples live under God ´s statements. In the post Homeric period, the development of the doctrine of purity, which was associated with the Apolline religion, combining with a growing dread of the ghost-world, stimulated and influenced in many important ways the evolution of the Greek law concerning homicide. Now, regarding the UGA approach, *God ´s statements,* has more uncertainty than *Greek law,* because the firsts are more universals than the seconds. *God ´s statements* belongs to the myths zone. At the opposite *Greek law and purity ,* belongs to the ethics principles zone.

An Essay on Philosophy and Medicine

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Abstract

Medical science left philosophy behind around the year 1800, dedicating itself to empirical studies. This has shifted its direction affecting the balance between them. The new scientific attitude led to a change in the relationship between doctors and patients and also in medicine and philosophy. Philosophy is cut off as a useless and even dangerous speculative approach to questions of health and illness. A new trust for the medical profession, fostered by the success of medical science in diagnosing and curing disease, was eventually joined by a distrust caused by the marginalizing of the dialogue between doctor and patient. Neuroscience and genetics raise questions regarding our conception of the essence of humans and whether all alterations of human life made possible by the powerful new technology are ethically defensible.

In spite of the great advances of modern medical science we are now witnessing a profound crisis in health care[1] everywhere. People both within and outside the medical field, perceive the shortcomings of the current health-care system as being rooted in the conceptual framework that supports medical theory and practice and have come to believe that the crisis will persist unless this framework is modified. Raymond Barglow wrote that even in the aftermath of the attacks on September 11, the government in Washington is planning to spend billions of dollars to protect Americans from the threat of biological/chemical warfare Medical expenses are rising to intolerable levels, while forty-three million Americans currently have no health care coverage at all. The aging baby boomer generation will soon place demands on the system that it cannot possibly meet [2.] Western countries today are experiencing a strong demand for healings of every kind: making room for the valuable insights and practices of alternative traditions. One need only mention the tremendous demands on diocesan exorcists, whom in some instances their dioceses have wanted for some decades to make technically redundant; the so-called 'charismatic' practices of healing in the ecclesial communities; or again the growing success of pilgrimages, first and foremost the pilgrimage to Lourdes. Similarly, we should note the growing importance, at least in France, of diocesan services arranged by the pastorate to the sick, and the various forms of spiritual support for Christians.

But these reforms do not address what is fundamentally wrong with health care and may not even be winnable in the absence of more fundamental change. In place of the orthodox medical model that focuses narrowly on biological repair, we need a much broader, prevention-oriented, and ecologically aware approach-one that remains scientific while encompassing all the relationships that are essential to human health. All these can be seen as different aspects of one and the same crisis, which derives from the fact that we are trying to apply the concepts of an outdated world view-the mechanistic world view of Cartesian- Newtonian science to a reality that can no longer be understood in terms of these concepts. According to Fritj of Capra **"**Current medical practice is firmly rooted in Cartesian thinking" [3]Descartes based his view of nature on a fundamental division into two separate and independent realms: that of mind and that of matter. Nature works according to mechanical laws and everything in the material world could be explained in terms of the arrangement and movement of its parts. Descartes extended this mechanistic view of matter to living organisms. Plants and animals were considered simply machines; human beings were inhabited by a rational soul, but the human body was indistinguishable from an animal-machine. So also psychology and physics follow in Descartes line. However in Quantum theorywe see no distinction between body and mind. What we observe are dynamic patterns continually changing into one another a continuous dance of energy [4] that can be compared to the dance of Siva, which is synonymous as the dance of death.

The conceptual revolution in modern physics foreshadows an imminent revolution in all sciences and a profound transformation of our worldview and values. Larry Dossey's discusses the dramatic shift in the conceptual basis of medicine and its relation to the new concepts of subatomic physics not from an abstract, theoretical point of view, but rather from the perspective of concrete clinical experience. In doing so, Dr. Dossey focuses particularly on the relation between our health and our perception of time. "Many illness, perhaps most", he writes, "may be caused either wholly or in part by our misperception of time'[5]

It is in this background that I would like to present a historical survey of the practice of medicine and philosophy and to consider some ethical problem. The First part of the article is an exploration of medicine and some of its philosophical perspectives in pre-biomedical era while the second part explore how this has been revolutionalise in biomedical era. I first and foremost present here the philosophy of understanding disease in different cultures.

The relationship between philosophy and medicine had been a long and intimate. Philosophy cared for the well being of the soul-*psyche* and medical for the well being of the body- *soma*. Democritus, a Greek philosopher (460 –360B.C) is said to developed the analogy between medicine and philosophy, although there exist an even older tradition in Greek thinking in which an analogy is drawn between medical treatment of the body and *logoi* (speech and argument) as *pharmakon* for the soul. Lain traces the development from Homeric charms to the power of philosophical argument in Plato and Aristotle and claims that philosophical discourse was thought to have a healing effect on the psyche: it was thought to produce temperance. Such relationship between medicine and philosophy in the ancient world bears twofold significance. Not only did the theories employed in medical practice have a philosophical origin but also, philosophy in the ancient world, just like medicine, was a practice rather then a theory and it had a therapeutic, educating mission. Hence before the advent of modern medicine, medicine and philosophy enjoyed a rather close partnership where the meeting aspect of medical practice is view as an encounter between persons. Such understanding was more easily discernible, since the interpretive matrices employed in order to understand health and illness in those days were connected to a cosmology of life world characteristics and not to modern biology.

The 'medicine man' or 'shaman' heals his patients not only with drugs but also with amulets and by expelling evil spirits from their bodies. Despite the religious, magical character of that activity, there exist in these primitive societies a distinct form of relationship - the relationship between the medicine man and his client. The trust, care and making sense of the illness that such relationship provides have, incontestably, in many cases, a curative effect; although, from a modern biological point of view, most of the treatment methods would be considered ineffective *mumbo-jumbo* and their benefit would be attributed to the place of effect. The meeting between doctor and patient is in an obvious way involved a dialogue with the ill person, which took into consideration his personality, feelings and thoughts about illness and life. The same disease can be experienced and interpreted differently by patients from different cultures. Different cultures presumably have quite different thoughts about what being healthy means and different expectations concerning what the healer will be able to do. They also have different symptoms even in cases in which their ailments are path physiologically identical. These include patterns of belief about the cause of illness; norms governing choice and evaluation of treatment; socially legitimated statuses, role, power relationships, interaction setting, and institutions. They cannot be understood apart from that context.

The practice of medicine can be broadly seen from two perspectives, reductionalist and non reductionalist. While the latter can be said to be synonymous with the philosophy of medicine man the former, reductionalist is synonymous with the practice of biomedical science. When the medicine man in Zambia blames soccer for being responsible for illness and performs magical rituals to remove the curse, that interpretation and activity might not have enough in common with what is performed in a medical clinic in Stockholm to be called medicine in the sense in which the world is used in that work. The healing practice in Zambia – and the cosmology and beliefs underlying these activities- are significantly different from the west. The medicine man and the physician pose different questions to their respective clients and carry out different activities. The ancient or indigenous tribes consider disease and illness as part of man's life and have a holistic picture about it. Consider for example the indigenous man may take the appearance of wrinkle as a sign which need no attention where as a modern man may be more interested in consulting a doctor. But no matter how much the definition of 'health' differ from culture to culture, the client in Zambia and the patient in Stockholm share the same desire- the desire to get healthy, and it is that desire that brings them to the medicine man or the physician.

God and Goddess of Medicine

Ayurveda is said to be lord *Krishna's* sacred medicine, revealed to *Lord Brahma* at the dawn of creation, who received the knowledge of healing in his heart, and composed the *Ayurveda. Sri Brahma* taught *Ayurveda* to *Daksha Prajapati*, who conveyed this sacred medical science to the *Ashvini-kumaras*. The *Ashvinis* taught *Ayurveda* to *Indra*, who instructed his disciple *Atreya Rishi*, who in turn wrote the *Atreya-samhita.* However,

the Lord Himself revealed *Ayurveda* to the souls of the material world in His *Dhanvantari* incarnation, as explained in the *Srimad-Bhagavatam* (2.7.22). The *Ayurveda-shastra* recommends *aushadhi cintayet vishnum*: even while taking medicine, one should remember *Vishnu*, because the medicine is not all and all and *Lord Vishnu* is the real protector. Ther*igvedic* hymns describe *Aswins* as the lord, who can make the blind and lame see and walk, the injured recover quickly from their afflictions, help men produce offspring. They can reduce the heat in the human body, cure the septic sores, store the germ of life in female creatures and perform even surgery. They are said to descend to the earth thrice a day carrying with them heavenly medicines to help humankind with their restorative and curative powers. When Sri Krishna appeared as Sri Chaitanya *Mahaprabhu*, *Hanuman* joined His eternal associates as *Srila Murari Gupta*, an accomplished devotee-physician, learned in the art of healing which was lacking in his previous incarnation. In early Italian Goddess *Angitia* ruled the powers of healing and witchcraft. She was aid to be an expert in verbal and herbal charms.

Plants as Sacred Medicine

The medicine man (traditional healers) seeks to maintain balance between Human-plant relationships that can be classified into two perspectives, material and abstract. There are certain do and don't of medicinal plants**.** When employed ceremonially as a medicine, in some cases, the patient must himself collect the seeds and they are ground and make into a beverage by a virgin, usually a child. The traditional healers have their own way of collecting the medicinal plants which are important from the point of view of obtaining produce of right quality at the right time maintaining at the same time health of the trees and of the forest. Hence various aspects like quality, maturity and availability of the medicinal plant are taken into account.

The science and the art dealing with the maintenance of health and the treatment of disease are closely interwoven with their indigenous religion beliefs and worldviews. These in turn is a dynamic combinations of concepts and practices that have evolve in the context of the physical, cultural, and social environment in which the people have existed. The world's earliest religions based on earth-centered spiritual cosmologies often featuring trees as the primal source of creative seeds from which all aspects of the manifest universe first arose is in fact have some form of relationship with the art of healing and the role of medicinal plants. On one occasion*, Sri Rama* requested *Hanuman* to bring Him a medicinal herb from a distant mountain. Not knowing which herb to collect, *Hanuman* brought the whole mountain to the Lord. This is a sign of respect to nature and maintaining its ecological balance instead of destroying the whole in search of one plant. However the modern 'denaturalized' society has lost touch with such spiritual world because their concept of healing differs.

Modern Medical Science and Technology

The marriage of medicine to biomedical Natural Science avidly promoted since 19th century, and politically supported in the 20th, resulted in many sophisticated technology as for example transplantation, contraceptive pills, gene splicing etc and diagnostic wonders like ultrasonography, computed tomography, cardiac catheterization etc. Modern medical science and technology tend to promote a conceptualization of the patient as an object instead of a subject. Medical progress is based on research, which ultimately must rest in part on experimentation involving human subjects that is in other word taking human as an 'object'. The modern technologies provide powerful means for transforming human nature, effecting lasting changes including sexuality and genetic predispositions. The last two decades of scientific advances have now turned fiction to fact. In fact, the problems arising out of such advance of medical technology are more pressing and more complex in the area of reproductive technology. The so called ' test- tube babies' more precisely, babies conceived in a petri dish from human sperm and eggs and then implanted in a woman's uterus- used to be the stuff of science fiction but now the question is more likely to be whether the cost of such procedures should be covered by health instance.

Moral and political dilemmas

The turning of fiction to fact in the filed of advances in reproductive technology has raised many ethical and philosophical questions about human manipulation and personal identity, the question of surrogate mothers and prenatal embryo transfer, about intolerance for diversity and for imperfection, about obsessions for becoming God like and perfect, about attaining knowledge that is absolutely certain and exact, which will remain unanswered.

There have been several cases in which divorcing couples have gone to court to settle disagreements about the disposition of frozen embryos from their own eggs and sperm. Some of the questions that arises in relation to this are -What kind of rights and responsibilities do the genetic parents have toward the embryo *as parents*? Is it a relationship of ownership? Of Parenthood? Does the wife have the right to go ahead and have the embryos implanted if she so desire? Does the husband have the right to have the embryos destroyed, since he no longer wants to be their father? What role should the courts play in settling such disputes? In the case of surrogacy, the **s**urrogate mothers have a nine-month relationship with the child they are carrying and which they eventually bear. This is an intimate and emotionally changes relationship and it is understandable if unanticipated feeling of attachment develops during it. A number of moral issues arise about the practice of

surrogacy that deserves attention. Who are the *real* parents? Is it the genetic parents, the birth mother or the nurturing parents? Does surrogacy involves buying and selling babies? Does surrogacy usually exploits women, especially poor women? What should happen in those cases where a surrogate changes her mind about turning over the child?

Genetic manipulation and biotechnology have make it possible at least in principle to rearrange genetic material in ways, that may marginalize the gap between natural human and our image, the biotic artifact, human, and our replica, the similar other. It has opened up previously undreamed-of possibilities, which make us focus on the possible benefits rather than the possible and largely unforeseeable negative effect. As for example taking the case of reproduction it is no longer a question of terminating the fetus; instead, the issue is now one of giving it a *different* future, one that results from conscious human choice rather than genetics**.** The specter of "designer babies" looms is highly debated in the present era. it is now possible to have human selection of characteristics deemed to be desirable to be spliced into the genomes of different life forms. What if we can decide whether a given embryo develops as a male or a female? What if we can select physical characteristics? Personality traits? Sexual orientation? If it is possible to do so, do parents have the right to choose whatever characteristics they desire for their child? How are we to distinguish between the moral issues surrounding the individual decision and those that arise if large numbers of people make the same decision?

In the biomedical sciences, theory and practice are merged: to know is to have power over things known. Nature and human nature became especially conceived in terms of the ability to control and alter what is known. Contemporary philosophical ethics is predominantly pluralistic, libertarian, and individualistic. It is antipathetic to natural law arguments. Its ethics is relativistic, strongly utilitarian and inclined to social, cultural and historical determinism. The development of modern medicine in such new direction has come to have a significant influence upon philosophical disciplines- particularly upon the philosophy of mind and ethics. Neuroscience and genetics raise questions regarding our conception of the essence of humans and whether all alterations of human life made possible by the powerful new technology are ethically defensible. Many religious, sociologist, and lay persons have recognized that the magnificent new and unprecedented advances in medical science and technological has brought concomitant problems concerning moral behavior There is a transition here from normative concept of humans to value neutral pure descriptive description, from human as spiritual to human as functional, human as essentially a doer, than a human of contemplation. This is a shift from holistic to atomic conceptions of humans, the shift from the macro to the micro, from organizations to unconnected atoms. The Pope appealed to the physicians to help in promoting a science that is tailored to humankind's real needs and not a science merely pursuing technological progress and organizational efficiency for its own sake.

Western medical doctors were forcefully articulated in Gandhi's *Hind Swaraj***.** (1963). For Gandhi vegetarianism linked a traditional religious view of health to an alternative Western philosophy of medicine which is not restricted to the hostility to mechanistic-vivisectional science but also the concept of the patient as his own doctor. According to Gandhi, food reform could lead to social reform. Indeed vegetarianism not only equipped the Mahatma with particular kinds of political- ideological skills; as number of his biographers note, it enables him to work out the outlines of a critique of modern medicine. Hence Gandhi provides not only an alternative view of the West but also to help him anchor his own identity in traditions. First, Gandhi's vegetarianism sought to recover the body for the individual as part of a search for individual autonomy, in turn representing a community – based search for autonomy of small human aggregates- the Gandhian village republics. For that the vegetarian had to practice poverty, chastity and other forms of discipline, to accept the ethical and cognitive responsibility for his body and thereby, reject medical processing by the state and by the state-licensed medical practitioners. Second, Gandhi identified in the body politic the pathological expression of three forms of violence: racism, prostitution and vivisection, each form reflecting a particular violation of the body and all three interpenetrated in the parasitism of the city- the city of which was home of censuses, epidemics and medical science. Gandhi encoded within his idea of a non-industrial way of life, along with vegetarianism and anti-vivisectionism, traditional agriculture, *khadi* (hand – spun and hand- woven cloth) and *charkha* (the traditional spinning – wheel). For him they signposted the road to the recovery of the body. Finally, Gandhi's *Hind Swaraj* not only located the science of medicine in the colonial structure- 'to study European medicine is to deepen our slavery', it says – that tract also help the patient responsible for the persistence of the estrogenic regime. Modern doctors helped perpetuate the urban-industrial civilization by disconnecting over consumption from its bodily consequences. As a result, they – the doctor- destroyed the 'natural' resistance to an exploratory system, apart from helping the patient to lose control over him. For such a world-view, the immortality of modern hospitals was axiomatic and the recovery of the body from the medical expert by the laity both a moral statement and an affirmation of political – moral autonomy.

Modern medicine according to Gandhi has colonized the body. Modern civilization holds it to be axiomatically correct that pain is an absolute evil, and

the removal (or diminution) of pain an absolute good. Modern medicine by providing speedy recovery fail to see the damage it has done to the body. As the colonization of railway ultimately spoil the natural quality of the soil so also the intake of modern medicine. In course of headache or so, we in today's world with our busy work schedule pope in a pills and gain relieve. But most of the time we forget the damage that such act has on our body. Gandhi has always advice for natural therapy as for example water therapy, music therapy, spiritual therapy etc. that do not produce side- effect in the long run and doesn't make us cripple. In most of the natural therapy treatment 'time' is given much importance as it says " it takes time to cure', 'allow the body to take rest'. Gandhi pointed out that if we allow time to cure us in a proper way there would be no colonization of the body. Time heals therefore proper time should be given for every disease. On the contrary too much dependent on modern medicine and quick relief make our body lost the resistance capacity. Gandhi also upholds that one need to undergo disease, accept and have capacity to bear pain as learning how to cope with pain will help one attain spiritually cooled. The colonization of body can be compared with the rapping of the body; body as a thing; instead of body and its religion. Hence body as such can be understood in a sense of women's body which is source of attraction, to a body to be controlled, used, a play thing rather than a religious body to be adored and worshiped, but for the great of men. Gandhi believes that in this journey from contemplation to manipulation, what is left behind in this process is the spiritual realm that gave rise to holistic vision of man and his counterparts.

The above discussion has shown that medicine cannot solve the entire problem, which it has brought about along with its development. What should be the relationship between a physician and a patient? Is it justified to support human experimentation or ban it? What are the problems arising from crossing the line of buying and selling sperm, eggs and even the use of wombs? To answer such questions we need a more reflective, theoretical approach, which can be provided by philosophy, as well as other disciplines, in the expanding filed of medical humanities. The booming interest in medical ethics and the rise of applied and practical ethics as a field in philosophy has created a need to give answers to many such concrete moral problems. There is, however, no consensus about what ethical theory (utilitarianism, deontologism, virtue ethics etc.) should be adopted. But the fact remains true that moral problems cannot and should not be viewed as rational decision problems, like that of mathematical science and logic. The role of ethics in medical practice is one of the most important issues in applied and practical ethics now. Medical ethics are the values and guidelines that should govern decisions in medicine. As medicine advances, it faces new and complex ethical problems, and the practitioner seeks the help of ethical experts. Yet even among them confusion reigns, and some issues seem insoluble. This is because medicine is more an art than a science. In the last three century, the market is flooded with books on medical ethics and many seminar and conferences are being held on these issues. This is the most obvious example of the booming interest in medical ethics. During the last three decades of this century we have, in contrast to this new scientific attitude, witnessed a gradual rebirth of philosophy in medicine. The rebirth of philosophy in medicine today is related exactly to the latter's inability to digest new knowledge and absorb it in an appropriate way. Medicine today needs the antidote of philosophy in order not to wander astray in the maze of details, and in order not to blind itself to the temptations and risk of hubris, given the impressive progresses of medical science during the second half of the last century.

Notes

1. L Dossey, 1982 *Space, Time & Medicine* New Science Library Shambhala. Boston & London p. viii
2 Raymond Barglow 2002 *Medicine at the Millennium: Still caught between Descartes and Spinoza – Medicine* Tikkun, Vol. 17, p 28-32
3. L Dossey, 1982*Space, Time & Medicine* New Science Library Shambhala. Boston & London p. ix
4.ibid p. x
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UNESCO Bioethics Forum, 26-27 February, 2007; Islamabad, Pakistan. Contact: d.macer@unescobkk.org

Eighth Asian Bioethics Conference (ABC8), and the *Second UNESCO Bangkok Bioethics Roundtable (BBRT2),* 19-23 March 2007, Chulalongkorn University, Bangkok, Thailand. Contact: Dr. Soraj Hongladarom Email: hsoraj@chula.ac.th
http://www.stc.arts.chula.ac.th/ABC2007/index.html

UNESCO Bioethics Consultations, 11-13 April, Suva, Fiji; and 16-17 April, Apia, Samoa. Contact: Dr. Susan Vize, Email: susan@unesco.org.ws

International Conference: On the Ethical Life (The Philosophy of Peter Singer), at The University of Sydney, 19-21 April, 2007. r.younis@syd.cqu.edu.au.

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