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31 Colwyn Street, Christchurch 8005, New Zealand P.O. Box 125, Tsukuba Science City, Ibaraki 305-8691, Japan

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Deadline for next issue is **1 July, 2000**.

Send papers to the editor in electronic form if possible. Please use reference style used in News section.

Editorial address:

Editorial: Our Genome

This May issue will see several milestones in human technology reached. As reported in the HGP and Patenting news sections, the sequencing of the first draft of the human genome has finished in the Celera project and the computing to assemble the pieces is expected to be finished before the next issue of *EJAIB*. The public project, as announced at the Human Gene Mapping 2000 conference in Vancouver is almost finished, and will be finished before the next issue. The www site on the human genome sequence allows all to use the data as it comes.

The use of genetic information in health care will be expanded with the completion of the project, and also with the DNA sequencing capacity that now exists in the world. New genomes will be sequenced even faster, and we can expect more papers introduced in the news section of every issue to include genome sequences. The question of **benefit sharing** is raised, in the HUGO Ethics Committee statement, which makes a profound recommendation to ask companies to give 1-3% of net profit to humanitarian purposes in exchange for using genetic data from our genome. Also please see the new book from Eubios.

Another milestone that is expected on 11 May, is the second country in the world to reach one billion in population, India. The population of the world is related to many of the environmental pressures we face. Two papers in this issue look at the oceans. One at fisheries and the other at the growing burden of chlorine that threatens to quietly but quickly poison the ocean.

The question of love is raised, and humanity. The rights of children are reformulated again in the Monaco Statement, let us hope that children will be better protected than many alive today. The paper by Seewald examines the long running issue in Japan of brain death and organ transplants. The study of culture continues to be important despite the trends towards the universal. We may share the same genome, but cultures have diverged.

Anyone who wishes to join meetings and a seminar on bioethics education in the first week of August in **New Zealand is welcome**. There will be bioethics network teachers from Japan and New Zealand teachers. If people from other countries wish to join they are most welcome (no funds are available to support persons). A new book in Japanese from the High School teachers network has been published.

Hope to see you in Tsukuba, Tokyo and Fukui (see p.103),

- Darryl Macer

Prof. Darryl Macer
Institute of Biological Sciences, University of Tsukuba,
Tsukuba Science City 305-8572, JAPAN
Email: macer@sakura.cc.tsukuba.ac.jp

HUGO Ethics Committee - Statement on Benefit Sharing

A. Introduction

The HUGO Ethics Committee subscribes to the following four principles presented in the HUGO *Statement on the Principled Conduct of Genetic Research* (1996):

- Recognition that the human genome is part of the common heritage of humanity:
- Adherence to international norms of human rights:
- Respect for the values, traditions, culture, and integrity of participants: and
- Acceptance and upholding of human dignity and freedom.

The above *Statement* further provided:

"That undue inducement through compensation for individual participants, families and populations should be prohibited. This prohibition does not include agreements with individuals, families, groups, communities or populations that foresee technology transfer, local training, joint ventures, provision of health care or of information, infrastructures, reimbursement of costs, or the possible use of a percentage of any royalties for humanitarian purposes".

The Committee believes that the issue of benefit-sharing merits further discussion because expenditures by private industry for genetic research now exceed the contributions of governments.

Many new products, including vaccines and drugs for common diseases, are now based on genetic research. Much government or nonprofit research will eventually be commercialized. Companies involved in human health may have special moral obligations.

The HUGO Ethics Committee considers it important to further outline the underlying principles and issues related to benefit-sharing, with a view to making recommendations.

In order to do so, it has examined the historical background, possible definitions of community, beliefs about the common heritage of humankind, and the principles of justice and solidarity before applying these principles to the concept of benefit-sharing.

B. Historical Background

HUGO has addressed controversies surrounding research in its previous statements. The issue at hand for the Ethics Committee is whether and how to distribute profits that may accrue to commercial enterprises, governments, or academic institutions on the basis of the participation of particular communities.

This issue predates genetics by many years. In the past, many researchers sought no specific reward for biomedical research. More recently, due to increasing private investment, researchers and institutions often demand a share of monetary benefits deriving from their research.

Moreover, in the interest of justice, the last decade has witnessed an emerging international consensus that groups participating in research should, at a minimum, receive some benefit. In this consensus, the concept of benefit was often limited to the possible therapeutic benefit of participating in clinical trials or of payment to research participants.

Certain objections regarding research involving indigenous populations raised awareness of the need to develop further the concept of benefit-sharing. These concerns apply not only in the developing world, but also among research participants in developed nations.

C. Defining Community.

Community is a term that can never be dissociated from the social perceptions of those both inside and outside the community. The type of community most easily visualized has some combination of shared geography, history, race, culture, and religion, such as a tribe living in a given territory.

There are many different types of communities. Communities of origin are founded on family relationships, geographical areas, cultural, ethnic, or religious groups in which one is born or raised. For example, the extended family constitutes a community based on inheritance. Communities of circumstance are groups in which one finds oneself, by choice or chance, later in life. These include groups based on shared interests, workplaces, labor unions, and voluntary associations.

Both types of communities can be defined across several dimensions, including geography, race/ethnicity, religion or disease state. For example, a small town may be a community of origin if most inhabitants were born there, or a community of circumstance if most are newcomers. Persons with the same disease could form a community of origin if there is a family history, as may be the case for monogenic disorders (single gene), or a community of circumstance, which is usually the case for common multifactorial diseases. People with common multifactorial diseases, such as heart disease, hypertension, cancer, or diabetes may not regard themselves as communities.

D. Common Heritage.

As a species, we all share in essence the same genome. This common genome allows for reproduction between all groups of mankind. At this collective level, the genome is the common heritage of humanity. In contrast, apart from identical twins, individuals exhibit significant variation. Rare variant genes at different gene loci are the causes of the vast number of monogenic conditions. Most diseases are partly based on normal genetic variation (i.e. polymorphisms). Diseases where genetic polymorphisms are of importance are much more frequent than monogenic conditions. Many persons with such polymorphisms will escape disease if lifestyle, dietary and environmental factors are favorable, since the diseases in question are caused by interaction between genes and environment. Furthermore, most common diseases know no national or political boundaries.

The chance of discovering a gene that could lead to a product may vary among populations. The search for genes may therefore focus on specific populations or families. Sometimes, findings in families with extremely rare diseases may have implications for larger groups with more common disorders.

While not respected by all nations, the concept of common heritage also resonates under international law (e.g. the sea, the air, space, …). Applied to human genetics, it maintains that beyond the individual, the family, or the population, there is a common shared interest in the genetic heritage of mankind. Therefore, the Human Genome Project should benefit all humanity.

E. Justice.

Justice is a central issue. There are at least three different meanings of the concept of justice, all of which are relevant in our context of benefit-sharing: 1) Compensatory justice: meaning that the individual, group, or community, should receive recompense in return for contribution; 2) Procedural justice: meaning that the procedure by which decisions about compensation and distribution are made is impartial and inclusive; and, 3) Distributive justice: meaning an equitable allocation and access to resources and goods. At present there is a great inequality between the rich and poor nations in the direction and priorities of research and in the distribution and access to the benefits thereof. When there is a vast difference in power between those carrying out the research and the participants, and when there is a possibility of substantial profit, considerations of justice support the desirability of distributing some profits to respond to health care needs.

F. Solidarity.

The sharing of genes may call for strong solidarity within certain groups of people. Members of a small group with rare genes who have helped research would be particularly deserving recipients of benefits. Moreover, research efforts should promote health universally and so include developing countries. In the future, much prevention and treatment will be based on genetic knowledge. It is in everyone's best interest that wealthy and powerful nations as well as commercial entities foster health for all humanity.

G. Benefit-Sharing.

A benefit is a good that contributes to the well-being of an individual and/or a given community (e.g. by region, tribe, disease-group...). Benefits transcend avoidance of harm (non-maleficence) in so far as they promote the welfare of an individual and/or of a community. Thus, a benefit is not identical with profit in the monetary or economic sense. Determining a benefit depends on needs, values, priorities and cultural expectations.

In genetic research in general, benefit-sharing has also been established as a principle of international law in the area of biodiversity and genetic resources in food and agriculture.

People with common multifactorial diseases may be few shared beliefs about benefit. Indeed, benefit will often be that of eventual prevention or treatment and affordable medical services.

Prior consultation with individuals and communities and their involvement and participation in the research design is a preliminary basis for the future distribution of benefit and may be considered a benefit in itself. Such prior discussion should include consideration of affordability and accessibility of eventual therapy, and preventive and diagnostic products of research.

The actual or future benefits discussed should not serve as an inducement to participation. Nor should there be any financial gain from participation in genetic research. This does not exclude, however, the possibility of reimbursement for an individual's time, inconvenience and expenses (if any), even if there is a general distribution of benefits to the community. Participants should be told of such general distribution at the outset.

In the very rare case where the extended family or a small group/tribe harbours an unusual gene, yet the research eventually benefits those with another disorder, justice may require that the original group deserve recognition. In this situation, benefits could be provided to all members of the group regardless of their participation in the research. Limiting the returns to only those who participated could create divisiveness within a group and is inconsistent with solidarity.

Even if there are no results or profits, at a minimum, individuals, families and groups participating in research should be thanked (e.g. letter, or a small token or gift where the culture expects this). They should also receive information about the general outcome(s) of research in understandable language. The ethical advisability of provision of information to individuals about their results should be determined separately for each specific project. Moreover, immediate benefits such as medical care, technology transfer, or contribution to the local community infrastructure (e.g., schools, libraries, sports, clean water, ...) could be provided.

In the case of profit-making endeavours, the general distribution of benefits should be the donation of a percentage of the net profits (after taxes) to the health care infrastructure or for vaccines, tests, drugs, and treatments, or, to local, national and international humanitarian efforts.

Recommendations

Whereas:

- we all share a common genetic heritage, and
- there are different definitions of community, and
- communities may have different beliefs about what constitutes a benefit, and
- genetic research should foster health for all human beings,

The HUGO Ethics Committee recommends:

1) that all humanity share in, and have access to, the benefits of genetic research.
2) that benefits not be limited to those individuals who participated in such research.
3) that there be prior discussion with groups or communities on the issue of benefit-sharing.
4) that even in the absence of profits, immediate health benefits as determined by community needs could be provided.
5) that at a minimum, all research participants should receive information about general research outcomes and an indication of appreciation.
6) that profit-making entities dedicate a percentage (e.g., 1-3%) of their annual net profit to healthcare infrastructure and/or to humanitarian efforts.

- HUGO Ethics Committee (9 April 2000)

[Prof. Kare Berg, Prof. Jose Maria Cantu, Prof. Ruth F. Chadwick (Co-chair), Prof. Abdallah S. Daar, Prof. Eve-Marie Engels, Hon. Justice Michael Kirby, Prof. Bartha Maria Knoppers (Chair), Prof. Darryl R.J. Macer, Dr. Thomas H. Murray, Prof. Renzong Qiu, Prof. Hikaru Takebe (Co-chair), Prof. Ishwar C. Verma, Prof. Dorothy C. Wertz].

Monaco Statement: Considerations on Bioethics and the Rights Of The Child

International Symposium "Bioethics And The Rights Of The Child" Monaco, 28-30 April 2000

You will find hereafter the text of the "Declaration of Monaco" following the Symposium "Bioethics and the Rights of the Child", held in Monaco, from 28 to 30 April 2000. For AMADE, (World Association of Children's Friends), it is a warning to the scientific world : "Caution, Child !". Science has to serve the child, and not the child to serve science. This Declaration is not the full stop of one more Symposium. It has to be the first step of a new human adventure.

- Jacques DANOIS, General Secretary, AMADE MONDIALE

Monaco Statement

The International Symposium on Bioethics and the Rights of the Child, jointly organized by the World Association of Children's Friends (AMADE) and UNESCO, was held in Monaco from 28 to 30 April 2000. It presents hereafter a number of considerations regarding this progress in biology and medicine with a view to reinforcing and implementing the protection of children's rights.

It acknowledged the issue of childhood as a complex, evolving reality, which now merits specific consideration. Children are fragile beings. However, their autonomy should not be misconceived. Therefore, their rights -particularly their survival, development and participation- and the protection they need are effectively reflected in numerous national and international texts aimed at protecting human rights, to which specific provisions are added regarding children, inter alia the United Nations Convention on the Rights of the child. These observations acquire their fullest dimensions in the light of recent progress in biology and medicine and of new cultural developments concerning the early stages of life.

I - The origins of the child

. Every child is a unique, new being.

. The dignity of the embryo produced in vitro in cases of a couple's infertility or to prevent the transmission of particularly serious conditions, and then of the human foetus, should be respected.

. The uses of genetic and foetal medicine data should respect the principle of non-discrimination and should not aim at the reduction or elimination of human diversity, nor at that of the element of chance intrinsic to life.
. A child's disability, whatever the degree, should never be considered as a liability.

II - The ties of the child
. Measures that are taken to ensure the protection of children should be suited to the latter's degree of autonomy.
. Taking into account the child's interest, parents or those exercising parental responsibility should decide on the extent of information to be imparted to the child in regard to the circumstances of his/her birth whenever these circumstances have involved medically assisted reproduction.
. The care and education offered in the context of a family, whose members have responsibilities towards the child, are the most beneficial to the child, and should therefore be sought in every circumstance.
. The child should be involved in decisions pertaining to his/her health, as well as education, and this to a greater and finer degree as his/her autonomy is progressively asserted. Both parents should abide by that requirement.
. When interests differ, the child's best interest should, in principle, prevail over that of the adult.

III - The body of the child
. The care of a child's health should include due consideration for his/her information, consent and, as the case may be, refusal of consent, according to his/her growing degree of autonomy.
. This principle should be particularly enforced with regard to tests and/or organ removals which may be performed upon the child and may aim solely at an imperative health interest that cannot be met otherwise. Under no circumstances should the sole interest of society prevail over that of the child.
. Protection must be reinforced if the child is disabled. Scientific progress and their applications, particularly concerning prevention and treatments, should benefit disabled children and never lead to their exclusion or marginalization.
. Society should in particular foster research endeavours pertaining to rare diseases and the development of efficient therapies.
The Symposium believes that these considerations will enhance the respect of the dignity and the protection of the rights of the child.

A survey on the attitudes of 252 Japanese nurses toward Organ Transplantation and Brain Death

- Ralph Seewald, Ph.D.
Kyushu Institute of Design, Fukuoka
Email: seewald@rms.kyushu-id.ac.jp

Abstract

Both in the West and in Japan anthropologists have commented on the reluctance of the Japanese to accept organ transplantation as a standard form of treatment, Morioka (1995), Lock (1995). The assumption is that elements in the Japanese culture; like the Japanese folk religion, view of the dead body, and distrust in the medical profession make it very difficult to see organ transplantation as an acceptable medical treatment.

The purpose of the study below is to clarify with the aid of a 75-item questionnaire:
1) the attitudes of Japanese nurses toward brain death and organ transplantation;
2) the beliefs of Japanese nurses about bodily remains as related to organ transplantation.

Of the 252 nurses that filled out the questionnaire, 21 had signed a donor card. Overall 116 (46%) have a donor card or are willing to sign a donor card, called: DONOR. The 119 nurses (47.2%) who were opposed or more or less opposed to signing a donor card were called: NON-DONOR. Most of the nurses without a donor card could not give a precise reason for not signing a donor card, however the younger the nurse, the more positive their attitude towards organ donation is. Also nurses of no religion are more positive about organ donation compared to the nurses who claim to have a religion.

There was hardly any relation according to the data between features of the Japanese folk religion like; making the first Shrine visit of the year, wearing an amulet, or thinking it is possible to have contact with a deceased family member, believing in life after death or not, and being positive about organ donation. However, nurses who have a donor card or are positive about organ donation, agree more that brain death is the death of a person. 80.2% of DONOR agreed that brain death is the death of a person, as compared with 49.6% of NON-DONOR.

NON-DONOR have more fear of the mutilation of one's dead body than DONOR. If we compare nurses who were positive about organ donation (DONOR) with those who were negative about organ donation (NON-DONOR), yields the following relations:
1) DONOR were more apt to give their body for medical research after death.
2) DONOR mind much less if autopsy is performed on their body after death.
3) DONOR object twice less if a death body needs to be cut open for the sake of organ transplantation surgery
Keywords: nurse, organ transplant, donor card, body image

Introduction

Organ Transplantation has been a subject of debate in Japan since 1968 when the first heart transplant was performed by surgeon Juro Wada of Sapporo Medical University. The recipient; Miyazaki Nobuo lived for 83 days, a record achievement for that time. A civic group became concerned with the rights of the donor of the heart, Yamaguchi Yoshimasa, and accused Prof. Wada of murder, but prosecutors did not indict him due to a lack of evidence. Since this so-called Wada-case, books, articles and surveys about the Japanese attitude towards organ transplant and brain death have been published in a steady flow.

There are a lot of arguments that organ transplantation is incompatible with the Japanese culture and religion. Umehara (1990) claims that the idea of brain death and organ transplantation is an invention of the West, namely a consequence of the Cartesian Philosophy. His Dualism of mind and body is not compatible with the Japanese culture, which is based on animism where everything is deemed to be spiritual. The journalist, Tachibana wrote in 1986 a bestseller, named *Brain Death*, that although a person is declared brain dead, and even if the electroencephalogram shows no activity in the brains it is still unclear whether all the brain cells have died or not. He attests that brain death is not equal to human death. Morioka (1989, 2000) argues that brain death should be considered from the viewpoint of human relationships. In his "brain death as human relationships" theory he argues that: "The question whether brain death is human's death deeply depends on the relationships that the brain dead person has had with each surrounding person on the bedside". Macer (1992, 1993) asserts "that in every culture one can find people who reject removing organs from bodies, of their own or family members, and their views should be respected". Also an opinion survey from 1990 shows that more than 51% of the respondents agreed with donation of their relatives' organs. Another survey conducted in 1998 among 2157 Japanese gave almost the same result (Sourifu houkokushitsu). Namihira (1988) says that the Japanese believe that the happiness and peace of the soul after death are determined by the state of the body, and the state of the spirit will affect the fate of the surviving family members and that is a deterrent to organ transplantation. In Japan, many consider mutilating the body of a relative as taboo. Most of the Western anthropologists, such as Lock (1990) and even more Ohnuki-Tierney (1986) agree with arguments that culture give rise to a negative attitude of the Japanese toward brain death and organ transplantation.

Most research in Western countries regarding organ transplantation and brain death does not put the practice of organ donation into question but is usually done with the purpose of how to increase the number of organ donors. Since organ transplantation is carried out in hospitals, for those working in hospitals, nurses and other medical personnel, signing a donor card is seen as a moral obligation. The majority of the nurses in western hospitals, at the time of the survey, had already signed a donor card or marked their driver's license for organ donation (Kiberd 1992), (Kent 1995).

In Japan, surveys among nurses and/or other medical personnel are scarce. There is one study done among 179 nurses (response rate 87.7%) which shows that nurses who have experience with brain death patients tend to be more negative about organ transplantation (Furoshiro 1993).

In the present study, a question-answer research was carried out in an attempt to clarify the attitudes of Japanese nurses toward organ transplantation.

Method

On April 19, 1999 and June 2, 1999, 279 questionnaires were distributed in two hospitals (Hospital A and B) located in Fukuoka City. Neither hospital A or B perform organ transplantation surgery nor do they harvest organs. Hospital A is a relatively small hospital with 149 employees of whom 102 are nurse and 11 are medical doctors. It is mainly involved with the nursing of the elderly. Hospital B is a general hospital with 307 employees of whom 180 are nurses and 37 are medical doctors.

Of the 102 questionnaires that where distributed in hospital A, 99 were retrieved at April 26, 1999 (response rate 97%). From the 177 questionnaires that were distributed in hospital B, 153 were retrieved on July 13, 1999 (response rate 86.4%). The overall response rate was 90.3%.

The nurses' knowledge, attitudes, and beliefs regarding organ and tissue donation and transplantation were assessed using a 75-item questionnaire in Japanese, 5 questions were subdivided in open questions. Finally the data were analyzed using Statistical Package for Social Science (SPSS).

Results

1. Nurses attitudes towards Organ Transplantation

The average age of the nurses was 39.7 years. Among the 252 nurses, 21 (8.3%) had filled out a donor card (Table 1). Those that had filled out a donor card were mostly between the ages of 15-24 (32%) and 25-34 (11%). In the 35-44, 45-54 and 55 or above age bracket, the number of nurses that had a donor card was respectively 6.1%, 1.6% and 2.9%.

Table 1: Did you sign a donor card?

Age	Yes	No	Missing
15-24	8	17	0
25-34	8	66	0
35-44	3	43	3
45-54	1	61	2
55+	1	27	6
Missing		6	
Total	21	220	

Those nurses who signed a donor card were asked with an open question why they had did so. The main reasons were: Six of the nurses did not give a particular reason except that "it was a good thing to donate organs", another 6 nurses said that "after they died they didn't need the organs any more, so it was good to give it to someone that was in need of organs". One nurse stated that "she did not want to live on if she was in a state of brain death". Three other nurses said respectively that "they did not want that their death was useless", "that the body will finally be cremated anyway" and "that donation was good for the progress of medical science".

Of the nurses that filled out a donor card, 18 nurses (86%) carried the card always with them, and 17 nurses (81%) also declared on the donor card that brain death is equal to the death of the whole person. Among the organs one was willing to donate, most nurses where willing to donate all the organs, however five nurses (24%) had objection to donating the small intestines.

The 231 nurses who did not sign a donor card were asked with an open question, why they did not so. The reasons for not having a donor card where as varied as the reasons that where given for donation, and 69 (32%) of the nurses neglected to answer. Of the nurses, 23 (11%) claimed "not to have an opportunity to fill out a donor card". Fifteen (7%) nurses said, "I do not have a special reason for not making a donor card". The majority of the nurses appeared reluctant to give a precise reason for not having a donor card.

Table 2: Age of DONORs as compared to NON-DONORs

Age	DONOR	NON-DONOR	Missing
15-24	17	8	
25-34	44	29	1
35-44	23	22	4
45-54	21	38	5
55 +	11	16	7
Missing		6	
Total	116	119	

The nurses who "Signed a donor card", and those who are "Planning or more or less are planning to make a donor card" are taken together and called: "DONOR". The nurses who didn't sign a donor card and are also not planning to make one are called: "NON-DONOR".

Table 3: Which of the following organs would you like to donate (DONOR only)? n=116

	Kidneys	Heart	Cornea	Liver	Lung	Pan-creas	Small Intestine	No organ
Yes	98	90	87	85	80	80	75	2
No	13	21	24	26	31	31	36	109

Missing	5	5	5	5	5	5	5	5

Table 4: Do you think that brain death is the death of human?

	Yes/More or less yes	No/More or Less no	Missing
DONOR	93	21	2
NON-DONOR	59	58	2

Chi-Square Test:40.302 Likelihood Ratio:33.693

2.The role of the Family

Table 5: The Japanese law on organ donation requires besides the donor himself the explicit consent of the family. How do you think about this?

	Consent family necessary	Consent donor only	Don't know	Missing
DONOR	60	43	12	1
NON-DONOR	57	37	21	4

Chi-Square Test:2.254 Likelihood Ratio:2.574

It was found that in DONOR more nurses (52%) considered the consent of the family necessary compared to NON-DONOR (48%), (Table 5). The reason why the consent of the family is necessary were asked by an open question: "Why do you think that the consent of the family is necessary?"

Because of different feelings that my family has, I feel an uneasiness (14.4%)
One is not living alone in this world (9.3%)
If there is no consent of the family all kinds of problems arise (5.2%)
The person himself has not enough sense for a good judgment (4.2%);
It is the expectation of the bereaved family (4.2%)
I thought that the consent of the family was always necessary (4.2%)
Because they are my family (3.1%)

Other sentiments included: "Because organ transplantation is an emotional thing"; "If organ donation is done against the will of the family, the family is the one that suffers"; "The body is not just something of the person himself, but also something of the family"; "The family has to honor the ancestors".

Table 6: Have you ever talked with your family about a donor card?

	Yes	No
DONOR	71	45
NON-DONOR	53	66

Chi-Square Test:8.473 Likelihood Ratio:8.539

The overall number of nurses that talked with their family about a donor card was 52% (Both DONOR and NON-DONOR), (Table 6), however only 8% finally signed a donor card. Of those nurses who discussed the matter with their family, in 52% of the cases their family agreed or more or less agreed with signing a donor card. More nurses in DONOR (61%) than in NON-DONOR (45%) had talked with their family about having a donor card. The family was against, or more less against in 41% of the cases.

3.View on the Death Body and Body Image

In DONOR, 30% do not mind to give their body to a hospital for medical research, three times that of NON-DONOR, of which only 13% were prepared to give their body to medical research after death. In DONOR 61% are against or more or loss against autopsy after one's death against 83% in NON-DONORs (Table 8).

Table 7: Do you mind to give your body to a hospital for medical research?

	No/More or less I don't mind	Against/More or less against	Missing
DONOR	35	81	0
NON-DONOR	15	103	1

Chi-Square Test:19.564 Likelihood Ratio:17.697

Table 8: Do you mind if an autopsy is performed on your body after your death?

	Yes/More or less yes	No/More or less no	Missing
DONOR	71	44	1
NON-DONOR	99	16	4

Chi-Square Test: 22.160 Likelihood Ratio: 22.818

Table 9: Do you have objection if a dead body is cut open to take out organs in order to perform organ transplantation?

	Yes/More or less objection	No/More or less no objection	Missing
DONOR	43	72	1
NON-DONOR	79	37	3

Chi-Square Test:24.772 Likelihood Ratio:24.779

Table 10: Do you think it is possible that when a corpse is mutilated, the spirit of this corpse will bring misfortune to the bereaved family?

	Possible/More or less possible	Impossible/More or less impossible	Missing
DONOR	1	113	2
NON-DONOR	17	99	3

Chi-Square Test:18.913 Likelihood Ratio:22.589

Table 11: Do you think it is possible to communicate with a deceased family member?

	Possible/More or less possible	Impossible/More or less impossible	Missing
DONOR	60	53	3
NON-DONOR	55	50	14

Chi-Square Test:9.609 Likelihood Ratio:10.548

Table 12: Do you think there is a life after death?

	Yes/More or less yes	No/More or less no	Missing
DONOR	79	36	1
NON-DONOR	68	47	4

Chi-Square Test:6.015 Likelihood Ratio:6.085

Table 13: There is a religious belief that says "Humans have also in the afterlife the same body shape as they have in this world". Does this view resemble your view of afterlife?

	Yes/More or less yes	No/More or less no	Missing
DONOR	41	74	1
NON-DONOR	39	72	8

Chi-Square Test:7.351 Likelihood Ratio:8.083

Table 14: Which of the following religious views is the most close to your view? Choose from the following: Buddhism, Shinto, Christianity, New religion, Non religious.

	No religion	Buddhism	Shinto	Christianity
DONOR	50	46	8	5
NON-DONOR	26	70	6	5

New religion	Buddism/ Christianity	Buddhism/ Shinto	Missing
1	3	1	2
3	1	2	6

The nurses in DONOR consider themselves more non-religious than those in NON-DONOR. In DONORs the percentage that considers oneself non-religious was 43%, while it was only 22% in NON-DONORs. To get more information about the body image of the nurses and what they consider to be the emotional center of the body, the nurses where asked to point out what they thought was emotional the most essential organ.

Table 15: February 2 1999, the heart, liver, kidneys and corneas were transplanted from a brain death person. Which organ do you think is emotional the most essential organ of the human body? Choose from the following organs: Kidneys, Brain, Liver, Lungs, Heart, Other.

	Heart	Brain	Other: Cornea	Kidneys
DONOR	62	37	2	1
NON-DONOR	62	29	4	3

Liver	Brain/ Heart	Heart/ Liver	Other: Whole body	Missing
0	1	1	5	7
5	4	0	3	9

Discussion

1. Nurses Attitude towards Organ Transplantation

Most young nurses have signed a donor card, and it is also the young nurses who are positive or more or less positive about organ donation. In the 15-24 and 25-34 age brackets, 68% and 59.5% respectively were positive about organ donation, while in 35-44, 45-54 and 55 or above age brackets those who are positive comprise 47%, 33% and 32%, respectively.

That most young nurses have a donor card or are thinking about making one is a reflection of the changing attitude of the Japanese youth. Although it must be said that also the majority of these young nurses are still convinced that it is necessary to consult the family members before filling out a donor card.

2.The Role of the Family

Most remarkable is that even more nurses in the DONOR group than in NON-DONOR are convinced that besides the consent of the donor the consent of the family is necessary. One would think that the decision to acquire a donor card would express a greater autonomy.

In Japan, however, decisions inside the family are usually not taken on an individual base. It is not unusual in case where a family member is admitted to a hospital, the family members consult with the doctor in charge, rather than the patient themselves. In the Japanese law on organ donation the explicit consent of the bereaved family is necessary. During the discussion in the Diet (Dai 140 kai kokkai honkaigi 1997), it was decided that the feelings of the bereaved family should be taken into consideration.

When a family member has died, other members of the family must fulfill an important role. Bai (1984), a legal scholar states that "the family of the deceased has a certain voice in the disposal of any part of his body even during his life, although their voice is secondary to his own while he is alive. After his death, their voice becomes predominant". He states further that "as far as the cadaver has effects on the life of a surviving family, the latter should be entitled to dispose of it in accordance with its life style".

Of the nurses, 130 (52%) had talked with their family about a donor card. The families of 68 nurses agreed in making a donor card, however, only 21 (8%) of the nurses signed a donor card. Of the 21 nurses that signed a donor card, four of them did so against the will of the family.

3.Views on the Dead Body and Body Image

The resistance that the Japanese nurses have against organ donation comes mostly from the fear of mutilation the body., as shown in Table 7, 8 and 9. As table 10 shows, there are not many nurses who thinks it is possible that the spirit of a family member whose body is mutilated will have a bad influence on the surviving family.

It is well known that it is difficult for Japanese hospitals to collect cadavers for medical research, even if the dead person himself has given consent to the donation. The same is true for autopsy after a murder crime. After the sarin attack on March 1995 by the Aum sect in the Tokyo subway, an autopsy was performed on the twelve victims. The forced autopsy of the victims and the additional mutilation of the body was for some family members much harder to bear than the death of their beloved ones (Chikatetsu sarin jiken higaisha no kaicho 1998).

The special care Japanese take of the body after a family member has died is expressed by the cultural anthropologist Namihira (1997) in the following way: "The body is cremated only as far as the bones; it's not reduced into ash. The bones must remain in the shape of the body with each bone in place. Bones are placed into a ceremonial jar in a fixed order. For the Japanese a body is both material and immaterial, biological and social". She concludes with: "For the Japanese cremation is a way of changing the life time identity rather than disposing of it. Cremated bones are not seen, by the Japanese, as human remains but as the actual body of the dead person".

In the West a dead body is referred to with words that depersonalize the dead body, like "corpse", "remains" or "cadaver": in other words an object of dissection. One can say that in the West the body devaluates after one's death, while in Japan the value of the body before and after death stays the same.

The Japanese usually use the word *itai*, or *go-itai* for a dead body which also has the meaning of a body that contains ties between the deceased and his relatives, family and friends (Namihira 1988).

Some Western anthropologists have argued that the Japanese do not accept organ transplantation because, for the Japanese, the center of the body is not the brain. As Feldman (1994) states when commenting about western anthropologists who try to explain the resistance of the Japanese towards organ transplantation:

(Abbreviated) In their pursuit (Western academic anthropologists, Lock (1990) and Tierney-Ohnuki (1986)) of the cultural identity of modern Japan, they have argued that the locus of the self of the Japanese lies resides not in the brain but in some other part of the body, but those same scholars are unable to agree where the elusive Japanese self resides. Heart transplants are taboo because the heart is the home, or the abdomen with the kidneys and intestines is seen as the place were the self resides, and therefore there is reluctance to accept brain death as equivalent to the death to the entire human body.

However, both the nurses in DONOR and in NON-DONOR choose either the heart or the brain, when asked to point out the emotional most essential organ. The only difference is that a higher number (31.0%) of nurses in DONOR compared with NON-DONOR (24.4%), choose the brain as the most important organ. Also in NON-DONOR 52.1% indicated the heart as most important next to the brain with 24.4%. NON-DONOR also has more variety in the organs. They choose, aside from the brain and heart, the liver with 4.2%, cornea 3.4%, and the kidneys 2.5%

Conclusion

Half of the 252 nurses, who were surveyed, thought positive about organ transplantation, however only 21 of them filled out a donor card. Apparently thinking positive about organ donation is one thing, and signing a donor card is something else. The majority of the nurses, who wanted to make a donor card, were also convinced that consultation with the rest of the family was necessary.

As shown in Table 3, most of the nurses who are positive about organ donation, do not have any problem with donating the heart. The heart can be viewed as that organ that symbolizes the human emotions, but to deduce that because of that there is a reluctance to donate the heart is too far reaching a conclusion.

When asked to point out the emotional most essential organ, more than half of the nurses, in both DONOR and in NON-DONOR choose either the heart or the brain. The idea that the Japanese have some special affinity with one part or organ of the body and therefore oppose to organ donation is not supported by the data gathered.

The most remarkable result was that the nurses, who said that they have a donor card or wanted to make one, have reserves against the necessary surgery that goes along with the removal of the organs from the body. Other questions about "giving one's body for medical research", and "autopsy" show aversion to mutilation of the body after death. Essentially they are willing to donate organs, but not if it means the body must be operated on to do so.

In the Japanese myths, there is not much difference between the life on earth and the life after one's death. Rather than gods, the actors in the myths are depicted as normal humans who need to eat, sleep and have emotions like human beings. Even in present Japan, food is offered in front of the Buddhist altar for the sake of the ancestors. Although everyone knows that the food will not really be eaten, it is supposed that the spirit thought to be existent in the food can be transmitted. In the survey the question ♂ Do you think it is possible to communicate with a deceased family member♀, showed that about half of the nurses thought that this was possible. If such kind of sentiments exist, one can imagine that cutting open a body and taking out the organs is unconsciously repulsive for many nurses.

Also in the Western cultures, Islamic culture, and Jewish culture people also have objections against organ transplants, because of believes that it is good to be buried with the whole body intact. Muslims who believe in bodily resurrection fear bodily mutilation. Dorff (1996) says that in the Jewish folk religion ♂ The body must be buried with all its parts so that they will all be there when it comes time for resurrection♀ He claims that even Jews who are totally secular in their thoughts have this idea. Judeo-Christianity: a mixture of biblical teachings, Hellenic, Greek and historical traditions of the church has also this concept of bodily resurrection, but anyone brought up in that tradition has the image of Jesus who sacrificed his body at the cross ingrained in his mind. Therefore, for many Christians organ donation is not a sacrifice, but something that one ought to do to help a fellow-creature.

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Commentary on Seewald

- Masahiro Morioka
CIAS, Osaka Prefecture University,
Gakuencho, Sakai, Osaka, 599-8531 Japan
International Network for Life Studies
(http://homepage1.nifty.com/lifestudies/)
Email: PBI01055@nifty.ne.jp

Ralph Seewald did interesting research on ideas of brain death and organ transplantation among Japanese nurses. This "Japanese attitudes towards brain death and transplantation" problem has been discussed repeatedly, but we have not reached a consensus yet. One of Ralph's conclusions is that many nurses are willing to donate organs, but not if it means the body must be operated on to do so. This point is interesting.

However, I would like to criticize his other points. First, the author divided the nurses into two categories, DONOR and NON-DONOR. But by so doing he result in ignoring the gray zone, that is to say, he ignores the emotional dimension of such nurses who think that donation is good, but at the same time, who have a profound emotional reluctance toward it. According to my experience, many people feel life this and sway between the two poles. And in the midst of this gray zone there is a mixture of emotions that must be the subject of us researchers.

Since I published a book, "*Noshi no Hito*," in 1989, I have stressed the importance of human relationships between a brain dead person and his/her family members, because these relationships have an influence on family members' judgement on the death of the brain dead person. From this point of view, the closeness of family-patient relationship is the point. I wrote about it elsewhere (1). Ralph cites responses from nurses, such as "if organ donation is done against the will of the family, the family is the one that suffers", and "the body is not just

something of the person himself, but also something of the family." These sentiments clearly show they think this kind of closeness very important. I must say Ralph should have paid more attention to this dimension.

The author concluded that "the idea that the Japanese have some special affinity with one part or organ of the body and therefore oppose to organ donation is not supported by the data gathered." However, the author fails to see the possibility that the Japanese have some affinity with the whole body, or even the relationships that are established between a brain dead person and the family members, hence, some of them have a reluctance to cut the brain dead body. In Table 15 Ralph asked "which organ do you think is emotional the most essential organ of the human body?" In this manner, respondents can only choose one or two organs; never express their emotions toward the whole brain dead body, or the relationships.

As for Table 15, it is very interesting that those who chose "heart" are twice as number of those chose "brain." Even among the DONOR nurses, the same tendency is observed. I can not help thinking that this shows the gray zone effect mentioned above, that is to say, two third of the DONOR nurses think it ethical to donate, and at the same time, feel uneasiness because they think the heart, not the brain, is the most emotionally essential part of the human body. And this might be one reason of the Japanese reluctance against brain death.

Ralph writes, "for many Christians organ donation is not a sacrifice, but something that one ought to help a fellow-creature." But in order to say this, Ralph must research on Christians, not their philosophy, but what they are really acting in clinical settings.

I have pointed out several things, but I think Ralph's paper provides us very important views on comparative cultural anthropology. Researches like this should be continued in the field of bioethics.

Japan's transplantation law is about to be revised this year. The point is the case in which the brain dead patient has not had a donor card. Other points are the evaluation of family consent, and the case of a child. I object to this revision. I am now doing an action against this revision. Before revising we have lots of things to discuss. I am going to report this at TRT6 this year. (Concerning the anti-revision activities, please visit my Japanese site: http://member.nifty.ne.jp/lifestudies/. You need Japanese language set on your browser.)

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Ethical, Legal and Social Issues Facing Capture Fisheries

- V. Gopalakrishnan, Ph.D.
Ex: Hd. of Division, CIFRI, Barrackpore and Chief Technical Adviser, FAO
Current Chairman of Fisheries Technocrats Forum, Chennai.
Address: 37A, Rukmani Road, Kalakshetra Colony, Chennai – 600 090, India.
Email:

People eat more fish than any other type of animal protein. It is therefore only natural that when considerable significance is being given to food security, issues on sustainabilty of fisheries development have received great attention in recent years. In this respect the three major components of fisheries viz., capture fisheries, culture fisheries and culture-based capture fisheries, have their own potentials and developmental issues. There is general global agreement that greater attention need to be given in fisheries development programmes to sustainability parameters.

Sustainability concept for capture fisheries

There are many definitions of sustainable development as applicable to fisheries, but for the present purpose the under-mentioned FAO approach is generally satisfactory: “Sustainable development is the management and conservation of natural resources base and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for the present and future generations. Such development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources; is environmentally non-degrading, technically appropriate, economically viable and socially acceptable” (1). Thus, considerations on the sustainability issue in capture fisheries development will naturally involve biological, ecological, environmental, social, economic , legal and institutional parameters. It therefore follows that such exercises will be very complex, dealing with resources, ecosystems, society, economic indications, environmental degradation, bio-diversity etc .

International action for capture fisheries development

General policy

The present capture fisheries regime covering the resources of the world’s oceans, as unfolded by the Third United Nations Conference on the Law of the Sea (1982), has provided the opportunity for all coastal countries to participate more fully in the utilization of their resources and to increase the contributions they make to national economic, social and nutritional objectives. At the same time attention has also been drawn to the potential roles of inland water fisheries and aquaculture as food suppliers, within the overall socio-economic context of rural development. These new opportunities and challenges have called for re-appraisal of national policies for fisheries development and management. Accordingly, during the past two decades, many country administrations have attempted to take issue-based developmental action on the entire range on alternative objectives like food production, earning of foreign exchange, generation of income, employment and resource conservation. In many cases these issues have been found to be conflicting rather than complimentary, resulting in difficult choices for relevant policy alternatives. Such a situation has clearly pointed out that there is no single model for capture fisheries development, because of variations in human, natural, physical and financial resources, natural aspirations and socio-economic targets.

FAO Kyoto Conference –December 1995

The FAO Kyoto Declaration addressed the following major issues:

1. Need to increase efforts relating to estimation of quantity of fish, marine mammals, sea birds, sea turtles and other forms of life which are incidentally caught and discarded in fishing operations;
2. Determination of the effects of such actions on the fish species and stocks;
3. Initiation of urgent action necessary to minimise waste and discards by using selective, environmentally safe and cost-effective fishing gear and techniques.
4. The discussions during the conference focussed on conflicts between traditional community based and other small scale fisheries, and modern industrial fisheries. The issues applicable to traditional fisheries were identified as : sustainability, food security, economic welfare and cultural existence. Other important items highlighted were the role of genetically improved aquatic organisms to global food security and conservation of biological diversity Two recent regulatory actions at International level relate to reduction of incidental catch of sea birds in long-line fisheries and conservation and management of sharks (3,4).

Responsible fisheries

A code of conduct which sets out principles and international standards of behaviour for ' Responsible Fisheries' in order to ensure effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and bio-diversity, was adopted by the FAO in 1995(5). This is a significant action towards sustainable fisheries and it address the following issues:(i) nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all those concerned with fisheries development, (ii) biological characteristics of the resources and their environment and the interests of consumers and other users. FAO has so far prepared technical guidelines in respect of the following capture fisheries activities: fishing operations, precautionary approach to capture fisheries and species introduction, integration of fisheries into coastal area management, fisheries management, inland fisheries, responsible fish utilisation and indicators for sustainable development of marine capture fisheries.

Overview of issues faced by capture fisheries

Capture fisheries comprise complex human activities within the overall national economy and within society in general. The programmes dealing with this subject are generally targeted to multiple objectives, which are not necessarily compatible. This leads to compromises based entirely on their own merits. Since the conditions within which the fisheries are considered as highly dynamic, the plan of action must be explicit with clear demarcation of comparative advantages and relative merits. It therefore follows that for optimal utilisation of capture fisheries resources, appropriate conservation and management measures based on scientific evidences should be undertaken. Such an approach should necessarily be based on ethical considerations also and with due respect for ecological, social and economical stability and sustainability. Further, well-balanced legal frameworks and industrial structures are also essential for achieving the objectives set forth. Such a concept applies to both capture and culture fisheries and is of particular importance where there is competition among local fishers and between commercial and recreational fisheries, and where there is intense competition from other land and water users. In order to address issues related to small scale fisheries, an integrated approach through and with the participation of fishing communities, is often the best way of channelling technical, financial and other forms of assistance. For the development of national large-scale fisheries, a workable balance should be set up between the potential and needs of artisanal and large-scale operations.

It is in this context of changed fisheries regime in most countries –both developed and developing- that an attempt is being made here to briefly discuss the ethical, social and legal issues facing capture fisheries. As indicated earlier, since fisheries science is a complex activity and in some cases rather abstract in character, involving different disciplines, social and economic conditions and highly site- specific ramifications, the issues described here are contiguous and overlapping within the three groups.

Most countries are experiencing problems of environmental degradation and progressive increase in land and water scarcity. A recent FAO Report (6) describes the main challenges to maintaining and enhancing inland fish production and associated social and economic benefits as degradation of aquatic resources and environments, increasing competition for resources and insufficient institutional and political recognition. The basic issues are described as: (i) decreases in availability of land, water and assimilative capacity of the environment, (ii) open access characteristic of resources, (iii) multidisciplinary management actions,(iv) mismatch between administrative and management units and (v) multiple resources-dependency of communities. In order to address these important issues, FAO has suggested to member countries a strategy of integrated resource management (IRM)

Overfishing is probably the most important problem facing capture fisheries. The "Tragedy of the Commons" (7), analytical model which is often used to explain the problems relating to fisheries development, covers other major issues like environmental degradation, pollution and unsympathetic attitude of governments and other related agencies.

High rates of discard is another issue which requires urgent action. An FAO report (1994) states that the world discard from capture fisheries is about 32 %, which is high by any standard.

Coastal fisheries get affected drastically by environmental degradation of the adjacent land, which can affect life cycles of fish stocks, migration of fish from fresh water systems to the sea and by population pressures leading to increased coastal subsistence fishing. A major portion (more than 60%) marine fish production is known to be from stocks which go through critical phases in the their life history in coastal waters.

Global scenario of capture fisheries

Marine fisheries

It has been found that many of the marine fish stocks show a rhythmical pattern in their upward and downward trends, which is supposed to be due to a linkage phenomenon with climate. However, this hypothesis is yet to be substantiated . What we know for definite, is that throughout the world marine fish landings are leveling off. From the data available regarding fish stocks and resources of traditional fisheries, the total marine fish catches in the main fishing areas have reached the estimated potential more than 5 years ago. Deep sea fishery catches appear to have declined since 1990 due to a combination of factors. Recent FAO reports show that 44% of fish stocks are fully exploited and 16% are over-fished. In the latter case it is possible that unless immediate regulatory programmes are undertaken the catches may decrease substantially. In addition, 6% and 3% respectively of stocks are depleted and recovering from damages caused by human interference. Possibility of increased catches are forecast from Indian Ocean (Eastern and Western areas), Western coastal Pacific and NW Pacific. All these areas are under -or moderately exploited without signs of depletion.

FAO has taken action to highlight the importance of three international issues:

- Global issue of tunas and tuna like species (Scombroidei). Based on the 1995 UN agreement for implementation of the provisions of the UN Convention of the Law of the Sea relating to the conservation and management of straddling fish stocks and highly migratory stocks, necessary regulatory measures are proposed to address depletion of stocks of blue- fin tuna and dolphins caught incidentally by purse-seines operated for yellow -fin tuna in the Eastern Pacific. The importance of bio-economic interaction among fishes in solving major problems and the potential for increased catches of skip jack and yellow- fin, which are short-lived, have also been proposed.
- Global synchrony in fish populations
- Importance of lantern fishes as potential resource.

Inland fisheries

During early 1990s, inland capture fisheries formed about 8% of the total catches and were composed mostly of fin-fish, molluscs (7%) and crustaceans (6%). However, in recent years the exploitation is reported to be more, with an annual 2% increase with intensive activities in Asia and Africa. However, future outlook is not promising, the major problems being (i) degradation of land and forest resources and habitats, (ii) bio-diversity, (iii) scarcity of freshwater and (iv) pollution of rivers, lakes, reservoirs, estuarine systems, backwaters and coastal lagoons. Thus, the major issues related to inland capture fisheries may be summarised as degradation of resources, degradation of environments and increasing competition and conflicts.

Culture-based capture fisheries.

The importance of these resource enhancement programmes, also known as 'hatchery enhancement' and 'marine ranching' has received appreciation in several countries. The negative considerations in this respect are: possibility of interactions resulting in loss of natural genetic diversity, bad history of the brood stock, lack of sufficient evidence regarding enhancement of the 'host' fisheries, occurrence of new and larger mixed populations, creation of fish strains competing with natural stocks, and adverse environmental reactions especially when using exotic fishes. On the other hand, the positive factors are: low resource input systems, increased social participation, negligible polluting conditions, limited and low key inputs, potential for higher fish production, absence of serious conflicts except some ownership and traditional free access rights.

Trends in fish catches (8)

Total global production (1996) : 121 million tonnes

Total global capture fisheries yields: 94.6 million tonnes

Trends in marine and inland capture fisheries yields (in million tonnes)

Year		Marine	Inland
1950		17.0	-
1961		34.9	
1983		68.3	
1990		79.29	6.59
1992		79.95	6.25
1994		85.77	6.91
1995		85.62	7.38
1996		87.07	7.55
1997	(estimated)	86.03	7.70

Prediction: The production may level off at 100 million tonnes.

Capture fisheries scenario in India

Catch figures for Indian Fisheries: (in metric tonnes)

	Marine	Inland(Capture)
1950-51	0.53	0.22
1987-88	1.64	0.30
1994-95	2.67	0.49

Potential from EEZ area has been estimated as 3.9 million tonnes.

Although the total annual marine catches are seen to be far below the projected optimum, some of more important stocks are heavily fished. Overall exploitation is from fishing grounds 0 – 50 m depth and the level is considered to be near optimum. Stocks of 'bombay duck', mackerel, and oil sardines are over-exploited. Penaeid shrimps are fully exploited in NW and SE coasts. Seer fish, crabs and lobsters are fished at near optimum levels. Anchovies, some sardines, some clupeids, tuna, bill fish, perch, elasmobranchs, carangids, pomfrets and scienids are under-exploited(9).

Issues related to deep sea fishing

The important negative aspects observed in India are: general restriction of fishing areas within 40 fathoms depth, use of large number of vessels in the upper east coast, overexploitation of some species(while the catching of the other species are not economic), capital intensive operations, discard of unwanted fish (approx. 1,30,000 tonnes catch annually) and heavy fishing pressure on shrimp resources(10).

Issues related to artisanal capture fisheries

The major problems faced in India are: overexploitation of fishery resources, destructive fishing practices, damage to natural habitats, conflicts with other sectors, fishing in non-traditional areas, misuse and wastage of surplus catches, non-compliance with unwritten laws like respect for the fish, respect for other fishermen, appreciation of the environment, passing on information to others, and adopting 'greed ethic" tactics.

Fish aggregating devices

The effectiveness of fish aggregating devices in increasing colonisation of micro-organisms which facilitates congregation of fishes in the area, is well known. However, the associated problems regarding ownership and fishing rights frequently occur and hence regulatory measures are required before sustainability would be ensured.

Issues related to inland fisheries

There are strong evidences to indicate that due to stresses caused by human interventions, the capture fisheries of inland water systems in India have been adversely affected.. Specific instances relate to reports of decline in Gangetic fish stocks, depletion of stocks in some areas of Godavari and Cauveri river systems and Chilka and Pulicat lakes. The decline in Mahseer fishery in upland rivers has been another cause for concern. The causative factors have been identified and what is necessary is to arrest the decline of fish germplasm resources. Present and future strategies have been worked out and a determined effort in this direction is urgently called for.

Traditional conservation of inland fisheries in India has been practised, though not on a wide scale. One good example is observation of 'closed fishing seasons'. In West Bengal, for instance, consumption of prized hilsa has been religiously prohibited after the Durga Pooja till Saraswathi Pooja, which period corresponds with the breeding season of the fish

Some of the exotic fishes introduced into the country for increasing production from confined waters have established themselves in some of the natural water systems, mainly reservoirs. Specific examples are: silver carp replacing major carps and contributing to more than 80% of catches in Govindsagar, tilapia contributing to a major share in catches from Amaravathi reservoir, and common carp overtaking native fishes in Kashmir and Manipur. Experts have opined that " out of more than 300 species of fish introduced in the country for culture, ornamental and biological purposes, only the trout has been found positively contributing to our capture fishery system, both ecologically as well as productively". Such a scenario calls for extreme caution and strict analyses before introducing any more fishes into Indian waters.

The negative human actions which have affected capture fisheries of Indian reservoirs, lakes and estuaries are known to be drastic water abstraction, progressively increasing pollution by domestic, municipal and industrial sources, disruption of fish breeding grounds, habitat destruction, over-exploitation, use of explosives, flood control measures, silting, artificial barriers affecting fish migration, tourism development, large scale destruction of fish seed incidentally caught with prized cultured species like shrimps and prawns, and introduction of exotic species.

Conservation and regulation

The Indian Fisheries Act 1897 formed the basis for the different states and union territories to introduce fishery laws and rules to suit local demands and conditions. This resulted in lack of uniformity, The Fishing Regulation Act of 1981 authorized maritime states to frame rules for regulation of fishing to protect the traditional fishermen from the mechanized fishing vessels and the operation of large fishing vessels.

Management measures in marine fisheries relate to promotion and conservation. In addition to the promotional measures undertaken, an immediate requirement is registration and licensing of all fishing craft. Regulatory legal measures have been adopted in many states, particularly regarding mesh size, dynamiting, destruction of fish seed, destruction of brood stock etc. Some recent examples of regulatory measures adopted are:

The Govt. of Kerala introduced in 1980 a ban on trawl fishing for a period of 45 days during monsoon months. The spawning of shrimps, sardines and mackerel, which are the main components of Kerala's major fishery resources, takes place during this period. Very recently a committee has recommend 65 days' ban during monsoon season every alternate year.

Strong protest demonstrations and strikes organized in 1994 by fishers and entrepreneurs associated with all activities of the marine fisheries sector, demanding that Government should abandon its policy of giving licenses to joint ventures for deep-sea fishing. FAO had earlier reported that there were three constraints to harvesting this potential. It is a common knowledge that conflicts rule the marine capture fisheries in India, the most significant problem being fighting between artisan fishers and mechanized boat operators. The above mentioned protests did have a significant impact on the policy of the Govt., which clearly justify the sustainability criteria described earlier in this review.

Environment Impact Assessment (EIA)

It is only in recent years that action has been taken in India to study EIA in relation to Capture Fisheries. This has been mainly due to lack of appreciation as well as scarcity of environment based technological competence. Investigations carried out by the Central Inland Capture Fisheries Research Institute on EIA in riverine ecosystems are particularly noteworthy (11).

General remarks

The major ethical issues in respect of capture fisheries of India may be summarised as: water quality maintenance and protection, abatement of pollution, protection of natural bio-diversity, protection of traditional fishing areas, customs and habitats, sustainability of fishing practices, ensuring social, ecological and technical stability, protection, restoration and recovery of endangered species and stocks, balancing population pressure in neighbouring areas, and conflicts with other developmental actions as well as other fisheries sectors

The more important social, legal and management issues specifically related to capture fisheries of India are:

A. Reduction of excess fishing capacity, multi-species management of resources, control of discarded incidental catches including marine mammals, sea birds, sea turtles etc. Two recent regulatory actions taken at international level relate to reduction of incidental catch of seabirds in long-line fisheries and conservation and management of sharks.

B. Development and use of selective, environmentally safe and cost effective fishing gear and technique, sustainable development of unexploited or under-exploited species, protection of endangered species and strict compliance of fishing area norms- specially with artisanal fishing and deep-sea fishing.

C. Need for self-reliance in fisheries management and development. There is an urgent need for Governments to ensure sustainability in the development of technical, institutional and financial self-reliance in the fisheries sector. Human resources development is an issue to which adequate attention has not been paid.

An important observation to be made here is that in most cases, the non-governmental sea tenure system adopted by fishers themselves work reasonably well all over the world. For example, in Tamil Nadu, fishermen are known to recognize the 'right' of fisher communities to 'control' the fishing actions. One way to describe this is to say that the coastal waters are under "tenure, subject to the rules of neighbouring settlements". The banning of snail net and ray fish net are noteworthy success stories.

Recently I came across an article titled " Save lakes from sins of humanity", which *inter alia* said that "In India everything possible that can happen to lakes is indeed happening to them. They are being polluted, their catchments are being denuded, their fisheries are being destroyed and their drainage channels are being obstructed"(12). In my view this sums up what the main issue is for Indian capture fisheries to reckon with!

In conclusion, I would like to mention about a recent Fisheries Action Programme implemented by the Natural Heritage Trust (formed for 'a better environment for Australia in the 21st century'), which plans to rebuild the country's fisheries to more productive and sustainable levels. The guidelines for the operations are :

- To foster a sense of community ownership and responsibility for fisheries and their habitat
- To encourage team work between resource, users and the community
- To adopt 'whole of environment approach'
- To clearly identify role and responsibilities of user groups
- To consider the economic, environmental and social implications of program strategies and actions
- To raise awareness of the problems affecting fisheries and their habitat and the need for community involvement in sustainable management

I submit the above guidelines as suitable models for planning sustainable capture fisheries development in our country, based on the Code of Conduct for Responsible Fisheries and appropriate management actions to address the problem of uncontrolled exploitation of fisheries resources.

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Environmental Ethics of Chlorine in the Marine Biome

- Jayapaul Azariah, Ph.D.
Director, School of Life Sciences,
University of Madras – Guindy Campus, Chennai 600 025, India
Email: jazariah@md3.vsnl.net.in

The editorial entitled " Ethics and eco-ethics" (Kinne 1997) is timely. The question that is raised " Have ecologists nothing to say about ethics?" is a very pertinent question for the coming millennium. Ecologists (should) have the final word in any ecosystem since it is the very life support system with which we are concerned. The Greek word OIKOS is the root word for the following three major disciplines: Ecology (bookkeeping of energy), Economics (bookkeeping of currency) (Odum 1971), and Ecumenics (bookkeeping of human love) and these three disciplines interact to make the system a functional whole (Azariah 1991a). In India, it is generally said that economists plan for a five year period by proposing their five year economic plans, but ecologists plan for one hundred years!!

Modern science considers the oceans and oceanic wealth as natural resources. In fact in both Tamil and German languages there is no native word for "natural resource". In German the

English word has been Germanized and in Tamil only a nearly equivalent word is available for use and these words have different meanings in themselves. In the first instance these Tamil equivalent word would mean natural innate ability for richness. The oceans have been over exploited, and their natural balance has been upset by the introduction of man-made harmful substances.

It must be understood that there is no development without destruction. That is to say, to construct a marine biological laboratory, one must decide how much of the natural coastal ecosystem can be destroyed to put up the new human developmental system. Secondly, development is one of the three triangles of health, the other two being physical environment and biological environment. All three affect the health of humans and the environment.

From time immemorial, theology has been the base for the development of ethics which is based on the authority of revelation (Kinne 1997), while philosophy (Love of wisdom), as we know it from the time of Socrates, is built on the authority of reason (Kinne 1997). Theology and philosophy are therefore, the two sides of the coin of ethics. Ethical perceptions began to change with the advancement of modern science. The biosphere was understood in terms of Natural History (prior to the 1800s). Natural history becomes ecology when 'how many' as well as 'what kinds' are considered (Odum 1971). Biology as a discipline was still dormant and did not really come to life until the 1830s and 1840s (Mayr 1988). With the publication of Charles Darwin's *Origin of Species* in 1859, the science of biology began to yield botany and zoology. The term ecology was coined in 1869 by the German biologist Ernst Haeckel (Odum 1971) who also introduced Darwin's work to the Germans (Hardin 1993), and the discipline economics was not so named until about half a century after Adam Smith's death in 1790 (Hardin 1993).

Ecology began to thrive with the advent of the industrial revolution. At this time the early prophet of ecology, Aldo Leopold (Azariah 1994), voiced his views and introduced the terms 'conservation ethics' (Leopold 1933) and 'land ethics' (Leopold 1949). Recently, the term Environmental Biology was introduced to include humans as a part of the ecological world. The ecological actions of human beings were detrimental to the ecosystems. As a result the phrase "environmental ethics" was introduced which is defined as the right and wrong in ecology. The right position tilts towards ecobalance while the wrong position tilts towards pollution. Ecologically the right position indicates the preservation of species diversity and sustaining productivity. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise (Leopold 1949). Leopold also stressed that it is our responsibility to maintain the health of an ecosystem. Essentially there are three approaches to the development of environmental ethics: they are Anthropocentric, Biocentric and Theocentric. The Anthropocentric approach is technology oriented, the Biocentric is Life oriented while the Theocentric has God/Divine spiritual orientation (Azariah 1998). Currently, the whole world in general is going towards anthropocentric approach, with western civilization moving particularly quick, while the East is losing its Biocentric and Theocentric moorings more gradually.

The year 1998 has been declared as the Year of the Ocean (United Nations, 1998) since signs of stress are already visible. The inherent aim of any marine ecosystem is to bring forth ecobalance but what is the aim of the marine scientists? Since 90% of the marine fishery yield is from the 10% of the coastal inshore waters we the marine scientists should evolve an action plan to restore ecobalance and relieve the current stress. In this paper, only one of the concerns which can serve as a basis for the formulation of such an aim on the health of the coastal zone is outlined. The concern is, How can we strike a balance between power (electric) production and the natural health of the oceans?

The above question was addressed by the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAM 1984), with the publication of report No. 24 "Thermal discharges in the marine environment". According to the world list of power plants there are 433 nuclear power plants (with an additional 133 stations presently under construction). These power stations generate 463, 344 MWe electricity (George 1997). A modern conventional-1000 MW electricity generating station with once-through cooling, discharges to the marine environment approximately 30-60 m^{-3} s^{-1} (Whitehouse *et al* 1985).

The volume of sea water in all oceans is 1370.323 X 10^6 km^3. The three major oceans have an individual break up volume of water as follows: Atlantic 354.679, Pacific 273.699, and Indian Ocean 291.945 X 10^6 km^3 (Sverdrup *et al* 1961). If the world power requirement were only 1000 MWe, requiring 60 m^{-3} s^{-1} of coolant sea water for a once-through flow system, it would take about 724.2 yr for the entire volume of sea water of the globe to be chlorinated by a power plant. For a total of 433 units requiring 60 m^{-3} s^{-1} of coolant sea water then it will require just 2.096 yr for total chlorination. With the addition of another 133 units then it will take just 1.563 years for total chlorination. Furthermore, there are about SEVEN countries which have more than 20 power plant units each, with a total capacity of 269,055 MWe. This would require just 2.691 yr to chlorinate all the sea water on the planet. By 2002 AD, India will produce less than half of its total estimated power requirement of 57,734 MWe with nuclear power. With a growing demand for the global energy, it is likely that every 1.5 yr global sea water will be cumulatively chlorinated with the addition of about 62 million Kg of chlorine per year.

Although chlorination is commonly used in biofouling control in cooling systems, the by-products of chlorination, dihalomethane and trihalomethane (THMs) are carcinogenic promoters (Azariah 1991b, Azariah and Nair 1995). However, the exact metabolic pathway of chlorine in a marine ecosystem and its precise mode of action have not yet been understood. Furthermore, chlorinated drinking water also has its own load of THMs which will eventually find their way into the marine system (Rajan *et al* 1990). Therefore, such environmental loading of chlorine not only causes the elimination of non-target organisms but also causes much environmental damage. If there is a change in human lifestyle i.e. to power down the way we live to consume then that would serve as a break to halt total chaos in marine ecosystem? What is required is, simple living with high thinking. Therefore, any responsible marine scientist must stop and think whether the marine system can bear this type of lifestyle related environmental pollution load and still be healthy.

The health of the marine system can be assessed by three parameters: (1) The number of biological species component in the system. (2) System's ability to swing between the upper and lower limits of tolerances - the sigmoidal curve, yielding in the process, a condition of ecobalance and (3) The system should exhibit it's ability for creativity (Azariah 1994). Not long ago I was at the sea shore of Cuddalore, south of Chennai, which is one of red-areas in industrial pollution. I saw a woman collecting live **Donax** specimens in sizable numbers. I asked her why such a large number? She said " My husband is a fisherman and for three days he couldn't catch any fish". The fish yield of East coast has come down (This statement can be documented). The curriculum of Marine Biology should have a human welfare interest coupled with a deep concern for the health of the oceans. How to link human values with marine environmental values is a concern?

Poverty of the environment leads to poverty in people. Poverty stricken people will also contribute much to the poverty of the ecosystem. Muller-Hill (1993), pointing out " To understand how nature works provides deep pleasure, and to understand a beautiful detail that nobody else has ever understood provides ecstasy... Self-deceit is a very common trait... ". Religious values have been eroded, for he wrote " But I know pretty well that very few scientists read the Old Testament and know the Ten Commandments and the Mosaic Laws. I know to say "Read the Old Testament' or 'respect the commandments' will result in

laughter. So I have to retreat to my last line of defense and say: Listen carefully to your conscience! It is a voice that sometimes says: NO. It never says "YES"... This NO is the only break when all other breaks are gone. This voice can be silenced. Do not silence it." Realizing the pathetic state in which human civilization is in, Mayr (1988) wrote " We have just passed through a period in which exaggerated importance was placed on the so called freedom of the child, allowing him to develop his own goodness. We have made fun of the moralizing in children's book and have tended to remove all traces of moral education from the schools... In view of our better understanding of the origin of morality of the individual, would it not seem time to place greater stress on moral education?"

We need to reorient our marine science education with a moral content. Such a move will blend human curiosity "to understand how nature works" with human values. Concurrently it may also bring about a change in our current life style - a life style that consumes more electric energy than what is needed. In this context, a new " All India Bioethics Association (AIBA)" has been formed (1998). The first Indian book on "Bioethics in India" was published (Azariah *et al* 1998) and put in World Wide Web site <http://www.biol.tsukuba.ac.jp/~macer/index.html>. AIBA in **India,** in association with Eubios Ethics Institute of **Japan**, Centre for Asian and International Bioethics in **Israel** and Eco-Ethics Task Force" of **Germany** can organize eco-ethical and human value added workshops in marine ecology to blend philosophy, marine science and religion for the creation of a new base for achieving the health of the ecosytem/environment and human beings.

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The concept of universal variable and the question of *Bioethics as love of life**

- Eliane S. Azevêdo, M.D., Ph.D.
Instituto Superior de Estudos para Matrimônio e Família - ISEMF
Salvador, Bahia, Brasil
Email: elisa@svm.br

*Darryl Macer, *Bioethics is Love of Life* (Eubios Ethics Institute 1998).

The academic concept of variable comes from statistics analysis demand on its struggle for understanding nature by experimenting on isolated natural phenomena. By defining variables the scientists bring a micro slice of nature to the laboratory, observe its behavior on a range of controlled circumstances and draw pertinent conclusions (1). Thus, the concept of variable is a fundamental tool for scientific work, in spite of being a reduction of nature to a Cartesian view of the universe.

In spite of its scientific outlook, most variable definitions have an interface with human arbitrary, nevertheless, educated arbitrary. In biology and medicine, for example, the lack of natural limits between health and disease; normal and abnormal, let the scientists to the settlement of conventional limits for normality. For anatomical variables, the concept of normality is the absence of abnormality, which is a non-definition (2). For quantitative variables, the arithmetic means plus or minus two standard deviations are numerical conventions for our range of normality. Outside those limits, the natural variability of our organism is labeled as "abnormal". Not only that, but most of these limits had been established for North American or European populations but are nearly applied to the entire world. For many doctors and patients these numerical limits of normality are seen as determinists numbers dividing people into healthy and sick ones (3). Nothing is allowed to individual genetics variability beyond those conventional limits.

The construction of quantifiable variables acquired unquestionable scientific status in modern medicine. Protein and enzyme dosages, organic and inorganic elements quantifications, etc. Even the most critical minds easily became submitted to all sort of numerical report. Does not matter the absence of signs or symptoms; two standards deviations are certificates of diseases.

In spite of all those drawbacks in the construction of the scientific variables no one seems to question it. Thus, they are scientifically and academically accepted.

On the other hand, outside the quantifiable components of the human organism is its most noble part: - *the feelings.* However, from a rigorous academic point of view, human feelings are not reduced to quantifiable variables, escape from statistical treatment, significance tests and so on. As a consequence, they are generally excluded from the scientific approach for estimating health and sick status. In spite of the universality of human feelings the lack of a method for reducing it to a Cartesian measurable variable let them outside the universe of modern science (4).

Biological variables and cultural plasticity.

The major criticism made to love to answer the question if Bioethics is Love of Life is that love is not universal, is not academic, does not fulfil the basic question of normative ethics

and that there is no universality of the meaning of love (5). In other words, the concept of love varies from one culture to another; that is its weakness from a universal and scientific point of view. Also, there is a criticism of love, extreme love, leading to grave hatred (6).

Let us begin by taking the question of love variability from culture to culture. To my understanding there is almost nothing in this world that does not vary from here and there without loosing its basic meaning. All biological variables have its own variability as well, without loosing its scientific status. If one takes a variable such as gene expression, finds a good example of that variability. The Human Genome Project is promising to identify those one hundred thousand human genes we have (7). So, in a near future, it will be possible to know the biochemical make up of each gene and to write down its bases sequence. However, the same DNA sequence of a gene does not assure that its expression will be the same in two persons, even if sibs. There is an unquestionable variability in gene expression from person to person, from population to population, from one environment to another (8). The lack of a universal gene expression does not exclude its study from the scientific world. What every geneticist is well aware is that, in genetics, variability is the rule.

If a modern science as genetics can deals with all the variability of gene expression without losing its scientific status, why Bioethics can not deals with the variability of love expression?

The major lesson nature is constantly giving to us is that the only invariable human characteristic is its variability. Regardless of quantification, definition or concept of variables in science it ought to hold some inner variation here and there. Thus, the rejection of universal variables such as love, under the argument that it does not have an overall consistent meaning in every culture has no scientific support on the account of the so well known scientific variability of its own variables (specially the biological ones).

The other point deserving comments is the fact that extreme love leads to grave hatred. Here again, the great lesson comes from nature itself. No one questions the importance of feeling hungry or thirst for surviving. However, the excess of hungry is harmful to the organism leading to lose of health. Not only hungry, but nearly every variable related to our organism has an optimum in quantity. Our nature has its own wisdom for functioning correctly; not to less, not too much; even if love.

The concept of universal variables

In 1980, in a paper published in *Current Anthropology* (9), we defined a kind of variable, suitable for cultural anthropological studies, named it *universal variable* and defined it as one that: *a) needs no definition by the investigator, because there is universal consensus as to what it means; b) is not artificially produced by the investigator, and* c*) is naturally present in every population. The methodological value of a universal variable lies in its suitability for cross-cultural studies, its freedom from investigator bias, and its informational richness*.

In that paper, at that time, our main example of universal variable was family names, for two main reasons: first, because of its universality in nearly every culture; second, because we had showed an strong association between religious surnames and Black ancestries which was interpreted as a translation of the religious feelings among Black descendents in Brazil (10). In that sense, we believe, from the consistency of research results, that the meaning of family names among Black descendents in Brazil is a translation of Black African religious feelings.

Later, following the search for universal variables, in a conference entitled *The malformed newborn*: *biology, moral and ethics* (11), we point out, from our experience in genetic counseling, that even the most mentally retarded child would respond with quietude and a peaceful face to the universal language of love. To the families of affected children, love is a language capable of communication with the mentally deficient.

We all know, from life experience, that not only children, healthy or unhealthy, but also all humans, without exceptions, have an inborn ability for love perception and response. Also, we all know that there is no way of reducing the variable love to a scientific methodological frame; that it is probably above our cerebral structure and reasoning connections. In experimental science we work under the assumption of a universal order in nature; in Bioethics we may well work under the assumption of the universality of love. There should be no culture in the entire humanity that does not understand the feeling of love. The word varies from one language to another; the way it is felt also, but, the feeling for protecting the life we praise, regardless of definition, has to be the feeling of *love,* all over the world. Thus, there is no need for defining the love variable; it is a universal variable.

Conclusions

There is, in our days, an urgent need for a global Bioethics as well as for a universal language in Bioethics. To go in this direction one has to search for the most universal human value and virtue. Bioethics as love of live is the best we can reach. Love is a universal variable and life is universally praised. The exceptions are at large of the main question and should be deal on a way of enriching the concept of universal love and the universality of human life value.

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The Importance of Medical Humanity in Medical Education

- Michael Cheng-tek Tai,Ph.D.
Chungshan Medical & Dental College, Taichung, Taiwan
Email: tai@mercury.csmc.edu.tw

" In the complexities of contemporary existence of specialist who is trained but uneducated, technically skilled but culturally incompetence, is a menace." (David Truman)
" Medical humanity is like the soul of medical curriculum, only when it is implemented that the medicine is animated." (Bor-shen Hsieh)

The tremendous development of medical technology in the last few decades has changed the face of medicine. Besides caring, medicine today can also cure and even change a person's personality, looking and his genetic structure. We must explore a medicine that is not just responsive to the body of the patient, but also to his feelings, his mind, his will, his imagination, his creativity, his aspirations, his values, his capacity for making ethical choices—in short, a medicine responsive to the whole life of the person who is a patient.

Rapid progress in the pharmaceutical field, in mechanical devices and medical skills has raised new questions upon us, such as; where and when does human life begin ? what is the moment of death ? what are the limits in the research and manipulation of man ? what is the meaning and the destiny of man ? what kind of biochemical, pharmacological, surgical, psychological and genetic treatments affect the identity of the human person ? Undoubtedly, Contemporary medicine bears tremendous responsibility for man's meaning, his well-being and the world in which he lives.

In the past, the doctor enjoyed freedom in his self-chosen relationship with his patients to whom he offered his services and who, in return, honor him. Today most countries' medical systems are socialized. The right to proper medical care is recognized as part of the most fundamental human right. Such a situation inevitably leads to a socialization of medical profession. The doctor has become one of the various social servants working for the government's health insurance bureau. Such a change brings us new concerns, such as unnecessary physical tests, prescriptions and operation, the deteriorating patient-physicians relationship, the unfair distribution of limited resources.... etc

The nature of medical service, medical progress and its responsibility oblige the medical professionals to re-think the purpose of medicine and to ponder on how it can act responsibly. To achieve this goal, medicine cannot isolate itself from the rest of academic world but must act in absolute solidarity with other disciplines by initiating a sincere dialogue with behavioral sciences, philosophy and theology…. Without this new attempt, medicine may lock itself in an ivory tower seeing man only from a narrow diagnostic-prognostic angle. This is the context and perspective in which medical humanity is set.

Because of the broad scope of medicine, preventive, therapeutic and planning for the future, medical scientists must seek a holistic vision of man. The modern physician can no longer approach biological and medical decisions without being ready to raise fundamental human questions and search for answers to them. He must take a courageous step towards an understanding of freedom expressed in terms of social responsibility for the whole of humanity.

These new realities and changes compel medical educators to reconsider the content of medical education. Is our goal simply to train a physician skilled in treating diseases yet unaware of human predicaments and the complicated social fabric that make a person what he is?

The main concern of medicine used to be human physical condition, as it was believed that a person's illness was due to physical problems. But this understanding has been challenged and a new understanding developed that moves from a simple biomedical paradigm to psychosomatic and then biopsychosocial emphases.

Bernard Haring, a well-respected theologian and ethicist suggested that medicine has to pay attention from the present to the future, from an individual personalism of the patient-doctor relationship to a social-collective accountability of medicine and to the whole human society. Robert Veatch, director of Kennedy Institute of Ethics also advocates a medicine, which treats not only diseases but also illness of the person, implies that medicine in 21st century must be expanded from merely a biomedically-oriented science to a holistic biopsychosocial emphasis. The physicians of tomorrow must know not only how to treat physical diseases with empathy but also to take his responsibility seriously as healers of whole person to the whole Hunan society. To fulfil this mandate, the content of medical education must be re-examined and re-structured.

An emphasis on medical humanity is one of the moves we must take to respond to the new reality of medicine. Medical humanity, literally speaking, refers to those humanity courses having to do with medicine based on a biopsychosocial understanding such as medical sociology, biomedical ethics, medical psychology, history of medicine, communication between physicians and patients...etc. In reality, medical humanity, when properly planned and offered, will enable medical students to develop a new understanding of life and a concern to social justice. It is a design to help students develop a new value theory so that they will become people-oriented physicians. But in order for students to understand the basic human nature, more courses must be considered as social customs, religious beliefs, cultural traditions all effect our attitutes toward health, life, and even death. Thus, a philosophy of life, religion and cultural anthropology must also be introduced. Medical humanity covers a wide spectrum of social sciences and humanity. The purposes of introducing these courses are no other than:

1. to cultivate a holistic understanding of personhood
2. to enable medical students to know the human side of medicine and the effect of environment and life-style on health
3. to provide students opportunities for continuing reflections on themselves as they grow in medical knowledge
4. to foster a sense of " Medicine as Vocation"
5. to study ethical theories and their applications to the clinical decision-making.
6. to promote a consciousness of physicians' social responsibility.

In one word, medical humanity attempts to equip students with a better understanding of human being so as to produce physicians of tomorrow who are not only effective healers of diseases, but also restorer of human wholeness (a person of harmonious combination of body, mind and spirit) and promoter of social justice.

In an Taiwanese expression : "a superior physician heals the ills of a nations. An ordinary physician heals the brokenness of a person. An inferior physician heals diseases."

"Medical education is to pass on a humanized medicine so that medical students may understand, experience and grasp the humanistic philosophy of medicine and thus establish their own value theory, ethical standard and eventually their own life philosophy. Only when we reach this goal can we say our education has succeeded". (A quotation from Dr.B.S.Hsieh: Introduction to Medicine. Taipei. Taiwan University Medical College, 1997:85)

See also: Michael Cheng-tek Tai, "The Teaching of Bioethics & the Training of a Socially Responsible Physician", *EJAIB* 10 (2000), 17-19.

Humanistic Medicine: Commentary on Tai

- Yeruham Frank Leavitt, Ph.D.
Chairman, The Centre for Asian and International Bioethics
Faculty of Health Sciences
Ben Gurion University of the Negev, Beer Sheva, Israel
Fax: + 972-7-6477633
Email: yeruham@bgumail.bgu.ac.il

Michael is right about the importance of education in medical humanities. We have certainly been working very hard in this direction for many years in Beer Sheva. But it is not the whole story.

There is also a need for encouraging more respect for, and egalitarian teamwork with, the other health professions, especially nursing. As successful as we may be at getting humanities into the medical curriculum, it will never be enough. Nurses often have a broader background in humanities, psychology, anthropology and other studies important for humanistic health care. So teamwork is important. I am also of the opinion that when a patient has lost all taste for life and wants to die, then perhaps a smile, a kind word, a touch or a joke from a good nurse might be the best medicine. This should certainly be tried - and obviously in a gentle, non-preaching way - before we even talk about DNR or even passive euthanasia.

Moreover, the mass movement of patients towards Asian medicine, perhaps most importantly Ayurvedics and Chinese Medicine, is an indication of something lacking in Western medicine: especially the holistic element. Intelligent doctors in the West have stopped fighting this trend and are looking at Asian medicine to see what really works, and to see how it may be combined with western methods. A fairly well-balanced review is: Cassileth BR. Evaluating complementary and alternative therapies for cancer patient. CA Cancer J Clin (1999) 49: 362-375.

Code Of Ethical Practice for Biotechnology in Queensland - Draft For Public Comment

Comments on the draft Code may be sent to:
Biotechnology Code of Ethics Project
Department of the Premier and Cabinet
PO Box 185
BRISBANE ALBERT ST QLD 4002
Australia
E-mail: bioethicsproject@premiers.qld.gov.au
and should be received by **Friday 30 June 2000**. [Ed. further notes are on-line *http://www.premiers.qld.gov.au/bio.pdf*.]

Part I Preamble

1. The Queensland Government:

conscious of the potential benefits of biotechnology in health care, agriculture, environmental management and other fields;
recognising the potential for biotechnology to uncover new diagnostic procedures and treatments for life threatening diseases;
noting the potential for biotechnology to enhance the efficiency of agricultural production, and increase the availability and nutritional value of global food supplies to meet the demands of the world's rapidly expanding population;
identifying the potential for biotechnology to benefit the environment by reducing the need for agricultural chemicals, creating and sustaining industrial processes which produce less waste, and generating alternative energy sources which help reduce greenhouse gases;
acknowledging that biotechnology is a growing source of wealth and job creation in knowledge economies which is providing opportunities for Queensland to participate in national and international partnerships, research and innovation;
reiterating the Government's commitment to support the development of biotechnology in Queensland because of its potential economic and social benefits;
noting that certain concerns have been expressed about the safety and environmental impact of some biotechnology applications;
acknowledging that biotechnology, particularly in the area of human genetics, is raising profound moral and social questions about the appropriate use of the technology and its consequences for human development;
declaring that the Government's support for biotechnology will be scientifically, socially, and ethically responsible; that while biotechnology offers substantial benefits, government, industry and consumers must move forward carefully together in any area of community or scientific uncertainty;
asserting that the Queensland Government will not support biotechnology research or applications that fail to meet agreed safety standards, or where there is insufficient consensus about the appropriateness of particular applications;
has resolved to issue this Code of Ethical Practice for Biotechnology in Queensland (the "Code").

2. This Code applies to:

- all Queensland Government agencies, research centres, laboratories and public hospitals that conduct biotechnology activities and
- all private sector companies, academic institutions and research bodies that receive assistance from the Queensland Government to undertake biotechnology activities.

3. For the purpose of this Code, the bodies defined in paragraph 2 are referred to as "biotechnology organisations".

4. Companies and research institutes undertaking biotechnology activities in Queensland that are not biotechnology organisations as defined in paragraph 2 are invited to subscribe to this Code as a voluntary demonstration of their commitment to ethical practice.

5. Should a biotechnology organisation fail to honour this Code, the Queensland Government will review State Government funding provided to the organisation.

6. Although this Code is not a legislative document, it refers to a number of legislative controls that apply to biotechnology activities under various Commonwealth and State laws, for example, laws relating to food safety and laws relating to the safety of therapeutic goods. Failure to comply with these controls may cause a biotechnology organisation to be prosecuted by the appropriate Commonwealth or State authority under the relevant legislation.

7. Currently Commonwealth, State and Territory Governments are developing comprehensive national legislation to regulate gene technology research and products. This legislation will replace the existing voluntary system administered by the Commonwealth Genetic Manipulation Advisory Committee (see endnote 3). This Code will be amended to reflect the new legislation when it becomes operational in 2001.

8. Commonwealth, State and Territory Governments are also considering appropriate labelling requirements for genetically modified foods. This Code will be updated to reflect the new requirements following their approval and introduction.

9. Further, Commonwealth, State and Territory Health Ministers are developing a national approach to regulation of assisted reproductive technology which will address cloning of genes, cells and tissue. This Code will be amended to reflect new legislation arising from these discussions.

10. This Code does not displace existing or future codes of practice that apply to particular biotechnology activities under nationally agreed arrangements. Appendix 1 lists codes, guidelines and reports issued by national authorities that are relevant to biotechnology research, including an important set of guidelines on research involving humans issued by the National Health and Medical Research Council (NHMRC).

11. A public register of biotechnology organisations to which this Code applies will be maintained and open for public scrutiny. The register will also identify biotechnology organisations which voluntarily subscribe to this code. The public register may be inspected at:

The Department of the Premier and Cabinet
Room (to be determined)
Executive Building
100 George St
BRISBANE
Queensland

and at the Department's web site:
http://www.premiers.qld.gov.au/bio.pdf.

Part II Definition of Biotechnology

"Biotechnology" is a broad term given to a wide range of technologies which use living organisms, biochemistries or synthetic DNA to make or modify products, improve plants or animals, or develop micro-organisms for specific uses. Biotechnologies have a wide range of applications in medicine, agriculture and food production, horticulture, industry and the environment.

A frequent misconception is that biotechnology is of recent origin. In fact some biotechnological techniques have been around for a long time - the use of yeast and bacteria to make bread, beer, wine and cheese has been common practice for centuries. Traditional plant and animal breeding techniques also form part of biotechnology.

However, ♂ biotechnology♀ is usually applied to new techniques associated with the contemporary ♂ Biotechnology Revolution♀. These new techniques provide greater understanding of and more precise control over living processes, in so doing offering a range of new, practical applications. These new techniques include:

- *DNA mapping and sequencing* - understanding the functions of genetic programming and using this information to diagnose disease or disease susceptibility, and to design new therapeutic treatments and other processes and products;
- *gene technology* - the process of allowing genes to be isolated, amplified and transported into new locations, even between species, to make novel genetic combinations. It is used in a variety of applications from the production of pharmaceuticals (such as human insulin for diabetics) and vaccines (for example, for Hepatitis B) to genetically modified crops with improved characteristics such as pest and disease resistance, higher yields and greater nutritional value; and
- *cloning* - the process of producing genetically identical organisms through various techniques, including culture of specific cells, artificial division of a single embryo or nuclear transfer. Cloned animals can be used to model human diseases and to manufacture pharmaceuticals for use in health care. Cloning can also involve the artificial production of particular tissues or organs from embryonic or bone marrow stem cells for the repair of damaged tissue.

This Code applies to these new techniques which are the subject of most community interest and debate.

Part III The Code

1. As biotechnology organisations we commit ourselves to the following code of ethical practice.

<u>*General Principles*</u>

2. We will pursue biotechnology solutions which advance human health, improve quality of life, assist the environment, promote sustainable agriculture and industry, and preserve biodiversity.
3. We will work with government to ensure that biotechnology applications are assessed for adverse impacts on human safety or the environment. Where possible, we will consider long as well as short term impacts, including impacts that may not be immediately apparent. Risk assessments will be conducted in accordance with accepted scientific principles.
4. If risks are identified, we will ensure that these risks are acknowledged through open and accountable processes. We will not proceed with product development where assessed risks outweigh benefits. Where beneficial applications are developed, risk management strategies will be established to ensure that any risks are appropriately managed.
5. We will ensure that research into genetically modified organisms (GMOs) is conducted in accordance with guidelines issued by the national Genetic Manipulation Advisory Committee (GMAC). As required by GMAC:
   - we will establish and maintain properly constituted Institutional Biosafety Committees;
   - our laboratories will observe strict containment and safety measures; and
   - all field trials of GMOs will be subject to risk assessment by GMAC to ensure that there are no unacceptable risks to human safety or to the environment.
6. We will comply with the *Australian Code of Practice for the Care and Protection of Animals for Scientific Purposes*. In accordance with the *Code of Practice,* we will ensure that:
   - the welfare of animals used in research or product testing is respected; and
   - an appropriate Animal Welfare Ethics Committee is established for the purpose of ensuring animal care and welfare.
7. We will provide clear, honest and verifiable information to consumers about the products we produce, the technologies employed, the ingredients used, and any risks or side effects, having regard to consumer expectations and values, and the principle of consumer choice.
8. We will abide by any policies, rules or laws established by the Commonwealth or State Governments concerning access to Queensland's biological resources and benefit sharing.
9. We will endeavour to ensure that new discoveries by Queensland researchers are developed in ways that provide appropriate returns to the State and retain appropriate control of the intellectual property within Queensland. At the same time, we support exchange of technology between countries, including with developing countries, for the broader benefit of the world economy and social development.
10. We will not use biotechnology to develop biological weapons.

<u>*Agriculture, Food and the Environment*</u>

11. We will aim to produce crop varieties that benefit consumers and improve agricultural productivity.
12. We will ensure that adequate genetic variety is maintained so as to preserve the biological complexity that underlies sustainable farming.
13. We will comply with the *Good Agricultural Practice Guidelines for the Use of Genetically Modified Plants* developed by the Commonwealth-State Standing Committee on Agriculture and Resource Management:
   - we note that these guidelines require that unrestricted or commercial releases of genetically modified plants, where approved by GMAC, will not take place until an appropriate on-farm management strategy has been developed to ensure sustainable use of the GMO with minimal risk to the environment.
14. We will ensure that food products meet the highest standards of safety, nutrition and benefit for consumers and comply with all relevant standards developed by the Australia New Zealand Food Authority (ANZFA):
   - we note that from 13 May 1999, all foods produced using gene technology cannot be sold in Australia unless they are considered safe after thorough risk assessment by ANZFA and approval by the Australia New Zealand Food Safety Council;

- we support the right of consumers to be provided with information about genetically modified food products, and will comply with standards for labelling genetically modified food that are issued by ANZFA.

15. We will comply with relevant standards administered by the National Registration Authority in respect of agricultural and veterinary chemicals.
16. We support the development of bioremediation and cleaner industrial and municipal processes through biotechnology.

Health

17. We will ensure that new medicines and procedures developed for use in health care meet the highest standards of safety and efficacy and comply with all requirements of the Commonwealth Therapeutic Goods Administration.
18. We will ensure that research involving humans will be conducted with the highest standards of safety, integrity, respect for human dignity and regard for human rights, and will comply with all relevant NHMRC guidelines, in particular, the *National Statement on Ethical Conduct in Research Involving Humans (1999)*. We note that:

- the *National Statement* requires that all research involving humans conducted in an institution that receives NHMRC funding must be reviewed and approved by a multidisciplinary Human Research Ethics Committee established by the institution for the purpose of providing ethical oversight of research proposals;
- ethical review must occur whether or not the research pertains to human health and whether or not the research is funded by the NHMRC; and
- all research involving humans conducted by Australian universities that is funded by the Australian Research Council must be conducted in accordance with the guidelines in the *National Statement.*

19. We will ensure that research involving humans will be conducted only with the informed and voluntary consent of individuals participating in the research.
20. We will not allow unauthorised access, use, modification or disclosure of personal identifying information gained or used in the course of research without the consent of the individuals identified by the information.
21. We will not conduct tests for genetic disease, or potential disease traits in individuals or their offspring, without the informed and voluntary consent of the individuals to be tested, and will not disclose test results to third parties without consent of the individuals concerned. Appropriate counselling and support will be provided to individuals prior to and after testing.
22. We will not undertake somatic gene therapy unless the proposal has been reviewed and approved in accordance with NHMRC guidelines. These guidelines:

- require review by the relevant Human Research Ethics Committee, the NHMRC's Gene and Related Therapies Research Advisory Panel, and the Therapeutic Goods Administration; and
- may also involve seeking the advice of the relevant Institutional Biosafety Committee and GMAC.

23. In the application of assisted reproductive technology, we will pay the highest regard to the dignity of all persons, the equality of all races, and the rights of the disabled.
24. We will not alter the genes of human sperm or eggs in order to transmit particular genetic traits to future generations (germ line therapy) as this practice would raise profound issues for human evolution which have not been adequately addressed.
25. We will not conduct research into the cloning of entire human beings, but understand that research may continue into the cloning of genes and cells for specific medical purposes, for example in connection with the possible regeneration of damaged or diseased human tissue, where such research has been approved by the relevant Human Research Ethics Committee.

Other Requirements

26. We will comply with all guidelines and decisions made by:

- the National Occupational Health and Safety Commission in respect of industrial chemicals;
- the Australian Quarantine and Inspection Service in respect of biotechnology imports and exports; and

the Interim Office of Gene Technology Regulator in respect of gene technology products and services not regulated by other national bodies.

Abbreviations

AEM Applied & Environmental Microbiology; AJHG American J. Human Genetics; AJLM American J. Law & Medicine; AJMG American J. Medical Genetics; AJOG American J. Obstetrics & Gynecology; AJPH American J. Public Health; BME Bulletin of Medical Ethics; Biotech Biotechnology; BMJ British Medical J; CMAJ Canadian Medical Association J; CQHE Cambridge Quarterly of Health Care Ethics; EBN European Biotechnology Newsletter; EEIN Eubios Ethics Institute Newsletter; EST Environmental Science & Technology; F&S Fertility & Sterility; GEN Genetic Engineering News; GMOs genetically modified organisms; HCR Hastings Center Report; HGT Human Gene Therapy; IDHL International Digest of Health Legislation; IJB International J. Bioethics; JME Journal Medical Ethics; JMG J. Medical Genetics; JRSM J. Royal Society of Medicine; KIEJ Kennedy Institute of Ethics Journal; MJA Medical J. Australia; NatBio Nature Biotechnology; NatGen Nature Genetics; NatMed Nature Medicine; NEJM New England J. Medicine; NS New Scientist; PCR Polymerase Chain Reaction; PNAS Proceedings of the National Academy of Sciences (USA); O&G Obstetrics & Gynecology; SA Scientific American; SSM Social Science & Medicine; TIBTECH Trends in Biotechnology; TIG Trends in Genetics.

News in Bioethics & Biotechnology

Comments are written in text form together with recent references. This list continues from the last issue of *EJAIB* and will continue. This list is available on-line topic-by-topic (and the on-line topical files have been updated in May 1999), at:
http://www.biol.tsukuba.ac.jp/~macer/NBB.html

Genetic Engineering of Plants

Challenges in order to feed **poor** people are made in van Wijk, J. "Biotechnology and hunger: Challenges for the biotech industry", *Biotechnology & Development Monitor* 41 (2000), 2-7. Comments on the lack of money to buy food are in *Nature* 404 (2000), 222. Local farmer's could produce enough food to feed Africa if they were given a chance according to a letter in *Nature* 404 (2000), 431.

A review of use of simple biotechnology techniques to aid Henequen production in Mexico is *Biotechnology & Development Monitor* 41 (2000), 11-5. On herbivore resistance, *Ecology* 81 (2999), 49-65. Research on **fruit** design from model systems is discussed in *Nature* 404 (2000), 711. Enhanced **phosphorus** uptake is reported in transgenic tobacco that overproduce citrate, *NatBio* 18 (2000), 450-3.

A rice with **35% increased** production by insertion of maize genes is being tested, *NS* (March 2000), 19. Comments questioning the benefits of genetically engineered rice containing vitamin A are in *Ram's Horn* 178 (2000), 2-3; *Splice* 6 (March 2000), 4-5. The use of tobacco plants to produce transgenic proteins offers some advantages over animal cells, *GEN* 20 (15 March 2000), 20, 29, 54.

Genetic Engineering of Animals

PPL Therapeutics has reported success in the cloning of piglets, *NatBio* 18 (2000), 365; *GEN* 20 (1 April 2000), 20, 46; *Splice* 6 (March 2000), 16; *Time* (27 March 2000), 43. Direct cloning of mice from ES cells is reported, *NatBio* 18 (2000), 135; *PNAS* 96 (1999), 14984-9. Deciding animal breeding goals for sustainable production is discussed in *J. Animal Science* 78 (2000), 570-82. A review is Bulfield, G. "Farm animal

biotechnology", *TIBTECH* 18 (2000), 10-13. Genetic imprinting and breeding is discussed in *NS* (15 April 2000), 8. Book reviews of Wilmut, I. Et al. *The Second Creation: **Dolly** and the Age of Biological Cloning* (Farrar Straus & Giroux 2000, ISBN 0374141231) are in *NS* (18 March 2000), 50; *Science* 287 (2000), 1404-5; *Nature Genetics* 24 (2000), 347; *Lancet* 355 (2000), 661. The cloning of **pets** is still available to the rich and sentimental (if successful), *NS* (15 April 2000), 33; *NatBio* 18 (2000), 366.

A review of the engineering of a smarter mouse is Tsien, JZ. "Building a **brainier** mouse", *SA* (April 2000), 62-8. A mouse model for stress is Bale, TL et al. "Mice deficient for corticotropin-releasing hormone receptor 2 display anxiety-like behaviour and are hypersensitive to **stress**", *Nature Genetics* 24 (2000), 410-5. A Drosophila model for **Parkinson's** disease is reported in *Nature* 404 (2000), 394-8, 341-2. A possible therapy is reported in Yamamoto, A. et al. "Reversal of neuropathology and motor dysfunction in a conditional model of **Huntington's** disease", *Cell* 101 (2000), 57-66, 1-4; also *Nature* 404 (2000), 721-2. Models of neurodegenerative disease are reviewed in *BioEssays* 22 (2000), 297-304.

A discussion of the need for animal models of human genetic disorders is *Comparative Medicine* 50 (2000), 10-1. Two mice models for **obesity** studies are reported in *NatMed*. 6 (2000), 263; *BMJ* 320 (2000), 962; *Nature Genetics* 24 (2000), 377-80; and a review is *Pharmacological Reviews* 52 (2000), 35-57. A discussion of the difficulties of genetic studies in mice is *Science* 287 (2000), 1409-10. Genotyping of SNPs in mice is reported in *Nature Genetics* 24 (2000), 381-6. Phenotype assessment is discussed in *Comparative Medicine* 50 (2000), 12+. A mouse model of hepatitis B and delta has been made, *NatMed*. 6 (2000), 327-31. A review on biological clocks is *SA* (March 2000), 64-71; also *Nature* 404 (2000), 25-8.

Designer Molecules

Therapeutic antibodies are reviewed in *Lancet* 355 (2000), 735-40; *NatMed*. 6 (2000), 373-4. A review of **antibody** production methods is in *GEN* 20 (1 April 2000), 1, 24, 54. Induction of human cytotoxic T lymphocytes by artificial antigen-presenting cells is reported in *NatBio* 18 (2000), 405-9. A review on the role of the sugar code in biological information transfer is *Naturwissenschaften* 87 (2000), 108-121. The stability of non-viral plasmid-based therapeutics is reviewed in *J. Pharmaceutical Sciences* 89 (2000), 289-96. On drug discovery, *TIBTECH* 18 (2000), 31-4.

Polymer science is making better materials for transplants and medicine, *JAMA* 283 (2000), 1943-7. A report on artificial blood development in Japan is in *Pharma Japan* 1688 (13 March 2000), 18-9. See a review in Winslow, RM. "New transfusion strategies: Red cell substitutes", *Annual Review of Medicine* 50 (1999), 337-53. A review of microbial biotechnology is *TIBTECH* 18 (2000), 26-31. Biosynthesis of lysine from bacteria growing on fish silage is reported in *Bioresource Technology* 73 (2000), 221-5. The use of old chicken feathers to make **plastic** for cars is discussed in *SA* (April 2000), 26. Robots and imitation of life is reviewed in *Science* 288 (2000), 80-3. The possibility that signs of ancient life on **Mars** are buried is discussed in *NS* (March 2000), 11.

Biotechnology & the Public

The ethics of biotechnology **communication** are discussed in *Science and Engineering Ethics* 6 (2000), 265-87. The 1999 *Environment and Social Annual Report* of Novo Nordisk (Denmark) includes environment, bioethics and social responsibility under the theme of sustainable development (68pp.). A recent book in Spanish is Casabona , Carlos Maria Carlos. *Biotechnologia y Derecho, Perspectives en Derecho Comparado*, Fundacion BBV, Bilbao Granada 1998, 5 chapters , 407pp. Other recent books include Naisbitt John et. al, *High Tech High Touch*, Broadway books 1999, 2 parts, 274pp; Wingerson, Lois. *Unnatural Selection*, Bantam book 1998, 18 chapters, 399pp. A book review on *Science and Technology in World History* is in *Nature* 404 (2000), 17-8. A review of *Sex and Death* is *JAMA* 283 (2000), 2038. A review of George Gamov who thought of the Big Bang and the genetic code first is *Nature* 404 (2000), 437. The honouring of Mendel is discussed in *Science* 288 (2000), 37-9.

The program of work and information on the **Canadian** Biotechnology Advisory Committee are on-line (http://cbac.gc.ca). A call for something like the Asilomar process for new biotechnology issues is called for in *Science* 287 (2000), 1584-5. The politics of biotech is discussed in *Science* 287 (2000), 1201. The need to be open to gain public trust is stressed in *NS* (18 March 2000), 3. The UK parliament and public opinion on science are discussed in *Lancet* 355 (2000), 941. The future of biotechnology is discussed in *TIBTECH* 18 (2000), 6-7; *NatBio* 18 (2000), 357. A review on the ethics is Polkinghorne, JC. "Ethical issues in biotechnology", *TIBTECH* 18 (2000), 8-10. The GM controversy has had adverse affects on UK science research, *NatMed*. 6 (2000), 364.

A report from Craig County, Virginia where citizens oppose a new transgenic animal facility is *GeneWatch* 13 (Feb. 2000), 12-3.

Crowded universities may inhibit study in Japan, *Nature* 404 (2000), 13. In the USA the brightest students are avoiding science, *Science* 288 (2000), 43. Making old biologists capable for the new biology is discussed in *NatBio* 18 (2000), 359. The UNESCO director has said it was worse than he thought and calls for reform of UNESCO, *Nature* 404 (2000), 113. The science-religion debate is discussed in *Nature* 403 (2000), 831; *Science* 287 (2000), 1587.

Regulation & Field Trials of GMOs

Germany has decided to halt the commercial cultivation of **Bt maize** developed by Novartis, *Nature* 403 (2000), 821. The US EPA is reconsidering guidelines for Bt crops, *EST* 34 (2000), 119-20A. A corn modified to be resistant to corn root worm is discussed in *Science* 287 (2000), 1390. A report from a case study for the usefulness of transgenic potatoes in **Mexico** is *Biotechnology & Development Monitor* 41 (2000), 6-10; *Science* 287 (2000), 1399. The need to stop GM cotton weeds growing in other crops to avoid the re-emergence of cotton boll weevil is being shared with farmers, *NS* (15 April 2000), 17. The **EU** has formalized use of the **precautionary** principle, *EST* 34 (2000), 166-7A.

New Zealand is preparing for a royal commission on genetic engineering, *Christchurch Press* (4 March 2000), 10. The **Japanese** MAFF has announced it will set up an expert panel on the environmental risks of GMOs, *Nature* 403 (2000), 697.

On **organic** agriculture standards, *Ram's Horn* 178 (2000), 4-7. Organic farmers now have a new broad spectrum herbicide, *NS* (4 March 2000), 15. The rules of food webs are discussed in *Nature* 404 (2000), 180-4. The possibility of DNA mixing in viruses is discussed in *NS* (March 2000), 16; *J. Molecular Evolution* 50 (2000), 82+. The ecological costs of sex are discussed in *Nature* 404 (2000), 281-5. A tool to remove

markers is Zubko, E. et al. "Intrachromosomal recombination between attP regions as a tool to remove selectable marker genes from tobacco transgenes", *NatBio* 18 (2000), 442-5. Experiments to attempt to get gene transfer out of GM maize found it did not transfer, *NS* (25 March 2000), 4. The dangers of CaMV promoter in plants are discussed in *NatBio* 18 (2000), 363-4.

A comment on why the USA agreed to the **Cartegena** Biosafety Protocol is *Splice* 6 (March 2000), 6-7; and a criticism of the protocol is *NatBio* 18 (2000), 360. A call for a permanent international forum for debate of GM foods was called for after a OECD meeting in March, *Nature* 404 (2000), 112 (see Food section). On gene transfer, *Science* 287 (2000), 1927-8; and Bt crops debate, *GeneWatch* 13 (Feb. 2000), 3. On **African** biosafety, *NS* (19 Feb. 2000), 54. A review of issues is Paarlberg, R. "Genetically modified crops in developing countries: Promise or peril?"", *Environment* 42 (2000), 19-27. There is a need to have the debate for developing countries priorities, *EST* 34 (2000), 166A.

The control of **biowarfare** agents is discussed in *NS* (8 April 2000), 3; *JAMA* 283 (2000), 2035-7. Several book reviews on an **anthrax** outbreak in Russia related to biowarfare research are *Nature* 404 (2000), 543-4; *NatMed*. 6 (2000), 245. The US pentagon has defended its anthrax vaccination program, Lancet 355 (2000), 910. A sensor has been developed that can detect potential biological warfare attacks in seconds, *SA* (March 2000), 35. The WHO wants to set up labs to monitor new diseases to check whether they are result of biowarfare, *NS* (March 2000), 16-7. During World War II Cambridge University chemists volunteered for chemical war agent trials on themselves, *Nature* 404 (2000), 428-9. A bioweapon in the form of a fungi against cocoa, the source of **cocaine**, may be released in Colombia, *NS* (11 March 2000), 5.

Vaccines & Diseases

Four major US vaccine producers have agreed to **donate** US$150 million in vaccines towards the Global Vaccine Initiative, *BMJ* 320 (2000), 736, 952-3; *NatMed*. 6 (2000), 238; *Lancet* 355 (2000), 908. Financing is necessary, *Lancet* 355 (2000), 1269-70. Polio eradication is discussed in *JAMA* 283 (2000), 1553-4; *Lancet* 355 (2000), 559, 728. Health concerns over vaccination are discussed in *SA* (March 2000), 15-6; *Vancouver Globe & Mail* (11 April 2000), R6; *BMJ* 320 (2000), 929-32. There must be care that the level of thiomersal (Hg) is kept low, *Lancet* 355 (2000), 1279-80. The health consequences of exemptions in immunization laws are discussed in *JAMA* 283 (2000), 1140-42. There is still debate over the relationship between polio vaccine and origin of HIV, *Nature* 404 (2000), 9. Mutations in the a determinant of **hepatitis** surface antigen are being found in persons who are vaccinated, *Lancet* 355 (2000), 812. On long term protection, *Lancet* 355 (2000), 561-5. Pneumococcal vaccination can be cost effective in children, *JAMA* 283 (2000), 1460-8. An **aerosol** vaccination for measles has been found to be equally effective to the injection route, *Lancet* 355 (2000), 798-803. There are some other benefits of measles immunization given in *BMJ* 320 (2000), 938-40. An edible vaccine for pigs has been successful, *NatBio* 18 (2000), 367.

An oral vaccine against a brain protein has been tested that may be useful for **epilepsy**, *Science* 287 (2000), 1453-60; *NS* (4 March 2000), 9. Hybrid cell vaccination for renal cancer is reported in *NatMed*. 6 (2000), 252-3, 332-6; *Lancet* 355 (2000), 813. Identification of vaccine candidates against serogroup B Meningococcus have been identified after whole genome sequencing, *Science* 288 (2000), 1816-20. A report from the New York outbreak of West Nile fever in summer 1999 is *SA* (2000), 20-1; JAMA 283 (2000), 997-8. In general on vaccines, *JAMA* 283 (2000), 1280-1, 1339-40. Guidelines for vaccine use in Europe are discussed in *Pharmeuropa* 12 (2000), 309-311.

Malaria researchers hope for industry to join in the research, *Science* 287 (2000), 1956-7. The US National Institute of Allergy and Infectious Diseases is also helping, *Nature* 403 (2000), 696-7. In the flood in Mozambique there was disappointment that the government refused a plan to spray blankets with insecticide to curb the mosquito outbreak that is expected to bring malaria, *NS* (18 March 2000), 19. Research on malaria vaccines is discussed in *NatMed*. 6 (2000), 234, 241-4. **Guinea worm** has been eradicated from India, *Science* 287 (2000), 1917. In general on third world drugs, *Science* 287 (2000), 1571. On childhood illness in Africa, *BMJ* 320 (2000), 594-5. Drug resistant **TB** is spreading, *Science* 287 (2000), 2391; *BMJ* 320 (2000), 821. TB develops due to gene-environment interaction, *Lancet* 355 (2000), 588-9. On TB control lessons from the 1800s, *Lancet* 355 (2000), 1085-92. WHO is moving to work on more chronic diseases, *NS* (1 April 2000), 16-7. A letter on the meaning of socially defined diseases is *Lancet* 355 (2000), 1190.

A recent outbreak of **Listeria** in France has killed 7 persons, *BMJ* 320 (2000), 601. A book review of Farmer, P. *Infections and Inequalities: The Modern Plaques* (Univ. California Press 2000) is *BMJ* 320 (2000), 655. A review on retroviruses is *BioEssays* 22 (2000), 161-71. A review on Marburg and Ebola virus infections in laboratory non-human primates is *Comparative Medicine* 50 (2000), 108+.

Tests have revealed that German sausage does contain brain tissue, putting eaters at risk for **BSE** exposure, *NS* (4 March 2000), 7. France is setting up a BSE testing program, *Nature* 404 (2000), 327. All member states will need to set up programs, *Lancet* 355 (2000), 1252. Methods to detect scrapie before it mutates or causes CJD are reviewed in *Science* 287 (2000), 1906-8. In general on prion diseases, *NEJM* 342 (2000), 983; *NatMed*. 6 (2000), 258-9; *Pharmeuropa* 12 (2000), 48-52.

Some bacteria have been found to survive on hospital clothes for more than 3 months, *NS* (26 Feb. 2000), 5. Quick tests may help doctors decide which antibiotic to prescribe, *NS* (11 March 2000), 14. The environmental effects on mutations to ameliorate costs of antibiotic resistance are discussed in *Science* 287 (2000), 1479-82. A potential problem from GM farm animals and **antibiotic** resistances is discussed in *NS* (25 March 2000), 14. The use of genomics to search for new antibiotics is reviewed in *Science* 287 (2000), 1973-6. New drugs may be found from nature to kill drug-resistant bacteria, *NS* (8 April 2000), 15; and one drug levofloxacin has been licensed for use against penicillin resistant pneumonia, *JAMA* 283 (2000), 1679. Neonatal intensive care unit policies are discussed in *Lancet* 355 (2000), 946-7, 973-8. Antibiotic cycling is being tested, *Lancet* 355 (2000), 992.

AIDS & Sexually Transmitted Diseases

The WHO blood safety initiative is questioned in *Lancet* 355 (2000), 1245. A UK study of 20000 units of blood found very low risk of infection, *BMJ* 320 (2000), 403-6. Three **Japanese** officials have been found guilty of negligence in Osaka district court for their role in HIV infections, *Lancet* 355 (2000), 816; *Nature* 404 (2000), 10; *BMJ* 320 (2000), 601. From 1996 to 1998 in Japan there were 15000 needlestick injuries reported among medical professionals, with 28 cases of hepatitis C confirmed, *Mainichi Newspaper* (19 April 2000), 3. A book

review on the survival of the hemophilia community is *NEJM* 342 (2000), 666-7.

On the US effort to eliminate syphilis, *JAMA* 283 (2000), 1555-6. In Morocco STDs are thought to be a women's problem, *SSM* 50 (2000), 1369-83. A Spanish doctor is thought to have caused 171 hepatitis C infections, *Lancet* 355 (2000), 818. Electric razors are a potential vector for viral hepatitis, *NEJM* 342 (2000), 744-5. On STD research, *Lancet* 355 (2000), 1275-6; and school screening, *Lancet* 355 (2000), 864.

Research ethics in Uganda have been questioned during a HIV transmission study, *Science* 288 (2000), 22-3. UNAIDS has released guidance points for HIV vaccine trials, *NatMed*. 6 (2000), 363. Deaths in a clinical trial of coviracil in **South African** HIV positive pregnant mothers have led to the trial being halted, *Nature* 404 (2000), 216, 695; *Lancet* 355 (2000), 558, 1167. The problems for HIV vaccines are discussed in *NS* (11 March 2000), 16-7. The mechanism of HIV and AIDS is discussed in *Science* 287 (2000), 1567, 2274-7; *NatMed*. 6 (2000), 235-6, 261-2, 365, 372, 475+; *BMJ* 320 (2000), 735; *NEJM* 342 (2000), 515-7, 970-2; *JAMA* 283 (2000), 1125, 1138-9, 1329-34; *Lancet* 355 (2000), 722-3, 1131-7, 1284. A study on hospital access is Weber, AE et al. "Determinants of hospital admission among HIV-positive people in British Columbia", *CMAJ* 162 (2000), 783-6.

Risks of contracting AIDS are discussed in *SSM* 50 (2000), 1273-84; *JAMA* 283 (2000), 1175-82. The viral load is the chief predictor of transmission, *NEJM* 342 (2000), 921-9; *Lancet* 355 (2000), 1246. Letters on the **stigma** associated with HIV are *Lancet* 355 (2000), 659. Infected mothers have increased risk of HIV transmission when **breast feeding**, *JAMA* 283 (2000), 999-1000, 1167-74. A study in San Francisco gay men has suggested that in 7% of cases HIV may have been transmitted by **oral** sex, *BMJ* 320 (2000), 400; *JAMA* 283 (2000), 1279. The UN International Narcotics Control Board has condemned a Sydney plan to have a safe-heroin injecting room, *BMJ* 320 (2000), 667. In New York there has been a fall in HIV among injection drug users in the 1990s, *AJPH* 90 (2000), 352-9. A study on the notification of infectious diseases by Australian physicians is *MJA* 172 (2000), 325-8. There is a similar rate of HIV in indigenous Australians, but they have higher risk, *MJA* 172 (2000), 266-9. On male circumcision and risk of HIV, *Lancet* 355 (2000), 926-7. A book review on AIDS activism is in *SSM* 50 (2000), 1513.

Microbes & Pollution Remedies

The use of fluorescence to monitor bacteria in bioremediation is reported in Ripp, S. et al. "Controlled field release of a bioluminescent **genetically engineered** microorganism for bioremediation process monitoring and control", *EST* 34 (2000), 846-53, 162A; *NS* (11 March 2000), 20. A review of environmental biotechnology is *TIBTECH* 18 (2000), 19-21. Genomics is being used to monitor the environment, *EST* 34 (2000), 164-5A.

A new hydrogel has been developed that may be useful for oil slicks, *NS* (18 March 2000), 7. On the use of sludge treatment for soil conditioners, *Bioresource Technology* 73 (2000), 213-9. A combined method using sulfur-oxidizing bacteria and electrokinetics can be used to remove copper from contaminated soil, *EST* 34 (2000), 1081-7.

Environmental Issues

A book review of Redman, CL. *Human Impact on Ancient Environments* (Univ. Arizona Press 1999, 255pp., ISBN 0-8165-1963-3) is *Science* 287 (2000), 2427-8. A call for seeking peoples values is Fischhoff, B. "Informed **consent** for eliciting environmental values", *EST* 34 (2000), 1439-44. A discussion of pragmatists and environmentalists is *Harvard Law Review* 113 (20000), 1421-47.

A view on the **greenhouse** effect is Sciboch, MA. & Ragavan, VRV. "Greenhouse effect: Chemists approach to this global issue", *Convergence* 1 (1999), 49-54. The melting of Greenland's ice is discussed in *Nature* 404 (2000), 551-2. In the UK a trial of feeding cows and sheep bacteria to convert methane to carbon dioxide to reduce emissions is discussed in *NS* (15 April 2000), 6. The need to reduce carbon emissions and carbon trading is discussed in *EST* 34 (2000), 114-5A, 176-82A, 184-7A. The drilling of holes to test past carbon levels is discussed in *Nature* 403 (2000), 714-5. Old ocen temperature data has shown that the oceans are in fact warming and thus delaying the warming in the atmosphere, *Science* 287 (2000), 2126-7.

Plankton may not be affected by the **ozone** hole in Antarctica yet, *NS* (19 Feb. 2000), 17. A study of the impact of El Nino on malaria in Tanzania found that despite 2.4 times higher rainfall, there was less malaria, *Lancet* 355 (2000), 989-90. However subarctic lakes do have altered UV exposure, *Nature* 404 (2000), 484-8. The Arctic ozone hole is growing, *NS* (25 March 2000), 24-8; and global warming may make it worse, *Nature* 404 (2000), 531. Nonpoint pollution is likely to become more common in the future as a source of environmental pollution, *EST* 34 (2000), 160A. Pollution suppresses rain, *Science* 287 (2000), 1763-4.

Environmental **business** is discussed in *Time* (April-May 2000), 82-3. The green bio strategy for environmental business is promoted in Japan, *PharmaJapan* 1688 (13 March 2000), 19. Sustainable consumption is discussed in *Science* 287 (2000), 2419. There is a need to make international trade agreements consistent with environmental and health protection, *EST* 34 (2000), 107-9A; *BMJ* 320 (2000), 580, 802-3. It has been found that Brazilian Indians may not be as green as they appear, *Newsweek* (27 March 2000), 23-8. Environmental problems in China are discussed in *Ambio* 28 (1999), 635-86. On the motivation to save the planet and Earth Day, *Science* 288 (2000), 1188-93. A discussion of a new NASA satellite for monitoring the Earth is *SA* (April 2000), 92-7.

A discussion of environmental **estrogens** is *Ms*. (April 2000), 48-51; *EST* 34 (2000),136-41A; *NatMed*. 6 (2000), 246-7; *NatBio* 18 (2000), 1162-3. Evaluation of the environmental and health impacts of **pesticide** use in the design of **ecolabels** is discussed in *EST* 34 (2000), 1456-61. Some organic farming waste can lead to harmful endotoxins on dust, *NS* (March 2000), 14. The making fresh air, *EST* 34 (2000), 541-5. Chemical hazards could be present in the backyard, *Environment* 42 (2000), 3. Outdoor garbage burning creates many dioxins, *EST* 34 (2000), 106-7A. On the use of water, *Environment* 42 (Jan 2000), 30-8. Urban benzene is a risk factor at home as well as from exhaust fuel, *Nature* 404 (2000), 141. A review of diesel emissions is *EST* 34 (2000), 729-40, 933-9. Efforts to remove sulfur from diesel fuel continue, *EST* 34 (2000), 161A. Transport issues in Australia are discussed in *MJA* 172 (2000), 230-2.

The health risks due to drinking radon in drinking water are reviewed in *EST* 34 (2000), 921-6. People who live in houses contaminated with cobalt-60 (in Taiwan) have increased chromosomal translocations, *Lancet* 355 (2000), 726. There has been a further negative report on Sellafield **nuclear** reprocessing plant in the UK, *NS* (26 Feb. 2000), 3, 18-9; *Lancet* 355 (2000), 1250. A book review on the dangers of

nuclear factory fires is in *NS* (11 March 2000), 54. A book review on the development of India's nuclear bomb, *Nature* 403 (2000), 701-2. A book review from the US nuclear program is JAMA 283 (2000), 1621-2. There is concern about increased radiation doses in computed tomography, *BMJ* 320 (2000), 593-4. Instead of building new cell phone antennas it has been proposed to put them on top of existing electric pylons.

Biodiversity

New **Canadian** laws to protect **endangered** species include one million dollar fines for killing endangered plants or animals, *Vancouver Globe & Mail* (11 April 2000), A1, A7. An Australian has been jailed for removal of fossilized footprints, *Nature* 404 (2000), 4. In general on species extinction, *Nature* 403 (2000), 843-4; 404 (2000), 541. Papers on economic evaluation of biodiversity are in *EST* 34 (2000), 1381-1461; Splash, CL. "Multiple value expression in contingent valuation: Economics and **ethics**", *EST* 34 (2000), 1433-8. The question of siting of paper mills in pristine environments is discussed in *EST* 34 (2000), 546-51. A historical analysis of **drug** discovery is in *Science* 287 (2000), 1960-4. Hazel trees can also provide taxol, *Science* 288 (2000), 27-8. An interview with Ed Wilson is *EST* 34 (2000), 122-6A.

The question of what to conserve with limited resources is discussed in *NS* (26 Feb. 2000), 12. The priority is **hotspots**, Myers, N. et al. "Biodiversity hotspots for conservation priorities", *Nature* 403 (2000), 853-8. Scenarios for changes in biodiversity in the year 2100 are predicted in *Science* 287 (2000), 1770-4. It is said that private institutions cannot protect biodiversity alone, *Nature* 404 (2000), 120. Producer-decomposer codependency affects biodiversity, *Nature* 403 (2000), 762-4. Reliance on citation index undermines the study of biodiversity, *Nature* 403 (2000), 698. The fossil record reveals delayed recovery times of about 10 million years from extinction, *Nature* 404 (2000), 129-30, 177-80; see also p.122-3. It means that humans will not live to see the planet's fauna recover, *NS* (11 March 2000), 18. Plant species extinction is discussed in *EST* 34 (2000), 130-5A. A study finding that it took only 100 years to drive the 11 species of moa extinct in New Zealand is Holdaway, RN. & Jacomb, C. "Rapid extinction of the **Moas** (Aves: Dinornithiformes): Model, test, and implications", *Science* 287 (2000), 2250-53; 2170-1. Motorways are the last haven for some birds of prey, *NS* (4 March 2000), 19.

Ethics of fisheries are discussed in *AIBA Newslink* 3 (Feb. 2000), 1-2; also see this issue *EJAIB* 10 (May 2000). Climate variability is affecting North Sea Cod, *Nature* 404 (2000), 142. The use of robots will be used in **fish** conservation, *NS* (18 March 2000), 12. The question of the science of breaching dams to allow salmon to spawn is discussed in *EST* 34 (2000), 112A. In Portugal fishermen who take the large claw off male fiddler crabs and then return the crab, have led to altered sex balance, because the declawed males cannot attract females, *NS* (19 Feb. 2000), 5. The bleaching of coral is discussed in *Nature* 404 (2000), 142-3. Evidence for the decline of amphibian species is in *Nature* 404 (2000), 752-5. Sustainable use of hawksbill turtles is discussed in a book review in *Nature* 404 (2000), 704. On biological invasion, *Science* 287 (2000), 1762.

A policy discussion of extension of protected areas in Africa is *Science* 287 (2000), 1759-60. The debate over allowing some **ivory** trading continues, *NS* (8 April 2000), 20. Zimbabwe, South Africa, Botswana and Namibia have applied to the UN conference on endangered species to lift the ban. It has been found that there are actually two species of African elephant, *NS* (1 April 2000), 15. Human conflict in Congo threatens bonobos and gorillas, *Science* 287 (2000), 2386-7.

Animal Rights

Industry in the UK is asking for laws to stop animal rights economic terrorism, *Financial Times* (6 April 2000), 10. There have been complaints over the delays in animal license processing in the UK, *Nature* 404 (2000), 529. A comment on **ethics** is van Hoosier, GL. "Principles and paradigms used in human medical ethics can be used as models for the assessment of animal research", *Comparative Medicine* 50 (2000), 103-5.

A study has found **goats** were domesticated 10000 years ago, Zeder MA. & Hesse, B. "The initial domestication of goats (Capra hircus) in the Zagros mountains 10,000 years ago", *Science* 287 (2000), 2254-7. A review on the mind of a dog after domestication is *NS* (March 2000), 22-7. The question of number representation in animals is reviewed in *American Scientist* 88 (2000), 144-51.

Japan is continuing to attempt to down-list several **whale** species from their endangered status, *Nature* 404 (2000), 531-2. A study of diving mammals has revealed how they conserve energy, by intermittent locomotion, *Science* 288 (2000), 83-4.

Embryo splitting techniques allow production of cloned **rhesus** monkeys in larger numbers, *NatBio* 18 (2000), 135. There is a shortage of rhesus monkeys for AIDS experiments in the USA, *Science* 287 (2000), 1591. Protests have led to the closure of only primate breeding facility in the UK is reported in *Nature* 404 (2000), 215.Payment for labour in monkey communities is reported in *Nature* 404 (2000), 563. A new book is Goodall, J. *Africa in my Blood. An Autobiography in Letters* (Houghton Mifflin, 386pp.).

There are archaelogical signs from a Homo erectus site half a million years old in Japan that they built **huts**, *NS* (March 2000), 4.The study of ancient DNA from **Neanderthals** is giving clues that we lived together for many thousands of years, *Nature* 404 (2000), 127, 453-4, 490-3; *Science* 287 (2000), 2405; *SA* (April 2000), 98-107. The question of cognitive decline in aging is discussed in *Nature* 404 (2000), 125. On Art and the Brain, *Nature* 404 (2000), 123-4; and dreams, *NEJM* 342 (2000), 899-900. Intelligence is discussed in *Science* 287 (2000), 1395. Pain killers may need to be sex specific, *BMJ* 320 (2000), 536. Artificial life is discussed in *NS* (1 April 2000), 42-7.

Safety of Recombinant DNA Products

Analogues are reviewed in Vajo, Z. & Duckworth WC. "Genetically engineered **insulin** analogs: Diabetes in the new millennium", *Pharmacological Reviews* 52 (2000), 1-8. The question of giving insulin in the world's poor countries is reviewed in *Lancet* 355 (2000), 919-21. An implant has been developed that enzymatically coverts factor VII into factor VIIa, for blood clotting, *NatBio* 18 (2000), 264-5, 289-95; *NS* (11 March 2000), 7. The use of IGF-1 to treat acromegaly is reported in *NEJM* 342 (2000), 1210-11. Research to make a peptide to stop toxic shock syndrome is reported in *BMJ* 320 (2000), 958. **TNF** blockers have been used to treat rheumatoid arthritis, *NEJM* 342 (2000), 810-1; and Crohn's disease, *Lancet* 355 (2000), 858-9. A Cleveland study has found some patients with acute ischemic stroke treated with **TPA** developed intra-cerebral hemorrhages, *JAMA* 283 (2000), 1151-8; however another study found favourable outcomes, JAMA 283 (2000), 1145-50, 1189. On the global albumin industry, *BMJ* 320 (2000), 533. Interferon gamma 1b for the treatment of

idiopathic pulmonary fibrosis is discussed in *NEJM* 342 (2000), 974-5; and in Behcet's disease, *Lancet* 355 (2000), 605-9.

Detection methods have been developed so that **horses** treated with somatotrophin (growth hormone) will be found, *NS* (18 March 2000), 6. In Japan Sumitimo is trying to gain more market share for human growth hormome with a pen-type injecting product, *PharmaJapan* 1690 (27 March 2000), 8. The question of whether growth hormone can cause diabetes is discussed in *Lancet* 355 (2000), 589-90, 610-3.

Food safety

A Japanese translation of D. Macer's report from the Codex Ad Hoc Task Force on Novel Foods Produced from Biotechnology is in *Asahi Science* (May 2000), 106-7. There were minor protests at the meeting but a large police presence (see Japanese newspapers on 15 March 2000). The English version is in the on-line issue of *EJAIB*. Reports from the OECD meeting on GM food in March 2000 include *NS* (4 March 2000), 5; (15 April 2000), 3. A call for an impartial international panel to judge GM food safety is made in *Nature* 404 (2000), 109; *NS* (15 April 2000), 4.

The US National Research Council has released a report to say that GM foods are safe, *Nature* 404 (2000), 689, 693. On the Cartegena treaty (see also GMO regulation section) see *SA* (April 2000), 42-3. The precautionary principle leads to labeling including a "may contain" clause for genetically modified foods *CMAJ* 162 (2000), 874. The UK prime minister Blair has made a more cautious comment on GM food safety, *Nature* 404 (2000), 11. Also on GM food, *Nature* 404 (2000), 337; *MJA* 172 (2000), 148-9, 170-4; *Lancet* 355 (2000), 764, 931. Discussion of GM food labels in the USA continue, *NatBio* 18 (2000), 375.

The first GM **fish** for human consumption is being assessed by the FDA, produced by Aqua Bounty Farms Inc. (Nova Scotia, Canada). The question of bigger salmon is discussed in *Time* (March 2000). A case of mislabeling fish and fraud caught by the FDA is reported in *FDA Consumer* (March 20000), 35. Russian lupins may be a proven may to supplement animal feed instead of GM soybean, *NS* (11 March 2000), 11. The consequences of the increased preference for animal protein are discussed in *NS* (18 March 2000), 32-6.

Food safety is a growing health concern, *JAMA* 283 (2000), 1817. The safety of coffee is discussed in *Amer. J. Clin. Nutrition* 71 (2000), 403-4.

A paper asking why we treat obesity is Reidenberg, MM. "Are we treating health or physical appearance when we prescribe drugs for obesity?", *Clin. Pharmacology & Therapeutics* 67 (2000), 193-5. Papers on **fatty** acid consumption and health are in *Amer. J. Clin. Nutrition* 71 (2000), Supplement 169-400S. Plant sterol and stanol margarines are useful in prevention of heart disease, *BMJ* 320 (2000), 861-4. A review on the genetics of body weight regulation is *Nature* 404 (2000), 644-51. How the central nervous system alters food intake is reviewed in *Nature* 404 (2000), 661-71. Food habits are discussed in *Amer. J. Clin. Nutrition* 71 (2000), 3-5. Also on **obesity**, *Nature* 404 (2000), 631-4; *AJPH* 90 (2000), 340-3. Although leptin has not proven to be a wonder cure for obesity it is still the subject of much research, *Nature* 404 (2000), 538-40; *Science* 287 (2000), 1738-40. On diet, *NS* (18 March 2000), 26-31. A discussion of physician-patient discussion of diet is *Amer. J. Clin. Nutrition* 71 (2000), 6-12. Holiday weight gain may lead to long term gain, *NEJM* 342 (2000), 861-7. Prediction of the future of anorexia nervosa is discussed in *Lancet* 355 (2000), 721. Weight reduction in obese people with asthma increases lung function, *BMJ* 320 (2000), 827-32.

Cancer prevention through diet, including olive oil, is discussed in *Lancet* 355 (2000), 729. Antioxidants are discussed in *Lancet* 355 (2000), 849, 1179-80. Dietary supplements are discussed in *Amer. J. Clin. Nutrition* 71 (2000), 399-400, 657. A dietary supplement of wheat bran fibre or fruits was found not to protect against recurrent colorectal adenomas, *NEJM* 342 (2000), 11149-55, 156-62. However some other studies suggest general benefits, *Amer. J. Clin. Nutrition* 71 (2000), 401-2. Cholesterol lowering can prevent strokes, *BMJ* 320 (2000), 459-60.

Disease Risks & Drugs

A study of mental stress and risk of heart attack is *JAMA* 283 (2000), 1800-2. Statins that protect against **heart** attack also make some men impotent, *NS* (18 March 2000), 20. Folic acid may be useful, *Lancet* 355 (2000), 511, 517-22. Guidelines on preventing cardiovascular disease are discussed in *BMJ* 320 (2000), 659-61; 709-10. In general, *NEJM* 342 (2000), 746-7; *Lancet* 355 (2000), 668-9, 688-700, 1271-3. Gentle training is recommended for older hearts, *Lancet* 355 (2000), 629. On benefits of **exercise**, *NEJM* 342 (2000), 454-60, 502-5; *Lancet* 355 (2000), 515-6. Cycling may need a safer road environment, *BMJ* 320 (2000), 888. Heart disease is rising in central and eastern Europe, *BMJ* 320 (2000), 467.

A study has found estrogen does not help **Alzheimer's** disease, *JAMA* 283 (2000), 1007-15, 1055-6; *Lancet* 355 (2000), 727. An update on **taxanes** is *Lancet* 355 (2000), 1176-8. **Italy** is asking that drugs that have been on the market for 10 years be reassessed for their efficacy, *Lancet* 355 (2000), 732. Spain is altering their drug pricing policy and supermarkets have been trying to reduce prices of drugs, *Lancet* 355 (2000), 1081, 1166. Frequent paracetamol use has been linked to asthma in some people, *Lancet* 355 (2000), 1078. Letters on the Internet sale of **Viagra** are in *NEJM* 342 (2000), 740-1. Viagra also acts on the gut smooth muscle, *Lancet* 355 (2000), 631. A review of trials is Zivin, JA. "Understanding clinical trials", *SA* (April 2000), 69-75.

A survey of Australian oncologists' attitudes about non-traditional therapies used by cancer patients is *MJA* 172 (2000), 102-3, 110-3. [ed. One actually could say new medicine is not traditional!]. A controversial cancer therapy is discussed in *Science* 287 (2000), 2139-41.

Risk is discussed in *BMJ* 320 (2000), 723; *Oxford J. Legal Studies* 20 (2000), 109-30; *EST* 34 (2000), 1396-400. On public health in general and the US report *Healthy People 2010*, *JAMA* 283 (2000), 989-90; *BMJ* 320 (2000), 818-9. Letters on the HOPE study involving treatment of persons with diabetes with ramipril are discussed in *Lancet* 355 (2000), 1181-3. There are still questions over whether **CS gas** is dangerous, *BMJ* 320 (2000), 458-9.

A WHO study on the global extent of **depression** is reported in *Science* 288 (2000), 39-40; also *MJA* 172 (2000), 100-1. A discussion of methods to discover new drugs for mental disorders is *NatBio* 18 (2000), 307-9. On definitions of health and disease in Africa, *SSM* 50 (2000), 965-83, 1353-68. Work stress is surveyed in **Singapore** in *SSM* 50 (2000), 1415-22.

A book review of *Asthma in the Workplace* is *NEJM* 342 (2000), 1145. A book review on asbestos-related deaths is *NS* (15 April 2000), 38. The global burden of injuries is reported in *AJPH* 90 (2000), 523-6. On work-related deaths, *AJPH* 90 (2000), 533-45. Hazards of paint-spraying are reported in

Lancet 355 (2000), 896. A comment on the incidence of neural problems in former prisoners of war is *Lancet* 355 (2000), 843.

There was a significant increase in prescriptions of **psychotropic medicines to pre-school** children in the 1990s in the USA, *JAMA* 283 (2000), 1025-30, 1059-60; *BMJ* 320 (2000), 602. The US government is attempting to improve the situation for children who have attention deficit hyperactivity disorder, *Lancet* 355 (2000), 1161; *BMJ* 320 (2000), 893; *Newsweek* (6 March 2000), 53. A WHO study on the health of children in 28 countries has been reported, *BMJ* 320 (2000), 402. Promotion of the health of children who are looked after is discussed in *BMJ* 320 (2000), 661-2.

A review on the ethics is Barnes, RE. "Reefer madness: Legal and moral issues surrounding the medical prescription of **marijuana**", *Bioethics* 14 (2000), 16-41. Illegal drugs are discussed in *BMJ* 320 (2000), 656, 886-7; *Lancet* 355 (2000), 585; *JAMA* 283 (2000), 1303-10, 1887; *MJA* 172 (2000), 284-6; *AJPH* 90 (2000), 335-7. A possible link between underage drunk **driving** and later violent crime is discussed in *Lancet* 355 (2000), 933. A review of **alcohol** problems is Frank, JW. Et al. "Historical and cultural roots of drinking problems among American Indians", *AJPH* 90 (2000), 344-51. A brain steriod may be the reason why women and men have different consequences and recovery from drinking alcohol, *NS* (March 2000), 19. Antihistamines may impair driving as much as alcohol, *Lancet* 355 (2000), 905. On abuse of prescription drugs, *JAMA* 283 (2000), 1126-7. Abuse of androgens is discussed in *MJA* 172 (2000), 220-4. Helium has been linked to several strokes, so people should be careful of **helium** balloons and not inhale it, *BMJ* 320 (2000), 732.

A paper finding no danger is Janowsky, EC et al. "Meta-analysis of the relation between **silicone breast** implants and the risk of connective-tissue diseases", *NEJM* 342 (2000), 781-90. A report from the scientific panel that considered the risks is *NEJM* 342 (2000), 812-5. On the **ethics** of clinical research in plastic surgery, *BME* 155 (2000), 2. Constructions of masculinity are discussed in *SSM* 50 (2000), 1385-401. The use of testosterone supplements is debated in *Time* (24 April 2000), 40-6.

Smoking and weight gain is discussed in *FoodToday* 19 (March 2000), 1-2. Cigarettes are also not good for physical appearance, *NS* (15 April 2000), 18. The Australian government has been criticized for giving tax concessions to the tobacco industry, *BMJ* 320 (2000), 667. A California jury has awarded a dying smoker US$22 million in damages, *BMJ* 320 (2000), 957. The US Supreme Court in a 4:3 decision said that the government FDA cannot regulate the tobacco industry, *BMJ* 320 (2000), 894. Tobacco is being debated in Canadian courts, *CMAJ* 162 (2000), 1265; see also *BMJ* 320 (2000), 535. Australia and New Zealand are considering class action suits, *Lancet* 355 (2000), 1251. Also on the **war** against tobacco, *NS* (4 March 2000), 40-3; *BMJ* 320 (2000), 391-2, 397, 399, 417-8, 454; *AJPH* 90 (2000), 337-9; *Lancet* 355 (2000), 636, 1168, 1188-9; *JAMA* 283 (2000), 1686-7, 1958-60. Smoking has been linked to invasive **pneumococcal disease**, JAMA 283 (2000), 1426-7, 1469-75; *NEJM* 342 (2000), 732-4; *Lancet* 355 (2000), 993. Tobacco smuggling is discussed in *BMJ* 320 (2000), 531. A study of how the tobacco industry tried to seed the medical literature with positive articles is *Lancet* 355 (2000), 1197, 1253-9. Increased CYP2D6 activity may be a predictor of smoking addiction, *Pharmacogenetics* 10 (2000), 5-10.

Violence and health is discussed in *AJPH* 90 (2000), 553-9; *Lancet* 355 (2000), 1116-7; *JAMA* 283 (2000), 1137-8, 1198-1203. Bullying in school is discussed in *BMJ* 320 (2000), 612-3. Those students who use illegal drugs in Scotland are also more likely to carry weapons, *BMJ* 320 (2000), 982-4. A ban on carrying firearms in two Colombian cities led to reduced homicide rate, *JAMA* 283 (2000), 1205-9, 1193-5. A study of deaths in Victoria, Australia from Australian football found 25 between 1968-1999, *MJA* 172 (2000), 217-9. A criticism of civilian bombing in Serbia during the Kosovo war is *Lancet* 355 (2000), 587; and on the Iraqi trade sanctions, *AJPH* 90 (2000), 546-52.

Patenting & Business

A joint US/UK statement called for industry to make public "raw, fundamental data on the human genome. Including the human DNA sequence", *NatBio* 18 (2000), 365; *Nature* 404 (2000), 325, 424; *Science* 287 (2000), 1903, 2127. **HUGO** made a Statement on Patenting of DNA sequences - in particular response to the European Biotechnology Directive, in April 2000. HUGO has asked the US Patent Office to **rescind** any patent that does not specific the function of a DNA sequences and its potential uses, which is estimated to cover about 20,000 patent applications.

Critics are challenging Celera's claims that it finished the raw DNA sequencing on the human genome sequence, *Nature* 404 (2000), 691-2. Also on the access to genome projects (see the HGP section), *Nature* 403 (2000), 825; 404 (2000), 324-5; *Science* 287 (2000), 2396-8; *Time* (17 April 2000), 50. A review is Crespi, RS. "An analysis of moral issues affecting patenting inventions in the Life Sciences: A European perspective", *Science and Engineering Ethics* 6 (2000), 157-80. A discussion from an Indian perspective is Nair, AS. "Intellectual property rights (IPR): Indian scenario", *Everyman's Science* XXXIV (July-Sept. 1999), 58-61. The use of community **gene banks** to enforce farmer's rights is reported in *Biotechnology & Development Monitor* 41 (2000), 19-22. The Mexico-based Maize and Wheat Improvement Centre has accepted a need for patents, *Nature* 404 (2000), 534. **Monsanto** has announced the **complete rice genome sequence** and made it public, *Nature* 404 (2000), 534.

The European Patent Office has admitted a **mistake** in issuing a patent for **cloning** that could be interpreted to include human cells, *NatBio* 18 (2000), 366; *Science* 287 (2000), 1567-9; *Nature* 404 (2000), 3; *BMJ* 320 (2000), 602. A discussion of the business of stem cells is *Science* 288 (2000), 1419-20; *NatMed*. 6 (2000), 237. A description of the new written description guidelines in the USA is *NatBio* 18 (2000), 461-2. Reform of the patent system is debated in *Science* 287 (2000), 1196-7, 1933-4.

The dispute between Roche and Promega over PCR continues, *Nature* 404 (2000), 7. Discussion of the Human Genome Sciences patent on CCR5 receptor for HIV is *Nature* 404 (2000), 322; *Science* 287 (2000), 1375-7. There are confusions in the reversal of the European Patent Office decision in the Plant Genetic Systems case, *Nature* 404 (2000), 13. A US court is testing the breadth of patent protection on proteins, like erythropoietin, *Nature* 404 (2000), 532. Another patent dispute is over transgenic mice patents, *Nature* 404 (2000), 319. Ed Southern won a court case against the US company Affymetrix on DNA microarrays, Nature 404 (2000), 697. Another dispute, on the Kauffman patent is discussed in NatBio 18 (2000), 373. Your research may even be patented without you knowing it, *Science* 287 (2000), 2399-401.

Despite controversies over patent disputes the US biotech industry is still growing, *GEN* 20 (1 March 2000), 29, 57.

Biotech in Sichuan Province in China is reviewed in *GEN* 20 (15 March 2000), 17, 46, 77, 81; and in Israel, *GEN* 20 (1 March 2000), 14, 49. The Japanese Science and Technology budget increased 150% for fiscal year 2000. The need for more research and development in pharmaceutical industry is discussed in *Science* 287 (2000), 1952-3. A three way merger is discussed in *NatBio* 18 (2000), 376-7. On the issues of business ethics in medicine, *Lancet* 355 (2000), 857.

A survey of 20 members of **Japan** Pharmaceutical Manufacturers Association found 16 had set up an Ethics Committee by March 2000, *PharmaJapan* 1691 (3 April 2000), 18. The Fair Trade Council of the Ethical Drugs manufacturing Industry in Japan has said that companies should not offer money or goods to any officials, *PharmaJapan* 1694 (24 April 2000), 8-9.The questions of human rights abuses in international companies is discussed in *Financial Times* (6 April 2000), 3. A discussion of capitalism in science is *Nature* 404 (2000), 124. A supplement to *Nature Biotechnology* 17 (1999) is on Bioentrepreneurship, 42pp. The US is imposing tighter technology transfer rules, *Science* 287 (2000), 2138-9.

Birth Control

The reproductive rights of women with disabilities is discussed in *Reproductive Freedom News* IX (Feb. 2000), 1, 3. A review of US state laws on contraceptive equity is *Reproductive Freedom News* IX (Feb. 2000), 8-9. In the first 6 months of legalized open access to the low dose contraceptive pill in Japan there may have been 20-30,000 new users and 60-70,000 who switched from medium dose pills, *PharmaJapan* 1694 (24 April 2000), 7. Exposure to oral contraceptives may be associated with a higher lumbar spine bone mineral density, *Am.J.O&G* 182 (2000), 265-9. In the Netherlands, third generation contraceptives are half of prescriptions, despite warnings since 1995 that they may have some risk of venous thrombosis, *Lancet* 355 (2000), 635. Racial differences in **Norplant** use in the USA are discussed in *SSM* 50 (2000), 1297-308. A book review of Houppert, K. *The Curse: Confronting the Last Unmentioned Taboo: Menstruation* (NY: Farrar, Straus & Giroux, 1999, US$24) is *JAMA* 283 (2000), 1623-3; see also, *Lancet* 355 (2000), 763, 922-4.

Safe male hormonal contraception is available, *MJA* 172 (2000), 254-5. Letters on the sexual health of boys and men are in *BMJ* 320 (2000), 643. The question of a male menopause is in *BMJ* 320 (2000), 858-61. A UK women who sued a condom manufacturer for a pregnancy that resulted from a split condom had her case turned down, *Lancet* 355 (2000), 560. A UK study finds general practices with younger doctors or more females end up with lower regional teenage pregnancy rates, *BMJ* 320 (2000), 842-5.

The number of new births in **Japan** in 1999 was 1,175,000, a record low making the net population increase 190,000 persons for the year. The **Spanish** population is expected to decrease by 9.4 million persons over the next 50 years according to a UN prediction, *BMJ* 320 (2000), 891. **India** aims to stabilize its population by the year 2045, and to reach one billion by 11 May, 2000, *Lancet* 355 (2000), 734. A study of Indian tribes finds a stronger anti-female bias present, *SSM* 50 (2000), 1333-51. On population growth, *BMJ* 320 (2000), 443.

The need for a scientific method for taking a census is reinforced in *Science* 288 (2000), 53. A discussion of the freedom of the new generation of young women in Japan is *Newsweek* (3 April 2000), 40-45. A book review of *The Natural History of Rape*, is *Nature* 404 (2000), 121-2.

In New Zealand carrots baited with contraceptives are being used to stop **possums** breeding, *NS* (4 March 2000), 18.

Embryo Status

A philosophical study of personhood is Eberl, JT. "The beginning of personhood: A Thomistic biological analysis", *Bioethics* 14 (2000), 134-57.

The 1997 abortion statistics in **Canada** suggest one abortion for every three live birth, *Vancouver Globe & Mail* (8 April 2000), A8. The abortion issue is being discussed in the US presidential campaign, *Lancet* 355 (2000), 1165. Adoption and abortion is discussed in letters in *JAMA* 283 (2000), 1565-7. A discussion of the export of **anti-choice** ideas from the USA is *Ms*. (April 2000), 28-31. A group called Youth Defence International is campaigning against abortion, *Lancet* 355 (2000), 1165. A book review of a 19th century doctor Horatio Robinson Dyer who crusaded against abortion, *BMJ* 320 (2000), 880. The **UK** has announced guidelines to give faster and more efficient service for women seeking abortions, *BMJ* 320 (2000), 733.

Allegations of illegal sales of **fetal tissue** in the US lead to review of research, *Lancet* 355 (2000), 998; *Nature* 403 (2000), 694; *Science* 287 (2000), 1904-5. A US study has found that most women seeking abortion in the first trimester could accurately predict the duration of pregnancy, *Lancet* 355 (2000), 877-81. Limitations on the detection of human chorionic gonatrophin are being found, *Lancet* 355 (2000), 712, 733.

Assisted Reproductive Technology (ART)

A series of papers on the ethical and scientific issues of **stem cell** research are in *Science* 287 (2000), 1397, 1417-46; *NatMed*. 6 (2000), 231. Patient voices are a powerful voice in promoting research. A book review on human cloning is *SSM* 50 (2000), 1167-8. Scientists are urged to be careful, Young, FE. "A time for restraint", *Science* 287 (2000), 1424. **European** views on the ethics are discussed in Lenoir, N. "Europe confronts the embryonic stem cell research challenge", *Science* 287 (2000), 1425-6. Stem cells may be useful against brain cancer, *NS* (15 April 2000), 5. Also see the section on **Organ** Transplants. A discussion of the protein that may determine if a cell will be a stem cell is *NS* (8 April 2000), 4; *Nature Genetics* 24 (2000), 372-6. A review of cells for tissue engineering is *TIBTECH* 18 (2000), 17-9; and for research, Thomson, JA. & Odorico, JS. “Human embryonic stem cell and embryonic germ cell lines”, *TIBTECH* 18 (2000), 53-7.

Japan introduced a bill to make a 5 year ban on human cloning, but to still allow stem cell research, *Nature* 404 (2000), 321; *NatMed*. 6 (2000), 239. However it did not have majority support in the Parliament so may not proceed, UK ethicists supported stem cell research, *Nature* 404 (2000), 697.

A review is Garrison, M. "The technological family: What's new and what's not", *Family Law Quarterly* 33 (1999), 691-704. A paper on the questions faced by children born from **ART** is Woodward, S. "Whose child am I anyway?", *Cambridge Alumini Magazine* 29 (Lent Term 2000), 26-9. The gathering of sperm from the dead is discussed in Strong, C. "Ethical and legal aspects of sperm retrieval after death or persistent vegetative state", *JLME* 27 (Winter 1999), 347-58; plus pp. 359-65. Ethics of **ovarian transplants** are discussed in *F&S* 73 (2000), 443-6. A survey of embryo donation in the USA found it more often contemplated than performed, *F&S* 73 (2000), 215-20. Discussion of use of ICSI by a person with HIV is in

HCR 30 (Jan. 2000), 23-5. Viagra can also help women conceive, *NS* (8 April 2000), 6.

Results of the survey of **Japanese** IVF clinics has found that 40% implanted 4 or more embryos, and some clinics routinely use fetal reduction to overcome the problem of multiple pregnancies, *Mainichi Newspaper* (3 May 2000), 3, 23. Letters on limiting multiple births are in *Lancet* 355 (2000), 1103-4. The **German** Chamber of Physicians has called for a relaxation on the rules that govern preimplantation diagnosis, *Nature* 404 (2000), 118. The **Swiss** population turned down a referendum that would have outlawed IVF by 75%, *Nature* 404 (2000), 221. In general on ethics and law of ART, *F&S* 73 (2000), 447-52.

A call for more research into the effects of IVF in the UK has been made, *BMJ* 320 (2000), 960. Letters on a Swedish IVF, *Lancet* 355 (2000), 844-7. Commercial **surrogacy** is being debated again in the UK, Brinsden, PR et al. "Treatment by in vitro fertilization with surrogacy: experience of one British centre", *BMJ* 320 (2000), 924-8, 928-9. The Italian Medical Association is challenging a court ruling that permitted a surrogate pregnancy to be overseen by a doctor, *Lancet* 355 (2000), 996. Sperm **donors** in the Netherlands will remain anonymous for a further two years, *Lancet* 355 (2000), 1249. Israel is investigating claims of illegal ova sales, *Lancet* 355 (2000), 633. The results of a Canadian and Japanese study of the role of **fathers** is *SSM* 50 (2000), 1257-72. A study on the increased mortality risk for lone mothers is *Lancet* 355 (2000), 1203, 1215-9.

An Australian **sued** a London IVF clinic alleging that they used his sperm without permission, *BMJ* 320 (2000), 464. The case has been settled. The dispute in Nottingham over IVF services has come to discussion of reimbursement of medical service fees, *Lancet* 355 (2000), 817. A US physician was fired over an embryo mixup, *Nature* 404 (2000), 326.

Poor oocyte quality is an indication for ICSI, *F&S* 73 (2000), 465-9. Use of frozen sperm allows better timing for ICSI, *F&S* 73 (2000), 453-8. On male infertility, *F&S* 73 (2000), 435-42.

Fetal Environment & Neonates

A review of fetal protection in Wisconsin child abuse law is *JLME* 27 (Winter 1999), 332-47. The question of fortifying baby food with DHA and AA fatty acids is discussed in *NS* (18 March 2000), 16-7. A survey in Christchurch New Zealand found 62% of women used **folic acid** at some stage of pregnancy but only 17% had taken preconceptually, *NZ Medical J.* 112 (1999), 463-5. Letters on neural tube defects are in *NEJM* 342 (2000), 1135-7. A **Bolivian** study on the influence of intergenerational education on women's health behaviour is *SSM* 50 (2000), 1189-96. The results of a 12 year maternal **PKU** study are in *Am. J.0&G.* 182 (2000), 326-33. A study of birthweight and mortality is in *BMJ* 320 (2000), 647-8, 839-41. On anti-depression medications, *JAMA* 283 (2000), 1139. Semen from workers exposed to hydrocarbons is damaged, *F&S* 73 (2000), 221-8. A study of the effect of economic sanctions on mortality of Iraqi children is *AJPH* 90 (2000), 546-52.

A book review of *The Tragedy of Childbed Fever*, is *NS* (March 2000), 52-3. Breast feeding was banned on 6 April, 2000 from the British **Parliament** on grounds eating was not allowed. Nestle has been accused of breaking the international code on promoting bottled milk, *BMJ* 320 (2000), 468. A **Turkish** study found women dissatisifed with C-section, *SSM* 50 (2000), 1227-33. An Irish case involving home births is discussed in *Lancet* 355 (2000), 1084. A book review on **circumcision** is *Lancet* 355 (2000), 1107. On pain in neonates, *Lancet* 355 (2000), 932-3.

The relationship between finger-length ratios and sexual **orientation** is discussed in *Nature* 404 (2000), 455; *NS* (1 April 2000), 5. Finger length is a measure of prenatal exposure to testosterone. Sickness and sex of the child is discussed in *Lancet* 355 (2000), 756. Neglect of premature babies may be a cause for delayed language difficulties, *NS* (1 April 2000), 18. Neonatal screening for hearing impairment is discussed in *Lancet* 355 (2000), 413-4. Recognition of television images is one measure of development in young children, *BMJ* 320 (2000), 836-8. The risks of suffocation and SIDS are discussed in *AJPH* 90 (2000), 527-31.

Carriers of the G protein beta3 subunit b25TT **genotype** are at higher risk for obesity and post-pregnancy weight retention if they do not exercise properly, *Lancet* 355 (2000), 1201, 1240-2. Humour is a result of childhood not genes, *NS* (15 April 2000), 13.

Genetic Disease Markers

A review on assessing the risks of breast cancer is *NEJM* 342 (2000), 564+. Phosphylation of BRCA1 regulates the DNA damage response, *Nature* 404 (2000), 201-4. On p53, *Science* 287 (2000), 1765-6; *Nature* 404 (2000), 24-5, 42-9; *Nature Cell Biology* 2 (2000), E48-50. Interleukin-1 polymorphisms are associated with risk of gastric **cancer**, *Nature* 404 (2000), 398-402. A review of detecting low penetrance genes in cancer is *JMG* 37 (2000), 161-7.Breast cancer guidelines in Australia are discussed in *MJA* 172 (2000), 196-7. Use of **stem cells** for breast cancer therapy is discussed in *NEJM* 342 (2000), 1069-76; *Lancet* 355 (2000), 942-5, 999+, 1101+. In general on genetics and cancer, *Lancet* 355 (2000), 669-70, 716-9, 925; *Pharmacogenetics* 10 (2000), 25-33; *BMJ* 320 (2000), 424-7, 474-9; *Int. J. Cancer* 89 (20 March 2000), 105-202. Cancer research decisions in the UK are being examined by a Parliamentary committee, *NatMed*. 6 (2000), 360-1. On needs of patient information, *BMJ* 320 (2000), 909-13.

Presenilin mutants subvert chaperone function, *Nature Cell Biology* 2 (2000), E21-23. A study of apolipoprotein E and cognitive performance is *Nature* 404 (2000), 352-3. A review of **Alzheimer's** is *Newsweek* (20 March 2000), 46-51. Classification of dementias is discussed in *Lancet* 355 (2000), 626. Research on Alzheimer's is related to aging also, *Nature* 404 (2000), 120-1. On genetics and **aging**, *Science* 287 (2000), 2390, 2486-92; *NS* (1 April 2000), 4; *JMG* 37 (2000), 83-7; *Nature Cell Biology* 2 (2000), E23-4. Men are twice as likely to develop schizophrenia, *Science* 287 (2000), 2145; *Lancet* 355 (2000), 614-7. P300 is a state and trait marker in schizophrenia, *Lancet* 355 (2000), 771-2. A review of genetic studies in schizophrenia is *NatMed*. 6 (2000), 253-5.

25-hydroxycholecalciferol deficiency may lead to higher **tuberculosis** rate in Gujaratis, *Lancet* 355 (2000), 588, 618-21. The role of NAT2 deficiency in susceptibility to lung cancer in asbestos-exposed persons is discussed in *Pharmacogenomics* 10 (2000), 183-5. NPHS2 is mutated in autosomal recessive steriod-resistant nephrotic syndrome, *Nature Genetics* 24 (2000), 349-54. Risk factors for **diabetes** are discussed in *NEJM* 342 (2000), 905-12, 968-70.A review of inherited anaemias is *Lancet* 355 (2000), 1169-75. Thalassemia in Sri Lanka is reviewed in *Lancet* 355 (2000), 786-91. A review on genetics of hearing loss is *NEJM* 342 (2000), 1101+. On cytochrome P450 enzymes in the heart, *Lancet* 355 (2000), 945-6. Training of genetics in medicine is discussed in *J. Molecular*

Diagnostics 1 (1999), 3-4. An obituary of James V. Neel is *AJHG* 66 (2000), 755-60.

Association studies of genetic polymorphisms and **complex** disease are discussed in *Lancet* 355 (2000), 1277-8; *TIBTECH* 18 (2000), 22-6. A book review of Segal, NL. *Entwined Lives: Twins and what they tell us about human behavior* (Dutton Books, 1999, 416pp.) is *NEJM* 342 (2000), 902. A series of papers on sex determination and differentiation in humans is *AJMG* 89 (1999), 175-248. The dangers of genes that turn expression on or off are in *NS* (March 2000), 28-31. Genetic repair is reviewed in *Nature Genetics* 24 (2000), 325-6; *BioEssays* 22 (2000), 396-401. Robustness against mutations in genetic networks of yeast is reviewed in *Nature Genetics* 24 (2000), 355-61. DNA defects often target the centromere, *Nature Cell Biology* 2 (2000), E28-9.

Genetic Screening Methodology

A new integrated test with blood serum screening and ultrasound is being used to predict **Down syndrome** risk in the UK, *BMJ* 320 (2000), 592-3, 606-10, 733. A false negative Down syndrome test seems to have little impact on parental adjustment 2-6 years after the birth, Hall, S. et al. "Psychological consequences for parents of false negative results on prenatal screening for Down's syndrome: retrospective interview study", *BMJ* 320 (2000), 407-12. The value of routine antenatal screening in Australia is discussed in *MJA* 172 (2000), 311-2.

Detection of mitochondrial DNA mutations is described, *Science* 287 (2000), 2017-9. Biochips are reviewed in *Nature* 403 (2000), 811-2. The question of whether a universal, public DNA **microarray** database is realistic is discussed in *Nature* 403 (2000), 699-700. Also on DNA arrays, *NS* (11 March 2000), 3; *NatBio* 17 (1999), 384-5. Use of GFP display to analyze mutations is reported in *J. Biochem.* 127 (2000), 627-33. SNP analysis by MALDI-TOF mass spectrometry is reviewed in *TIBTECH* 18 (2000), 77-84.

Papers discussing genetic testing for hereditary non-polyposis colorectal **cancer** include *MJA* 172 (2000), 308-9, 313-6; *JAMA* 283 (2000), 1129-30. The impact of mammographic screening on invasive breast cancer is reported in *MJA* 172 (2000), 203-6. Lung cancer screening may be possible, *Lancet* 355 (2000), 592; *JAMA* 283 (2000), 1948-9; and 200,000 women in the UK are being recruited into an ovarian screening trial, *Lancet* 355 (2000), 1028-9, 1082. A 30 minute cancer test may allow the results while the patient is still in the operating theater, *Lancet* 355 (2000), 1079.

DNA Fingerprinting & Privacy

A review is Primorac, D. et al. "Application of **forensic** DNA testing in the legal system", *Croatian Medical Journal* 41 (2000), 32-46. A recent book is Long, Clarisa, *Genetic Testing and the Use of Information*, The AEI Press 1999, 6 chapters, 144pp. A hate mail author has been identified by DNA analysis, *NatMed*. 6 (2000), 364.

President Clinton has outlawed genetic discrimination in federal **jobs**, *BMJ* 320 (2000), 468. The **Japanese** Ministry of Health and Welfare has released a set of guidelines covering the transplantation and medical use of human cells and tissues, *Nature* 403 (2000), 819-20; 404 (2000), 529. Informed consent is required. The restrictions of US guidelines on research requiring specific consent with stored human cells and tissues have led to protests by some scientists, *J. Molecular Diagnostics* 2 (2000), 1-4; *Nature* 404 (2000), 114-5, 30. The protection of gene samples from population genetics is discussed in *AJHG* 66 (2000), 745-7. The US NIH and FDA have set up a database for new clinical trials, *BMJ* 320 (2000), 668.

A paper exploring how autonomy may dominate future use of genetics is Moore, AD. "Owning genetic information and gene enhancement techniques: Why privacy and property rights may undermine social control of the human genome", *Bioethics* 14 (2000), 97-119. Bioinformatics and gene profiling is discussed in *Science* 287 (2000), 1221-2; *NS* (11 March 2000), 4. In general on privacy, *SA* (April 2000), 44-5; *JAMA* 283 (2000), 1564-5.

Ethics & Genetic Screening

The question of control on genetics is addressed in Warnock, M. "Genetic research: Can we control it?", *Science and Engineering Ethics* 6 (2000), 147-56. A recent book is Young, Frank. E. *Genetic Ethics; Do the ends justify the genes*?1999 3 parts, 20 chapters, 291pp. The regulation of genetics is debated in Gavaghan, C. "Deregulating the genetic supermarket: Preimplantation screening, future people, and the harm principle", *CQHE* 9 (2000), 242-60; Aktan-Colllan, K. et al. "Evaluation of a counselling protocol for predictive genetic testing for hereditary non-polyposis colorectal cancer", *JMG* 37 (2000), 108-13; Eccles, DM. Et al. "Guidelines for a genetic risk based approach to advising women with a family history of breast cancer", *JMG* 37 (2000), 203-9. A feminist analysis is Anderson, GW. Et al. "Nursing and genetics: a feminist critique moves us towards transdisciplinary teams", *Nursing Ethics* 7 (2000), 191-204. A review is Mahowald, MB et al. "Genetic counseling: Clinical and ethical challenges", *Ann. Rev. Genetics* 32 (1988), 547-59.

The **HUGO** Ethics Committee has released a statement on **Benefit Sharing** from genetic research recommending companies to give 1-3% of net profit to humanitarian purposes (see May 2000 issue of *EJAIB*). A review of the **Iceland** gene database is Jonatansson, H. "Iceland's health sector database: A significant head start in the search for the biological grail or an irreversible error?", *AJLM* 26 (2000), 31-68; *NS* (19 Feb. 2000), 3. Guidelines for human genome research are being developed in **Japan** for government workers and university staff, *PharmaJapan* 1690 (27 March 2000), 11. A draft was released from the Human Genome Research Subcommittee of the Council on Science and Technology, *PharmaJapan* 1694 (24 April 2000), 16. The UK genetics commission is asking the general public for its views on a number of questions, see *BMJ* 320 (2000), 823.

Eugenics is discussed in Iredale, R. "Eugenics and its relevance to contemporary health care", *Nursing Ethics* 7 (2000), 205-14; *BMJ* 320 (2000), 873. Human biology and social inequality is reviewed in *SSM* 50 (2000), 1169-70. A paper on research ethics is Reiss, MJ. "The ethics of genetic research on **intelligence**", *Bioethics* 14 (2000), 1-15. A discussion of genetics and aging is *NS* (25 March 2000), 21-3. On science under the **Nazis**, *Science* 287 (2000), 1929-30; *Nature* 403 (2000), 813; *JAMA* 283 (2000), 1486-7. Discussion of Jord Haider, a right wing politician, in Austria, is *Lancet* 355 (2000), 667. There is some talk of genocide in the sanctions upon Iraq, *BMJ* 320 (2000), 722. **Sterilization** is discussed in *BMJ* 320 (2000), 662-3; *Lancet* 355 (2000), 815.

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Organ Transplants & Brain Death

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16. A review of 44 African wild animals for their carbohydrate epitopes is *Xenotransplantation* 6 (1999), 79-89. Extracorporeal connection of pig kidneys to humans has been tried, *Xenotransplantation* 5 (1998), 176-83. A study comparing mechanical and bioprosthetic heart valves is *JAMA* 283 (2000), 1947-8. A Japanese company BioQuest hopes to commercialize an artificial pancreas by 2005, *PharmaJapan* 1690 (27 March 2000), 19.

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Internet Sites

A new resource that is on-line is www.humgen.montreal.ca, the **Genetics and Society Project**.

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Prepared by Darryl Macer

IAB Genetics & Bioethics Network: On-line

The complete address list is updated on the Internet. Send all changes to Darryl Macer. Changes since the last issue include:

Plus on-lie one plus Yuri
Young-Mo Koo Ph.D.,
Instructor in Medical Ethics, Department of Medical Humanities & Social Sciences, Division of Medical Ethics, College of Medicine, University of Ulsan, Seoul, 138-736, Korea
FAX : +82 2 2224 4220 Email : ethics65@netsgo.com

Dr. Roberto Mancini Rueda
Consultant
Regional Program on Bioethics PAHO/WHO
Av. Providencia 1017 - 7th Floor
Santiago, Chile
Fax. (562) 346 7219 Email: mancinir@chi.ops-oms.org

Dr. Jenny Spinner
Environment - Health News
86-88 Colston Street, Bristol BS1 5BB, UK
Fax: +44-117-9294342 Email: ehn@clara.net.

Prof. Dr. Fernando Lolas Stepke
Director
Regional Program on Bioethics PAHO/WHO
Av. Providencia 1017 - 7th Floor
Santiago, Chile
Fax. (562) 346 7219 Email: lolasf@chi.ops-oms.org

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World Conference on Bioethics, Gijon, Spain, 20-24 June, 2000. (www.bioetica.sibi.org) Email: congress@sibi.org.

International Course in Research Ethics, Thammasat University, Bangkok, Thailand, July 31 - Aug 4, 2000. Joint between Thammasat University, Bangkok, Thailand, and the University of Bergen, Norway. The course fee is US$1000 which covers all course materials, accommodation and meals in Bangkok. Email. nkesara@hotmail.com, reidar.lie@fil.uib.no

Fifth World Congress of Bioethics, Imperial College, London, UK. Bioethics in the new Millenium. Ethics, Law and Policy. Contact: Sara Hassen, In Any Event UK, 1 Riverside, St. Anes Road, Bristol BS4 4ED, England.

Sixth International Tsukuba Bioethics Roundtable (TRT6), 27-29 Oct. 2000, to be followed by *Bioethics, Health and Environment* series of conferences in Tokyo (30-31 Oct.) and Fukui (1-3 Nov.), preceded by satellite in Fukuoka. Submissions to Darryl Macer, editor, *EJAIB*. Check details on homepage (and larger announcement). Conference in cooperation with Eubios Ethics Institute, IALES, IUBS, ABA, MURS-Japan, and other organizations.

Ethics and Genetics, Advanced European Bioethics Course, 16-18 Nov. 2000, Nijmegen, The Netherlands. Contact: Norbert Steinkamp, Email: n.steinkamp@efg.kun.nl.

3rd National Conference on the Public Understanding of Science, Engineering and Technology (Science and Society 2000). South Africa,Eastern Cape province, Bisho, near East London, 22-24 November 2000. Contact: B. Hlwatika, P.0. Box

759, King William's Town 5600, South Africa. Email: puset_2000@yahoo.com.

Human Rights and Nursing, 8 June, 2001, Copenhagen, Denmark. A one-day, Round-Table Discussions conference, Pre-conference at ICN Congress. Contact: Verena Tschudin, *Nursing Ethics* Editorial Office, 26 Cathcart Road, London SW10 9NN, UK, Email: vtsuchudin@fastnet.co.uk.

15th European Conference on Philosophy of Medicine and Health Care, "Wisdon in Healthcare" 16-18 August, 2001, Lisbon, Portugal. Contact: h.tenhave@efg.kun.nl.

Final call for submission of material to be included on the Eubios Ethics Institute CD-ROM. Please send to the editorial office. Please also look forward to updated www site.

Send papers to *EJAIB* Editorial Office

Prof. Darryl Macer
Institute of Biological Sciences, University of Tsukuba
Tsukuba Science City 305-8572, JAPAN
Fax: Int+81-298-53-6614
Email: macer@sakura.cc.tsukuba.ac.jp
(or macer@biol.tsukuba.ac.jp)

***EJAIB* - Aims:**

1. *EJAIB* is the official journal of the **Asian Bioethics Association** (ABA) and the IUBS Bioethics Program.
2. To **review and update news and trends in bioethics** from around the world (about 1000 papers each issue). Bioethics is broadly defined as life ethics, including both medical and environmental ethics, and environmental, ethical, legal and social issues arising from biotechnology.
3. To pay particular attention to issues raised by genetic and reproductive technology, and other news for the International Association of Bioethics **Genetics Network**. To publish letters on such topics, promoting international debate.
4. To publish research papers, and relevant news, and letters, on topics within **Asian Bioethics**, promoting research in bioethics in the Asian region, and contributing to the interchange of ideas within and between Asia and global international bioethics. Asia is defined for the general purposes of this journal as the geographical area, including the Far East, China, South East Asia, Oceania, the Indian subcontinent, the Islamic world and Israel.
5. To promote **scientific responsibility**, in coordination with **MURS Japan** (Universal Movement for Scientific Responsibility); and the International Union of Biological Sciences (**IUBS**) **Bioethics Program.**

Bioethics, Health and Environment: The Public in Policy

27 October - 3 November, 2000.

A series of cross-cultural meetings through Japan. Come and see more of Japan, while meeting in a cross-cultural setting. For the year 2000 we planned this series of meetings. Plan to arrive on the 26th October, but you can join the individual meetings also. Expect to see autumn leaves in Japan.

Sessions included on:

Sixth International Tsukuba Bioethics Roundtable (TRT6)

27 Oct. Health and Environment are Global Concerns

1: Environmental Ethics and a Peaceful Sustainable Future

Visit to NASDA and National Geological Museum

2: Methodology for Cross-Cultural Global Bioethics

28 Oct. Appropriation and Recreation of Nature and Life

3. Ethical Dilemmas of Biotechnology and Genetics, Biomaterials and Cyborgs
4. Medical Genetics
5. Bioethics Education, and the Public

29 Oct. Health and Environment are Inseparable

6. Clinical dilemmas across cultures
7. A Healthy Global Environment and Public Health

Travel from Tsukuba (TRT6) to Tokyo on either evening of 29 October or morning of 30 October

Tokyo 30-31 October, 2000: *Bioethics, Health and the Environment: A Challenge for Human Rights*

1: Health and environment: What challenges for the Third Millennium?
2: Social behaviours & public awareness of environmental risks

31 October

3: On which values are policies to be founded?
4: Cross Cultural Medical Ethics
5: Health and environmental policies

Closing until Fukui Seminar, Travel on 1st November.

Seventh International Bioethics Seminar in Fukui (IBSF7)
Ethical Debates Towards the 21st Century
2 November, 2000

1. Bioethics, Health and the Environment
2. Pharmacogenomics
3. DNA Polymorphism (Technology)
4. DNA Polymorphism (Applied)

3 November, 2000

5. Panel Discussion on Medical Genetic Services, Policy and Ethics
6. Ethical Debates Towards the 21st century
7. Concluding Session and Discussion of Bioethics, Health and the Environment

End and or Travel for those who want to Kyoto on the 3rd or 4th November.

Coorganizers include: International Association of Law, Ethics & Science (IALES), Asian Bioethics Association, Philosophy of Science Society of Japan, Eubios Ethics Institute, IUBS Ethics Committee, MURS Japan.

Secretariat for all meetings (return the registration forms to):

Prof. Darryl Macer
Institute of Biological Sciences, University of Tsukuba
Tsukuba Science City 305 –8572, JAPAN
Fax: Int+81-298-53-6614
Email: macer@biol.tsukuba.ac.jp

Internet site provides updates on this information:
<http+//www.biol.tsukuba.ac.jp/~macer/bhe.html>

Registration Form
Please indicate below, I wish to…:

O **Register for all 3 meetings** (Y25000)*

O Register for TRT6 (Y12000)
O Register for Bioethics, Health and Environment: A Challenge for Human Rights (Y10000)
O Register for IBSF7 (Y10000)

O Apply for Registration Waiver (write to explain)

O Lodging deposit of one night is included* *(refunds until 1 st. Sept. of 75%)
O Lodging (food and room is Y12000)
O Lodging (food and room at Y8000) [may be without private bath],

Please reserve at the daily rates (single/ double / twin room from IN _____ Oct. to OUT Nov at: Y12,000 single or Y10,000 double/twin per person.
[If you do not need lodging all that period please advise]

O I only need a room, so I will only pay for the food (bentoh lunchs and evening receptions)

O I am interested in pre-conference symposium to Fukuoka on Bioethics around the 24-25 October).

O I should be able to come if my lodging was covered

First Name Last Name Initial

Mr./ Ms./ Dr./ Prof.:_____

Institution: _____

_____

Mailing Address: _____

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Fax number:_____
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by Darryl Macer, Oct. 1990, ISBN 0-908897-00-6 421pp.
Cost: US$20 UK£10 NZ$30 A$25 C$22 ¥2500 Others or credit card **NZ$30**

Equitable Patent Protection in the Developing World
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Cost: US$25 UK£12 NZ$30 A$30 C$27 ¥3000 **NZ$40**

Bioethics for the People by the People
by Darryl Macer, ... May 1994 ISBN 0-908897-05-7, 460pp.
Cost: US$30 UK£15 NZ$35 A$35 C$32 ¥3000 **NZ$50**

Bioethics in High Schools in Australia, Japan and New Zealand,
by D. Macer, Y. Asada, M. Tsuzuki, S. Akiyama, & N.Y. Macer March 1996, ISBN 0-908897-08-1, 200pp.(A4)
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