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Peter Singer's Ethics

by Stephen Buckle

In this issue

Stephen Buckle's review of the latest collection of essays by Peter Singer provides an invaluable guide to Singer's philosopher's thinking. Buckle achieves two things. He identifies the key ideas which motivate Singer's practical conclusions, and he clarifies why these key ideas need not be thought to be rationally decisive.

The Pontifical Academy for Life has recently published a serious and accessible account of the scientific and ethical issues raised by contemporary proposals to transplant animal tissue and organs into human beings. Here we reprint the second half of their document - the part which focuses on what the Academy calls the "ethical-anthropological" issues. The full document with references, can be found at:-

<http://www.academiavita.org>

The Plunkett Centre Annual Report for 2000 has recently been published. Subscribers can access the Report on the Plunkett Centre website at www.acu.edu.au/plunkett

*Considerate la vostra semenza:
Fatti non foste a viver come bruti,
Ma per seguir virtute e canoscenza.*

"Consider the seed from which you are sprung: you were not made to live like animals, but to pursue excellence and knowledge." With these words, Dante's Ulysses exhorts his ageing companions to overcome their timid concern for their safety, and to press on, through the Pillars of Hercules (the Straits of Gibraltar), into the unknown ocean that lies beyond¹. His exhortation is that they remember their humanity, and the high calling thereby implied. Their response is immediate: "I worked my friends to such a pitch of keenness with that little speech, for carrying on the journey, that afterwards I could hardly have held them back."

We see here a conception of human life: to be human is to possess distinctive capacities, and so to live well is actively to pursue the goals for which those capacities fit us. This means that, to be well-lived, human life requires reflection and intelligent self-direction. Human life thus has a distinctive character: a human being is able to call the world into question, and to make of life a quest for those goals to which it is distinctively attuned - excellence and knowledge.

This is an ancient ideal, and the example may give it something of a "Boy's Own" flavour; but it is neither out of date nor tied to the life of adventuring. This is plain if we

turn to a more modern example with a similar message, one of the better known remarks of the German philosopher Immanuel Kant. He said: "Two things fill the mind with ever increasing admiration and awe the more often and more steadily one reflects on them: the starry heavens above me and the moral law within me." Kant's point is that the former reveals my insignificance as a physical being, but the latter impresses upon me my worth as an intelligence, capable of directing my life through the construction of intelligent laws. The motto for a being like me must therefore be: "Sapere aude!" Dare to be wise!

In our sceptical age, the thought that excellence and knowledge are definable, let alone achievable, finds far fewer supporters. Nevertheless, the thought that life is a kind of challenge that requires the cultivation and exercise of our distinctively human capacities continues to exert a powerful influence. Nietzsche's aphorism "man is a rope, tied between beast and overman - a rope over an abyss" encapsulates this thought; and his further remark that "if we possess our *why* of life we can put up with almost any *how*" is in the same spirit. More prosaically, much the same thought is at the heart of Alasdair MacIntyre's claim that the meaning of human life is the quest to discover a meaning to life. Although confidence in what can be achieved has clearly waned, the thought that human existence is a distinctive mode of existence characterised by its possibilities, and so ill-lived without the active employment of reflective intelligence to shape that existence into a significant form, remains a powerful ideal.

It is this ideal that Peter Singer rejects. The thread running through his often controversial views is that there is nothing special about human life; that, at bottom, we are merely animals of a certain kind, capable, like other animals, of pleasures and pains, and so measurable by a standard that reflects our commonality with them. To fail to see ourselves in this light is to be guilty of a prejudice in favour of our own species - "speciesism". By giving up this prejudice, we will see two things: the need to liberate other animals from the sufferings to which we subject them in our factory farms and research institutes, and the need to make life and death

decisions about human lives according to the same criteria that apply to animals. We will, in short, see the need for a "new ethic" to replace our traditional values.

These themes are explored in an excellent new collection of Singer's writings². Chosen by the author himself - at the instigation of an American publisher, in response to the controversy surrounding Singer's appointment at Princeton - they provide an introduction to Singer's views on a wide range of subjects, from his early writings on animal liberation to the later work on the taking and saving of life, and the nature of the good life. As a pathway into the views, and supporting arguments, of a controversial and influential thinker, this collection would be difficult to better.

The important question, though, is what we should think of those views; and the place to start is with Singer's own account of his basic ethical perspective in "About Ethics" in the collection's opening section. Singer there sketches in the following argument. Ethical viewpoints are distinguished from non-ethical viewpoints by the fact that they are defended, not by appeal to one's self-interest, but by reference to a universal standard - universal, that is, in the sense of not privileging one's own interests, and so being potentially acceptable by all. So, if the natural attitude is self-interest, then the ethical attitude will be the treating of all such natural attitudes as of equal weight: it will be to replace natural self-interestedness with equal consideration for the interests of all.

If interests are then defined as whatever is desired, the ethical attitude becomes the acceptance that the same desires are of equal worth, no matter by whom they are possessed. Equal interests are equal, so equal desires are equal, no matter who has them: rich, poor, black, white, male, female, human - or not. All beings capable of desires and corresponding satisfactions are equal: all animals are equal. The ethical attitude rules out all distinctions based directly on race, or sex, or species. These distinctions are mere prejudice in favour of one's own kind.

This is to oversimplify somewhat. Singer recognizes that equal consideration of desires implies that the ethical domain embraces

(nearly) all animals, not humans alone – but it does not imply that (nearly) all animals will count for the same. It shows only that, *where the same interest is at stake*, they count for the same. So the argument is really that interests are equal – they count for the same, no matter who has them – not that all animals are equal.

Nevertheless, Singer is committed to an important further move that renders the difference between these two positions of little account. He approvingly quotes Bentham's famous remark "The question is not, Can they *reason*? nor Can they *talk*? but, Can they *suffer*?". His point, like Bentham's, is that animals cannot be left out of moral deliberations; but the (not wholly unintended) further consequence is that the capacity for suffering – for pleasures and pains – becomes the common measure for both animal and human lives. The distinctively human characteristics picked out above are not denied, but their value is reduced to the value they have according to the common measure – that is, according to the satisfactions they deliver. To insist on their distinctiveness is simply to fall into speciesist prejudice.

A further consequence is that human lives, just like animal lives, are of value only according to the satisfactions they deliver. Any sense of inherent worth, or of duties of respect based on the dignity of personhood, must be subordinated to "quality of life" measures – to predictable satisfactions. All animals are equal; but no two lives are of equal value.

This variability of value is a function of the standard employed, and that standard is applicable to human beings because of Singer's denial of ethical significance to human rationality, or intelligence. Why does he want to rule out such factors? Because he takes it that an appeal to the significance of reason is an appeal to a standard by which whites have judged themselves superior to blacks, men to women, and (of course) humans to other animals. It is, in short, a formula for unequal consideration, and so should be rejected.

Why does appeal to reason introduce grounds for unequal consideration? The answer, plainly, is that he is thinking of I.Q.

tests and other such measures. But notice that this is not the sense in which intelligence or reason matters in the conceptions of human life sketched in above. For those conceptions, human intelligence is what introduces into the world questions of meaning and dignity and the nature of the life well-lived. It is not to be equated with, or reduced to, our *calculative* abilities.

Singer accepts the equation (or reduction) because, like Bentham and his predecessors in the British philosophical tradition, he supposes that a properly naturalistic conception of human life can think of human reason in no other way. They suppose that to rid ourselves of the belief that our reason is, as Plato thought and Christianity adopted, the divine spark within us requires us to describe rationality as merely a calculative ability in the service of our desires: as, in Hume's memorable phrase, "the slave of the passions". If this is accepted, it follows both that rationality is unequal from one person to another, and that (because a "slave") it cannot be the measure of human or any other worth.

But must we think of our ability to call the world into question, to arrive at self-understanding, to formulate practical ideals, and so on, as either other-worldliness or mere calculation? No. There is no reason to think that we are confronted with a choice, as Singer so frequently implies, between religion-(or tradition-) based inequalities and his own prescriptions. Human existence, however much it is physiologically continuous with the animal world, retains a distinctiveness, and a special moral significance, that does not oppose some groups to others, but unites all in (as we say) a common humanity. One can perfectly well accept, with Singer, that equal interests are equal, no matter who has them; but, since the interests humans share with other animals are a distorting lens through which to view distinctively human interests, it does not follow therefrom that all animals are equal.

This conclusion is not bad news for animals. Singer's attack on the cruelties that are part and parcel of modern factory farming, and of much scientific research, remains timely. He goes astray, however, when he supposes these

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Xenotransplantation: Anthropological and Ethical Aspects

Pontifical Academy for Life

Besides the scientific and technical aspects of xenotransplantation ... anthropological and ethical considerations are also involved¹. The purpose of this second part is to explore these considerations, albeit by way of a brief overview.

Preliminary issues

In addition to the problems raised by every transplant, it seems to us that there are three issues specifically related to xenotransplantation: 1) the acceptability of man's intervening in the order of the creation; 2) the ethical feasibility of using animals to improve the chances for survival and well-being of human beings; 3) the possible objective and subjective impact that an organ or tissue of animal origin can have on the identity of the human recipient.

Human intervention in the created order

To begin with, we would like to deal briefly with a fundamental question that, generally, is posed by the different religious traditions, albeit with different accents: this concerns the possibility itself that man may licitly intervene in the realities that exist in the universe in general and, more particularly, in those things that concern animals.

In view of the more specifically theological nature of such a question, we deem it useful to offer a short summary of the Catholic position on this question, applying the language and the methods proper to theological anthropology.

By what right can humans, whom God created as female and male, and whose human dignity must be recognized at every

stage of life, intervene in the created order, perhaps even modifying some of its aspects? What criteria must be adopted and what limitations must be introduced?

From imagery of the account of creation "in six days", it is evident that God established a hierarchy of values among the various creatures. Moreover, this hierarchy also emerges from a rational consideration of the transcendent richness and dignity of the human person.

Man, created "*in the image and likeness of God*", is placed *at the centre and at the summit* of the created order, not only because everything that exists is intended for him, but also because woman and man have the task of co-operating with the Creator in leading creation to its final perfection. "*Be fruitful and multiply, and fill the earth and subdue it*" (Gen 1:28): this is the mandate that God gives to human beings, "dominion" over the created order, in his name. In this regard, Pope John Paul II writes in his encyclical "*Laborem Exercens*": "*Man is the image of God partly through the mandate received from his Creator to subdue, to dominate, the earth. In carrying out this mandate, man, every human being, reflects the very action of the Creator of the universe*".

This, therefore, is the deepest meaning of the action of man in relation to the created universe: certainly not that of arbitrarily "lording it over" the other creatures, reducing them to humiliating and destructive slavery in order to satisfy any whim that he may have, but to guide, through his responsible work, the life of the creation towards the authentic and integral good of man (the *whole* man and *every* man).

Certain documents of the Second Vatican Council had already affirmed this truth. In

"Lumen Gentium", for example, we read: "Therefore, by their competence in secular disciplines and by their activity, interiorly raised up by grace, they (the laity) must work earnestly in order that created goods through human labour, technical skill and civil culture may serve the utility of all men according to the plan of the Creator and the light of his Word. May these goods be more suitably distributed among all men and in their own way may they be conducive to universal progress, in human and Christian liberty". Also the decree of the Second Vatican Council on the apostolate of the laity takes up this idea when it asserts that "this natural goodness of theirs (of the realities that make up the temporal order) receives an added dignity from their relation with the human person, for whose use they have been created".

In summary, therefore, there should be a reaffirmation of the right and duty of man, according to the mandate from his Creator and never against the natural order established by him, to act within the created order and on the created order, making use as well, of other creatures in order to achieve the final goal of all creation: the glory of God and the full and definitive bringing about of His Kingdom, through the promotion of man. The words of St. Irenaeus of Lyons still ring out with all their truth: "Living man is the glory of God and man's life is the vision of God".

The Use of Animals for the Good of Man

For a theological reflection that will help to formulate an ethical assessment on the practice of xenotransplantation, we do well to consider what the intention of the Creator was in bringing animals into existence. Since they are creatures, animals have their own specific value which man must recognize and respect. However, God placed them, together with the other nonhuman creatures, at the service of man, so that man could achieve his overall development also through them.

It should be noted that this role of "service" rendered to man by other creatures occurs in different ways according to the cultural advances of humanity. Limiting ourselves to scientific and technological progress in the

biomedical field, the service of animals to man represents a totally new application in xenotransplantation, which, therefore, in principle is not in conflict with the order of the creation. On the contrary, xenotransplantation represents for man a further opportunity for creative responsibility in making reasonable use of the power that God has given to him.

Furthermore, even if one limits oneself to a purely rational analysis, without desiring to make use of theological reasoning, one can reach the same conclusions on a practical level.

A simple look at humanity's long presence on the Earth is sufficient to show an irrefutable fact clearly: it is man who has always directed the realities of the world, controlling the other living and non-living beings according to determined purposes. It is moreover in its relationship with man that the axiological measure (moral value) of every existing reality is revealed in a universal harmonic and orderly design that indicates all the fullness of the sense of reality.

In particular, man has always made use of animals for his primary needs (food, work, clothing, etc.) in a sort of natural "cooperation" that has constantly marked the different stages of progress and the development of civilization.

Such a position of "excellence" is a witness to and also demonstrates the ontological superiority of mankind over the other beings of the earth; this superiority is founded on the very nature of the human person, whose rational and spiritual dimensions place man *at the centre* of the universe, so that he may use its existing resources (including animals) in a wise and responsible manner, seeking the authentic promotion of every being.

To analyse more deeply the point under discussion, two issues of an ethical nature must be addressed. First, there is the question of the use of animals in order to improve man's chances of survival or to improve his health; the obvious starting point here is the particular way in which one views the relationship between man and animals. Second, there is the question of the *acceptability* of breaching the barrier between animal species and the human species.

With regard to the first issue, contemporary thinking includes two opposing and extreme viewpoints. There are those who believe that animals and man have equal dignity and those who believe that animals are totally at the mercy of the man. In the former case, the use of animals is seen as *speciesism* or tyranny of man over animals. Even reducing human suffering could not justify the use of animals unless the contrary possibility was also allowed. In the latter case, man can use animals arbitrarily without being limited by ethical considerations.

From our point of view, supported by the biblical perspective that asserts, as stated above, that man is created "*in the image and likeness of God*" (cf. Gen 1:26-27), we reaffirm that humans have a *unique* and *higher* dignity. However, humans must also answer to the Creator for the manner in which they treat animals. As a consequence, the sacrifice of animals can be justified only if required to achieve an important benefit for man, as is the case with xenotransplantation of organs or tissues to man, even when this involves experiments on animals and/or genetically modifying them.

However, even in this case, there is the ethical requirement that in using animals, man must observe certain conditions: unnecessary animal suffering must be prevented; criteria of real necessity and reasonableness must be respected; genetic modifications that could significantly alter the biodiversity and the balance of the species in the animal world must be avoided.

The theological and moral point of view sees no substantial problem in the utilization of different animal species (*nonhuman primates* or *nonprimates*), but leaves open the question of differing levels of sensibilities between animals of different species and that of equilibrium among species and within a species.

The point should also be made that Catholic theology does not have preclusions, on a religious or ritual basis, in using any animal as a source of organs or tissues for transplantation to man. The question of the *acceptability* of an animal organ, - once it has been established that personal identity is not affected by xenotransplantation, and once all

the general ethical requirements of transplantation have been met, - becomes cultural and psychological. Therefore, it may be possible to overcome initial misgivings by providing the necessary support in an effective manner.

Xenotransplantation and the Identity of the Recipient

In addition to considerations of a theological nature, and perhaps even before these are made, an ethical evaluation of the practice of xenotransplantation must be measured against current anthropological findings, especially that branch of philosophical anthropology that deals with personal identity. Any ethical appraisal of xenotransplantation must ultimately address the question of whether the introduction of a foreign organ into the human body modifies a person's identity and the rich meaning of the human body? And if the answer is affirmative, one must ask up to what point is such modification acceptable.

Certainly, the concept of "personal identity" is replete with implications and subtleties of meaning, given the different contributions of philosophy and science. More concisely, in keeping with the scope of this document, we can indicate personal identity as the relation of an individual's *unrepeatability* and *essential core* to his *being* a person (ontological level) and *feeling* that he is a person (psychological level). These characteristics are expressed in the person's historical dimension and, in particular, in his communicative structure, which is always mediated by his corporeality.

It must be affirmed, then, that personal identity constitutes a good of the person, an *intrinsic* quality of his very being, and thus a moral value upon which to base the right and duty to promote and defend the *integrity* of the personal identity of every individual.

We can therefore conclude that, in general, the implantation of a foreign organ into a human body finds an ethical limit in the degree of change that it may entail in the identity of the person who receives it.

Such a modification, as already noted, affects the historical dimension of the person,

and thus the individual's communicative structure as mediated by his corporeality.

In light of a renewed appreciation of the body and of the symbolic understanding of it that much of contemporary anthropology offers, it should be observed that not all organs of the human body are in equal measure an expression of the unrepeatable identity of the person. There are some which exclusively perform their specific function; others, instead, add to their functionality a strong and personal symbolic element which inevitably depends on the subjectivity of the individual; and others still, such as the encephalon and the gonads, are indissolubly linked with the personal identity of the subject because of their specific function, independently of their symbolic implications. Therefore one must conclude that whereas the transplantation of these last can never be morally legitimate, because of the inevitable objective consequences that they would produce in the recipient or in his descendants, those organs which are seen as being purely *functional* and those with greater *personalized* significance must be assessed, case by case, specifically in relation to the symbolic meaning which they take on for each individual person.

The questions and issues connected with the defence of the personal identity of the recipient patient is a central point not only for philosophical anthropology but also for moral theology, as is demonstrated by certain official pronouncements of the Magisterium on xenotransplantation, which see this as one of the fundamental criteria for the moral legitimacy of xenotransplantation. First Pius XII (*Address to the Italian Association of Corneal Donors, Clinical Ophthalmologists and Legal Medicine*, 14 May 1956), and more recently John Paul II (*Address to the Eighteenth International Congress of the Transplant Society*, 29 August 2000, n. 7), have clearly upheld the moral legitimacy, in principle, of this therapeutic procedure, on the condition that "*the transplanted organ does not affect the psychological or genetic identity of the person who receives it*" and "*that there exists the proven biological possibility of carrying out such a transplant with success, without exposing the recipient to excessive risks*".

We may observe here that together with the defence of personal identity, these pronouncements of the Magisterium indicate a second criterion for the moral legitimacy of xenotransplantation: *health risk*. We shall discuss this in greater detail shortly. With regard to all other issues, from the standpoint of moral theology, the ethical conditions required for every other kind of transplant apply also for xenotransplantation.

Bioethical Issues

Further investigation and clarification is needed for a wider bioethical analysis. The ethical evaluation of the practicability of xenotransplantation, in light of the current situation as summarized in the first part of this document, requires the consideration of a whole series of factors, some of which are derived from the general moral norms valid for all transplants, and others of which are more specifically related to xenotransplantation.

The Health Risk

As previously stated, one of the fundamental ethical questions that should be examined when judging the legitimacy of xenotransplantation is that of the *health risk* involved in such procedures. This risk is dependent on various factors which cannot always be predicted or assessed. Before going on, therefore, it may be useful to recall some general aspects of the ethics of risk.

Risk - understood as an unwanted or damaging future event, the actual occurrence of which is not certain but possible - is defined by means of two characteristics: the level of probability and the extent of damage. The probability of the occurrence of a certain damaging event in particular circumstances can be expressed as a risk percentage or as a statistical frequency. Furthermore, the presence or absence of certain chance factors of risk can sometimes alter the probability that a certain event will take place. The extent of the damage, in contrast, is measured by the effects that the event produces. Naturally, a very probable risk is easily tolerated if the extent of damage associated with it is very small; on the contrary, a risk that causes a

high level of damage, however improbable, gives rise to much greater concern and requires greater caution.

It is important to distinguish between a *probable event* (albeit with varying degrees of probability) and an *event* that is only *hypothetical*; this latter is an event which is *not theoretically impossible* but which is so improbable as to require no change in behaviour or choices.

Together, these two criteria - probability and extent of damage - define the *acceptability* of the risk, as reflected by the risk/benefit ratio. Only when a risk can be concretely assessed is it possible to apply criteria for evaluating its *acceptability*.

Lastly, it is necessary to distinguish acceptability from what we can define as the *acceptance* of the risk, as defined by the reaction of the individual or of the general public to the existence of the risk. This is a response that has a significant subjective component, one which is not always completely thought out and which is influenced by culture, by the information available and how it is understood, by the way in which the information itself is communicated, and by common sensibilities.

In the absence of data that allow a reliable assessment of such a risk, greater caution should be used; this does not necessarily mean, however, that a total moratorium should be placed on all experimentation. Indeed, to move from ignorance to knowledge, from the unknown to the known requires the exploration of new approaches which in all likelihood, especially during initial experimental stages, will not be without risks, at least potentially. In this situation, therefore, the imperative ethical requirement is to proceed by "small steps" in the acquisition of new knowledge, making use in experiments of the least possible number of subjects, with careful and constant monitoring and a readiness at every moment to revise the design of the experiment on the basis of new data emerging.

It is important to consider the distinction between *risk assessment* and *risk management*. To achieve an ethical assessment, both elements must be carefully examined.

This general discussion of the ethics of risk must now be applied to the specific case of xenotransplantation.

First of all, we note that there are issues connected with xenotransplantation, such as the probability of rejection and the increase in the probability of infection because of immunosuppressive therapies, about which some degree of knowledge already exists, although further study is necessary. The data which the scientific community already possesses, together with new data being gathered, can help to establish the threshold of risk that must not be crossed if a transplant operation is to be considered morally acceptable.

More complex and uncertain is the assessment and evaluation of risks connected to one specific aspect of xenotransplantation: the possible transmission to the recipient of infections arising from the xenotransplant (*zoonoses*) by known or unknown pathogenic agents which are not harmful to the animal but which are possibly dangerous for man. Such infections could escape detection, with the consequent possibility of the spread of the infection to those having close contacts with the patient, leading eventually to its being spread to the entire population.

Since clinical experience of xenotransplantation is quite limited and certainly insufficient to provide reliable statistics on the real probability of occurrences and spread of infections, any decision concerning clinical development of the new therapy can only be based on hypothesis. There is, therefore, an ethical requirement to proceed with the greatest caution.

When the moment for clinical application of xenotransplantation arrives, it will be necessary to select patients carefully, based on clear and well-established criteria, and to monitor the patient very closely and constantly. One must also contemplate the possibility of placing the patient in quarantine to prevent the epidemic spread of an infection. Arrangements for some kind of monitoring of those having close contacts with the patient should also be made.

Moreover, during the experimental phase of clinical trials, patients should agree not to

procreate because of the possible risk of genetic recombination that could affect the patient's germ cells. Sexual abstinence would also be necessary to avoid the venereal transmission of possible viruses.

In the clinical application of xenotransplantation, psychology should also play an important role. It should address the probable repercussions for the recipient's psyche (e.g. because of the modification of one's "bodily schema") arising from the acceptance of a foreign organ, especially when it comes from an animal. In the post-transplant stage, psychology must also provide clinical support for the patient in the process of integration.

'Transgenesis'

The use of organs from engineered animals for xenotransplantation raises the need for certain reflections on *transgenesis* and its ethical implications.

The term "*transgenic* animal" is used to indicate an animal whose genetic make-up has been modified by the introduction of a new gene (or genes). In contrast, the term 'knock out' is used to designate those animals in which a given endogenous gene (or genes) is no longer expressed. In either case, such animals will express particular characteristics which will be transmitted to the offspring.

As we have already observed, the possibility of effecting out such genetic modifications, using genes of human origin as well, is morally acceptable when done in respect for the animal and for biodiversity, and with a view to bringing significant benefits to man himself. Therefore, while recognizing that *transgenesis* does not compromise the overall genetic identity of the mutated animal or its species, and reaffirming man's responsibility towards the created order and towards the pursuit of improving health by means of certain types of genetic manipulation, we will now enumerate some fundamental ethical conditions which must be respected:

1. Concern for the well-being of genetically modified animals should be guaranteed so that the effect of the transgene's expression - possible modification of the

anatomical, physiological and/or behavioural aspects of the animal - may be assessed, all the while limiting the levels of stress and pain, suffering and anxiety experienced by the animal;

2. The effects on the offspring and possible repercussions for the environment should be considered;
3. Such animals should be kept under tight control and should not be released into the general environment;
4. The number of animals used in experiments should be kept to a bare minimum;
5. The removal of organs and/or tissues must take place during a single surgical operation;
6. Every experimental protocol on animals must be evaluated by a competent ethics committee.

Informed Consent

In the ethical discussion on xenotransplantation, the subject of informed consent also deserves special attention.

Given the animal source of the organs which will be transplanted, this issue concerns only the recipient and, secondly, his relatives. At the outset the recipient should be given every information regarding his pathology and its prognosis, the xenotransplant operation and subsequent therapy, and the probability of success and the risks of rejection. Special attention should be paid to making sure that the patient is informed about the real and hypothetical risks of zoonoses, in light of current data, and about the precautions to be adopted in the case of infection (in particular the possible need for quarantine, which involves avoiding physical contact with others while the risk of contagion is present). The patient must also be informed about the need to remain under medical supervision for the rest of his life, so that the necessary constant monitoring following the transplant may be carried out. In addition, adequate information on possible alternative therapies to xenotransplant therapy should not be withheld.

This informed consent on the part of the patient should be understood as *personal*. For this reason, minors and those unable to give

valid consent are to be excluded from the experimental phase.

However, if a patient incapable of giving valid consent should find himself in a previously unforeseen situation where there is danger of imminent death, recourse may be made to a legal representative (e.g. in the hypothetical case of a life-saving xenotransplant as a temporary solution for a patient in a coma), provided that the medical procedures to be used offer a reasonable hope of benefit for the patient.

The patient's relatives should also be informed about what the transplant could entail regarding their contact with the patient and about the possible risks of contagion should an infection, as mentioned above, set in. In a strict sense, however, consent cannot be requested from them, since it is the patient who is ultimately responsible for the choices concerning his own health.

Allocation of Health Care Resources

Xenotransplantation certainly represents a form of possible treatment requiring a great outlay of both health care resources and economic resources. For this reason, some people have expressed doubts about its ethical validity; given the large amounts of resources that it would take away from the other forms of therapeutic treatment and from other area of research, they consider both the uncertainty about its success and the risk entailed to be excessive. Faced with these doubts, it is important to remember that, even taken into due consideration the costs-benefits balance, the huge amount of health care resources used in this case is justified by the urgent need to try to save the lives of so many patients who would otherwise have no chance of survival.

It should also be added that as long as xenotransplantation on man remains at an experimental stage it should not be subject to the criteria applied to treatment in strict sense; rather it should be evaluated according to the criteria used for trials. Therefore, the foreseeable collective benefits that it may accrue in the future should also be taken into account. We do well to recognize here that the

research into xenotransplantation which has taken place so far has also brought about greater medical knowledge in the area of allotransplantation.

Patentability and Xenotransplantation

Research on xenotransplantation has hitherto in large measure been carried out largely by private pharmaceutical companies which have committed substantial economic resources to this endeavour; they have also been providing financing to public institutions for the purpose of obtaining better therapeutic results. It is therefore reasonable for them to expect an economic return on the investment made; one of the possible ways to do this is by acquiring patents.

From a formal point of view, there is no technical or legal obstacle standing in the way of the patenting of *genetically engineered* animal organs intended for transplants. It should be emphasised however that the norms drawn up by the European Community to regulate this matter could not, at the time they were being drafted, take into account the use of such organs for transplant from animal to man, since this therapeutic procedure had not yet been accomplished in clinical practice. We therefore stress that, given the extraordinary financial commitment that has been made, now is the time to reconsider - or rather to be more precise about - the specific norms that apply.

We are aware of the broad debate underway on the basic question of whether the possibility itself of patenting living beings (even though genetically modified) or parts of them, especially when they contain genetic elements derived from humans (as is the case with animal organs genetically engineered for xenotransplantation into man), is ethically acceptable. We are also aware that there is a difference between a "discovery" (which cannot be patented) and an "invention" (which can be patented). Although it is our view that the transgenic animal as such - and all the more when they are used for transplantation into man - should be considered "nonpatentable", we nonetheless

believe that it is not the purpose of the present document to address this complex question directly.

Here, we shall limit ourselves to emphasising that, whatever answer may be given to this basic question, it is always necessary – as a bare minimum – to guarantee respect for the fundamental right of every person to equitable access to the health care that may be needed, without discrimination and without being impeded by excessive costs. This applies above all else to accessibility to treatment. This objective – in the hypothetical case of patents connected with xenotransplantation, a procedure which should be viewed from a therapeutic standpoint – can be reached by making appropriate legal requirements apply (for example, the introduction of compulsory licences), thus allowing “production” at accessible prices which would hopefully be controlled by a supranational body specifically set up for this purpose.

Practical Guidelines

Bearing in mind all that has been said above, we can now present a practical approach which will guide the path of research and development in the area of xenotransplantation as applied to man.

Regarding the xenotransplantation of solid organs, it is of course necessary that pre-clinical experiments (from animal to animal) should continue for as long as scientists should require and until repeatable positive results are obtained, results which are considered sufficient to allow trials on man to begin.

When the moment arrives, it will be ethically correct, respecting the rules of informed consent indicated above, to involve initially only a restricted group of patients, patients who cannot be chosen – in the given circumstances – for allotransplantation (whether because of waiting lists or individual counter-indications), and for whom no better alternative treatment is available.

A commensurate moral imperative is that of ensuring careful and detailed monitoring of the individuals who receive a xenograft, a situation which could foreseeably continue for the rest of patient's life, watching for any sign

of possible infection caused by known and unknown pathogenic agents.

In addition, every experimental clinical trial should be carried out in highly specialised centres with proven experience in pre-clinical pig-to-primate models; these centres should be authorised and supervised by the competent health care authorities.

The results thus obtained, if unequivocally positive, would constitute the basis for extending the practice of xenotransplantation, making it an accepted surgical therapy.

The questions and issues related to xenotransplantation have implications of a very wide social character. There is thus an ethical need to acquire correct information on the topics of greatest public interest with regard to the potential benefits and risks. This information should be communicated to as large a segment of the public as possible. Moreover, by means of debates and public discussions in small and large groups, society itself, through its representatives, should help to identify the conditions under which they would find it acceptable to invest resources and hope in this new therapeutic approach, in light of the scientific uncertainties which are still present and the urgent need to increase the availability of organs which can be transplanted.

A serious ethical commitment on the part of scientists should not neglect to explore therapeutic paths which may represent alternatives to xenotransplantation, such as seem to be promised by many recent discoveries in the field of genetics, as in a longer period the therapeutic use of adult stem cells.

With respect to the specific fields of health-related policies and legislation on matters of xenotransplantation, it is our heartfelt hope that the considerations offered in the present document will provide a useful point of reference for all those who – at an international, national, regional and local level – are responsible for leading society. Many countries have already developed guidelines to regulate this complex sector, offering helpful operational directives.

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uses to stem directly from speciesist prejudice.

They are better understood to derive, in the first instance, from greed, and in the second, from megalomaniac scientism. What we need to do is to reassert the very traditional value that cruelty to animals is wrong – indeed, the very appeal of Singer's work lies in the power of this traditional value, rather than in his "new ethic".

The conclusion is good news for human beings. Not because they are "liberated" to abuse animals as they choose. They are not. Nor because all Singer's arguments concerning our current treatments, and rationales for treatments, of the severely handicapped, the long-term comatose, and others, are misguided or unnecessary. They are not. The good news derives from the fact that we do not need to adopt Singer's basic principles in order to reassess specific practices – and therefore do not need to expose ourselves to the often-startling wider implications of those principles. The moral uncertainties created by our vastly-increased capacity to keep human physiological systems functioning far beyond their ordinary limits are genuine problems; but they are not aided by the demand that we think of human beings merely as (clever) animals, of human lives merely as assessable quantities of desires and satisfactions.

Footnotes

1. Dante, *Inferno*, XXVI, 118-120.
2. Peter Singer: *Writings on an Ethical Life*, Fourth Estate, London, 2001.
3. This review first appeared in the now defunct *Australian's Review of Books*.

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On our part, we do not believe that this document should enter into procedural political-legislative matters. We therefore limit ourselves to emphasizing the importance and desirability that a substantial convergence of international legislation in this area should be achieved as soon as possible, by means of a genuine coordination at the different levels. On the one hand such legislation must provide rules for the continuation of scientific research, guaranteeing its validity and safety; on the other hand it must watch over the health of the citizens involved and the potential risks (especially infective) connected with xenotransplantation. Furthermore it must offer criteria for organizing the necessary information campaigns aimed at the entire population.

We conclude this document with the sincere hope that the effort made on this study by those who have participated in it - scientists, jurists, theologians and bioethicists - will represent a concrete contribution to the development of the discussion on the important theme of xenotransplantation. May it also be seen as a further expression of the close attention which the Catholic Church pays on problems related to human disease and suffering.

Footnote

1. This article forms part of a larger discussion of xenotransplantation recently published by the Pontifical Academy for Life. The first part of that document deals with scientific issues, the second with ethical and anthropological issues. The document finishes with some "Practical Guidelines" as well as detailed references. The whole document was originally published as a supplement to *L'Osservatore Romano* on 26 September, 2001.

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