BELGIAN ADVISORY COMMITTEE ON
Bioethics

Opinion no. 18 of 16 September 2002 on research on human embryos in vitro

Request for an opinion of 11 May 2001,
from A. De Decker, President of the Senate,
on the ethical and legal aspects of a number of issues concerning research on embryos in vitro and the protection of these embryos

Content of the opinion

Decision of the Committee

The question asked by the Senate is as follows.
"[…] Given the various bills pending before the Senate concerning research on or the protection of embryos in vitro;

Given the importance in social and ethical terms of taking political decisions on scientific research, the possibilities for the application of bio-technology and its implications as regards embryo protection;
Given Article 18 of the Council of Europe Convention on human rights and biomedicine; […]

The undersigned ask the Bioethics Advisory Committee to hand down an opinion, within the period set in the aforementioned Cooperation Agreement, in the light of the aforementioned bills on:

- *the concept of the embryo and the pre-embryo;**
- *the concept of research within the meaning of Article 18 of the aforementioned Convention;**
- *the concept of adequate protection of the embryo and the pre-embryo;**
- *the implications and risks linked to the possible applications of modern biotechnology with regard to the human embryo;**
- *the implications and methods of scientific research on the human embryo;**

More precisely:

- *the acceptability of research into somatic gene therapy and germinal gene therapy;*
- *the distinction between corrective germinal gene therapy and germinal gene therapy for the purpose of enhancement;*
- *the concept of " eugenic treatments" and "effective eugenic treatments": limit between pathological and non-pathological genetic characteristics ;*
- *the issue of the need to and the acceptability of creating embryos intended specifically for research;**
- *the issue of the need to and the acceptability of using embryonic stem cells for therapeutic purposes (therapeutic cloning) and alternatives to the use of cells;*
- *the implications of a Belgian legislative initiative on this matter;*

in the field of biology, medicine and healthcare, in particular as regards the ethical, social and legal aspects, more especially as regards human rights.".

This issue was considered at the plenary committee meeting of 9 July 2001, and select committee 2001/1 was asked to analyse it. At its meeting of 17 October 2001, **the committee decided to focus in an initial opinion on responding to the issues marked by an asterisk in the question reproduced above**; issues relating to embryonic stem cells as well as those relating to therapeutic cloning will be analysed at a later date.

CHAPTER I. Introduction

The issue of research on embryos has taken on considerable importance over the past few years both in specialised circles and among the general public.

It is important to remember that this issue is closely and directly related to the development between 1960 and 1980 of human *in vitro* fertilisation. This led in 1978 to the birth of Louise Brown, the result of over a decade of **research into the human species** by the Englishmen Edwards and Steptoe.

To develop *in vitro* fertilisation, a considerable amount of experimentation was undertaken at the time, although this was generally not codified. Nevertheless, it was with publications by the Australian teams of Trounson and Wood in 1980 that *in vitro* fertilisation took a decisive turn for research on the human embryo *in vitro*: in fact, until then the rare successes obtained in clinics reportedly involved spontaneous cycles. Since then the use of the controlled stimulation of ovulation has made it possible to collect an ever greater number of oocytes and hence led to the creation of surplus embryos, the status and future of which are the subject of current ethical debates.

It may be supposed that had in vitro fertilisation remained linked to treatment based on spontaneous cycles, with a single oocyte being collected, fertilised in the laboratory and replaced in the uterus within 48 hours, the debate on the research would have been far more limited than it is today.

Since the first publications by Trounson and Wood, the use of ovary stimulation has remained an essential element for the success of the treatment, despite several attempts in the 1980s and 1990s to return to the spontaneous cycle.

The presence of the human embryo in vitro has given rise to intense research, mainly focusing on techniques for treating sterility: improving culture media, developing techniques for freezing embryos so as to preserve surplus embryos, developing techniques for assisted fertilisation (including ICSI).

More recently, in the 1990s, these areas of research have been expanded to include the development of preimplantation genetic diagnosis enabling the genetic analysis of embryos in vitro and the development of cell cultures prolonged until the blastocyst stage, thereby opening up the way for research on embryonic stem cells.

Alongside this practical research, a number of studies have been conducted in more

fundamental areas relating to the understanding of the mechanisms of cellular differentiation and/or control of the expression of the early embryonic genome (activation of the genome, development, installation of the genomic imprinting mechanism).

These data are probably essential to understand both a number of anomalies linked to chromosome disorders, such as trisomy 21, but also to make progress in the field of oncology, to the extent that this is fundamentally affected by cell differentiation disorders.

It therefore appears that experiments on human embryos in vitro comprise a host of facets that on which a large number of researchers worked in the last twenty-five years of the 20th century.

CHAPTER II. The stages of early embryogenesis

2.1. Foreword

As knowledge of embryology has developed, scientists have named certain moments (or certain stages) in the reproductive process which they considered remarkable on the basis of the observation techniques at their disposal. This sometimes causes us to lose sight of the fact that the reproductive process and embryological development are ongoing processes. "Life" never starts but is passed on from adult individuals to their gametes, from the gametes to the embryo, from the embryo to the adult individual of the next generation, and has been since the dawn of humanity. However, it is also important to realise that this process of naming certain moments in the reproductive process is not ideologically neutral, even if this influence is often only slightly if at all conscious. If it may be said that every science is intimately connected to the philosophy of its time, then it is important when engaging upon the ethical debate to try to take account of this. Not by chance does German legislation refer to the embryo only as of the fusion of pronuclei (although embryos cannot be frozen), that French law (which authorises the freezing of embryos) speaks of embryos as of the fusion between the sperm and the oocyte, and that English law introduces the term pre-embryo to refer to the period (during which this law permits experimentation) from the fusion of spermatozoids and oocytes to the first anatomic beginnings of the nervous system that appear in the embryo on the 14th day after fertilisation. So there are semantic problems here and we will attempt to explain these briefly and above all to specify what the terms mean.

2.2. The stages of fertilisation and embryonic development until implantation

2.2.1. The stages of fertilisation: from the meeting of the gametes to their fusion

The meeting between the spermatozoid and the oocyte ("the egg") requires full sexual relations

so that spermatozoid can be placed at the base of the vagina: they will then move up the genital channel, first being sorted by the cervical mucus and then, have crossed through the uterus, they will be carried and drawn by preference towards the tube containing the oocyte by means of a number of processes that have so far not been completely explained. Throughout all these stages, upon contact with female genital fluids, the spermatozoid will alter considerably in terms of its metabolism and its movement, but also the composition of its cell membrane (the phenomenon of capacitation) to become capable of achieving the stages of fusion with the oocyte. The oocyte, for its part, is "released" by the ovary under the influence of a hormone (the luteinising hormone = LH) which causes the follicle containing it to rupture and at the same time brings progress in the “meiosis” (genetic maturation) which will not be completed until after the fusion with the spermatozoid. The pavilion of the fallopian tube deposits cilia which carry along the liquid of the follicle so that the tube recovers the ovulated oocyte. It is in this distal portion of the tube that the stages of the penetration of the oocyte by the spermatozoid will take place.

There are a number of significant moments in the penetration of the spermatozoid.

The ‘capacity’ spermatozoid will attach itself firmly to the membrane of the egg (the pellucide zone) if and only if it is recognised as being the same species. This attachment triggers the opening of the small enzyme sack at the head of the spermatozoid (the acrosomic reaction) and it is thanks to the combination of these enzymes and the movement of the spermatozoid that the latter will cross the pellucide zone to reach the perioocyte space. Here, the cell membrane fuses with that of the oocyte and, in the human species, the entire spermatozoid (including the flagella) will be integrated into the cytoplasm of the oocyte. This fusion triggers several mechanisms:

- the resumption of the meiosis of the oocyte which is then completed with the expulsion of the second polar globule, which takes with it the surplus chromosomes from the oocyte;
- the degranulation of small structures on the outer edge of the oocyte which open up in the perivitellin space and which, by hardening the pellucid zone, will prevent penetration by a second spermatozoid (preventing polyzoospermia);
- upon contact with the substances present in the cytoplasm of the oocyte, the DNA of the nucleus of the spermatozoid will decondense (swell) to prepare for "mixing" with the oocyte chromosomes.

2.2.2. The stages of fertilisation: the zygote stage and fertilisation anomalies

Between fourteen and eighteen hours after the meeting of the gametes, this stage of fertilisation can be visualised for a few hours. This is usually known as the zygote stage, which proves that fertilisation has occurred and is normal: the male and female nuclei (the two pronuclei) in the cytoplasm and the two tiny polar globules that indicate complete meiosis can be visualised. A number of anomalies that can have important consequences can be detected at this stage: absence of fertilisation (no visible pronuclei), polyzoospermia fertilisation (more than

two pronuclei) or parthenogenetic activation (a single pronucleus).

With abnormal fertilisation the cells may divide but this will result in abnormal embryos. In the event of polyzoospermic fertilisation, owing to the excess of genetic material these embryos will not develop for more than a few days and in the human species there is no material on miscarriage and a fortiori birth with such a chromosome formula. If there is no male genetic material, this is referred to as a parthenogenetic embryo (or a parthenote) which includes 46 chromosomes (due to doubling of the oocyte material), but all of maternal origin. These embryos, too, will not develop beyond the stage of very early implantation at the latest. Parthenogenesis may be spontaneous (it is rare in mammals but more frequent in more primitive animal species and in the human species there is a particular form of tumour of the ovary (the teratome) which is of parthenogenetic origin] but it can also be induced in the laboratory. The fact that parthenotes do not develop (although they have a full complement of chromosomes) has been studied and it has been shown that this phenomenon was due to a biological barrier known as "genomic imprinting": certain paternal and maternal chromosomes are marked in such a way that normal embryonic development requires the presence of chromosomes of both sexes. The phenomenon of genomic imprinting is a recent discovery of a sexual reproduction mechanism which has many implications for oncology[1], in particular paediatric oncology, and for the understanding of certain tumours (tumours of the ovary and particular pregnancy tumours such as the hydatiform mole and choriocarcinoma).

2.2.3. The stages of fertilisation: the "mixing" of paternal and maternal genetic materials and the first embryo division

A few hours after the zygote stage has been observed, the two pronuclei disappear from microscopic observation. In fact, the membranes of the two pronuclei dissolve to enable the chromosomes to mix and reform a cell with 46 chromosomes. This phenomenon is combined with the first segmentation division (1st mitosis), which is why we never observe a single, fertilised cell with its 46-chromosome nucleus: the mixture of chromosomes is combined with their copy in duplicate (92 chromosomes) which share the cytoplasm and separate into two daughter cells. This two-cell stage marks the end of the fertilisation process and the start of the segmentation and cellular differentiation process that will lead, in a few months, to the complete formation of a foetus with all the organs and functions needed to survive independently of the maternal organism.

[1] Ezzell C.: Genomic imprinting and cancer: J NIH Research 1994;6: 53-59

2.2.4. The stages of embryo segmentation until implantation

These stages take five or six days. Once the two-cell stage has been reached (± 12 hours after the zygote stage) the embryo will divide regularly to produce a four-cell stage on the second day after the beginning of fertilisation, then eight, etc. Once there are 32 to 64 cells, the embryo will compact these cells (bind them more closely to one another, whereas until now the connections between them have been very loose) to form the morula stage and, on the fifth day, the first cavity inside the embryo forms. This, known as the blastocoel, separates the cells into two distinct groups. Most of the cells line the wall of the blastocoel and will become the annexes (placenta, extra-embryonic membranes), while a minority of cells forms a small mass of 20 to 30 cells (the embryonic button) which will be the origin of the foetus. These cells are still completely undifferentiated. This stage, which is known as the blastocyst stage, is the last to develop within the pellucid zone, i.e. in the same space of approximately 130 microns which contains the oocyte. The cells have multiplied while becoming smaller and smaller and there are around a hundred of them at the moment when the embryo hatches towards the end of the fifth or sixth day after the beginning of fertilisation. At around the same time (sixth or seventh day) the embryo, which has crossed the distal end of the tube as far as the uterus during these few days, has to become implanted to establish a connection with the maternal organism.

2.2.5. After implantation

Once implanted, the cells of the blastocyst wall will gradually develop this highly active exchange interface with the maternal organism necessary to supply the needs and evacuate the waste required by the fantastic development of the cells of the embryonic button. The 20 or 30 cells that make up the internal cell mass will still partly contribute to the development of the placenta. Seven days after implantation and 14 days after the start of fertilisation, the others will have formed a flat, round zone (the embryonic disc), half a millimetre in diameter, made up of around 2000 cells divided into two layers: at this point "gastrulation" commences and in about four days will transform the two-layer structure into a three-layer structure from which the main organ groups of the foetus will be formed[2]: (very briefly)
- the first layer ("ectoderm") will produce the skin and the nervous system;
- the second layer ("mesoderm") will produce the muscles, the bones, the blood vessels and the urogenital system;
- the third layer ("endoderm") will produce the digestive tube and the bronchial tree.

One of the first signs of gastrulation (day 15-16) is the appearance of the primitive line in the embryonic disc which marks the beginnings of the formation of the neural tube, the structure at the origin of the brain and the spinal cord. This stage marks the end of the possibility of

[2] Tuchman-Duplessis H: Embryologie, fascicule 1, Masson et Cie Ed. Paris 1968.

identical twinship for the embryo and hence the start of the irreversible individualisation of the embryo. This process (neurulation) will start on the 18th day and end on the 28th with the closing of the cephalic extremity of the neural tube. From this moment onwards the brain, the spinal cord and the nerves will gradually develop and then later become functional, a long process that will not end until after birth when the longest motor nerves (that is those of the muscles of the lower limbs) become functional, which is not until a few months after birth, and will gradually enable the young infant to sit up and then walk.

CHAPTER III. Definition of the concepts

Anyone wishing to enter into the discussion on 'the embryo in vitro' by returning to the basic principles will inevitably have to tackle more broadly the issue of human reproduction and the development of a human organism from its beginnings until birth. This issue has come up previously further to the distribution of modern contraception and in particular with regard to the question of abortion. It was then reactivated by the discovery and the success of in vitro fertilisation. Currently, in the context of research into stem cells, the question of the attitude to be adopted towards embryos has again come to the fore. There is a temptation to confine the questions we are asked to the *embryo in vitro* relying on the fact that, for the time being, only experiments on such embryos are considered. However, this would simply artificially restrict the ethical debate. Embryos in vitro are only one of the possible stages of the prenatal development of the human organism. Now, we can only hold an in-depth ethical discussion on the principles if this discussion covers all the prenatal phases.

This is why a number of Committee members are convinced that it is essential to deal with the question of our attitudes towards embryos and human foetuses in general before pronouncing judgement on a practical application, for example on stem cell research.

In the ethical and legal discussions on biomedical activities, this general theme has often been formulated as the question of the '*status*' of the embryo and the foetus. Moreover, this has on occasion been formulated as the question of whether or not they should be accorded, or to what extent they should be accorded the status of a '*human person'*. To avoid confusion in the discussion it therefore seems important to examine more closely the meaning of these concepts.

3.1 Status

The term 'status' (e.g. of the embryo) is sometimes used in a manner that creates the feeling that this status may be a property which could be detected by means of an empirical examination (e.g. of a particular embryo).

3.1.1. For this reason, *certain members of the Committee* feel that there is a need to put forward the following analysis of this concept.

The current, broad meaning of the term, '*status*' (NL: statuut, FR: status, GER: Status/Stand) dates from the 20th century[3].

This expanded meaning was developed primarily with the field of *sociology* (Weber, Linton). The intention was to characterise the *position* of an individual within the social network in relation to the dimensions of 'power', 'influence' and 'consideration', irrespective of the strict 'legal status' or the wider description of the concept of 'class'. This status is determined by the *relations* of the individual within the social whole, which in turn depend on recognition by the others. (For instance, you are only 'rich' if the community acknowledges your rights of ownership).

Although the term 'status' is also used to characterise mutual relations between non-human beings, we will confine ourselves here to the human domain.

Consequently, the following definition can be put forward: "The *status* of an entity E is its *position* in respect of a group or a community of people, based on the relations that exist between E and these people. This status is reflected in the *way* in which E and this circle of people are to *behave* towards one another. It is characterised by the *feelings and attitudes they arouse among one another and in the long term by the values and the norms they experience.*"[4]

Depending on the nature of the relations mentioned, and the attitudes and feelings that characterise them, a distinction can be made in particular between *socio-economic* status*, legal* status and *ethical* status*.* The latter refers to the ethical conduct and feelings that are demonstrated towards the entity in question.

The *status* of an entity *is not therefore* a characteristic that results directly from the properties that can be established scientifically, but it is defined by *attitudes and feelings, values and norms (that are more or less conscious),* or by a *conscious* consensus or a majority within a society.

Legal status is determined by laws and jurisprudence. *Socio-economic* status depends largely on the position held in production and economic transactions, and on financial situation.

As regards *ethical* status, many elements suggest that here, too, factors of society play a vital role, the consequence being that this status is determined by historical and cultural circumstances. (For instance, the statuses of slave or serf have virtually disappeared. Similarly, the status of manual work differs radically today from what it was in the 19th century).

---

[3] Originally the Latin word 'status' referred to the legal situation defined by rights and duties. In Dutch the term used for this is 'staat' (burgerlijke-, huwelijkse-, to be compared with: 'état civil, marié. – civil status, marital-, Zivilstand, Ehestand).
The concept was extended to cover a wider meaning (initially socio-economic) as early as Stuart Mill (1848): "the status of a day labourer ".

Finding out to what extent and according to what influences these types of status evolve in line with periods and cultures is a very interesting question. The Committee members who support the definition proposed do not deny the philosophical and scientific importance of these questions, but stress that *within a given culture and a given moment in time,* the status of an entity is first of all a social fact that depends essentially on the attitudes of people towards it. Having said that, no doubt is cast on the role of characteristics specific to this entity in the appearance of these attitudes. A difference is made between *status* as such and the *causes* which have influenced the appearance of this status. The latter are usually the result of interaction between the characteristics specific to the entity and the attitudes and scales of values of the people concerned. The interaction between the characteristics specific to the embryo on the one hand and value judgements and moral feelings on the other is explained in detail in Chapter IV of this opinion. In fact, a number of important conceptions are discussed there on the issue of which criteria are decisive for according the embryo an ethical status.

3.1.2. *Other members of the Committee* do not entirely share the views developed above on the ethical status of a given entity in a human community. They believe that a distinction must be made between the *de facto* ethical status of an entity on the one hand (human being, embryo, etc.) and certain ethical values that they consider are essential, trans-cultural and universal on the other. In their eyes, these universal values are linked to the nature of the human being and are not simply the result of a consensus or agreement by the majority. These members feel that, while a given society may not respect one or other of these values in fact, they nevertheless exist as a condition of humanity. For instance, just because certain societies have accepted genocides does not mean that that these represent a positive ethical value.

Consequently, the issue obviously arises of defining what means should be used to bring out and define these universal values.

For some people, following the line taken by Kant (or other philosophers), rational philosophical thought makes it possible to put forward such values on the basis of the rationality of the human mind. For example, the proposal that the human person should always be treated at the same time as an end and never simply a means is put forward as a proposal for a universal value, irrespective of whether or not society abides by this.

Others believe that they can base the universal nature of certain ethical proposals on their religious convictions. This is the case of the Catholic Church, for instance, or certain Christian churches that accord absolute value to human life, from its beginning to its natural end, based on the conviction that life is wanted and given by God. So it is not at the disposal of man.

Other people, in a more phenomenological context, closer to human sciences, believe that it is possible to define certain values as universal on the basis of historical, psychological and sociological studies. For instance, they often describe the taboo on murder and sometimes even that on incest as conditions that constitute the psyche and human societies. As regards the

[4] Examples: the status of *first lady* in the United States, 'drug addict' status, 'protected animal' status in

taboo on murder, the most fundamental, they do not first of all stress the negative aspect, which is fairly obvious, that it is forbidden for members of the same society to kill their fellow creatures. They read in this a positive universal value: all human beings are bound to accept the life of their fellow human beings and even wish them a "good life" (Ricoeur). They see in this universal value the foundation of the social link that enables human beings to build cultures and civilisations. Advocates of this position consider that human societies are engaged in a historical process of progress, not only scientifically but also ethically. So they believe that human beings are capable of better understanding and better applying, gradually, the ethical values needed for structure and the greater welfare of individuals and societies. They stress, for instance, that human societies have gradually come to condemn slavery, acknowledge the equality of men and women and of all human beings, the need to help the weakest, etc.

So the members of the Committee who relate to the idea that there are universal ethical values do not think that simply the agreement of a majority within a society is enough to guarantee the positive value - as regards human well-being – of any ethical rules or bills that this society may accept by means of a majority or a consensus at a given point in time in their history. They believe that the lawmakers and the laws they issue should also show proof of a concern to educate, a concern to ensure that society as a whole progresses towards an awareness and better achievement of these universal values.

These universal values are expressed sometimes in feelings and attitudes that are easily understood and shared, and sometimes in relatively abstract general principles. The real difficulty lies in bringing this into line with concrete decisions. Such decisions involve input from a great many elements: political, economic, scientific, sociological, relational, cultural, symbolic, etc. As a result, it is indeed difficult to foresee all the long-term ethical consequences of decisions which nevertheless have to be taken here and now.

3.2. Status of the embryo

The discourse of the *sciences of nature* describes how, after having been fertilised by a spermatozoid, an ovum undergoes a number of divisions and developments. With regard to human reproduction, the convention is that that which develops until the 56th day is known as the *embryo,* and that which develops from the ninth week until birth is known as the *foetus*. Sometimes the term *pre-embryo* is used to refer to the embryo until 14 days, but there is some disagreement as to whether this usage brings any added meaning.

It is important to point out that from the appearance and maturation of the gametes until birth, a continuous development takes place in which, as in any science, divisions are made on the basis of certain characteristics or the acceleration of certain processes. However, it is not methodologically correct to transpose these divisions *to another type of discourse, be it ethical or legal,* without providing a well-founded justification in ethics or in law.

---

the Belgian law on the protection of animals', 'stateless person status'.

In fact, the *strictly scientific approach* of these various stages does not in itself contain any evaluative or normative *ethical* terms: the descriptions of the embryo of a mouse, a chimpanzee or a human being will reveal differences, but these are based solely on objective data. For science as such, the only difference between these embryos is that they are of different species.

However, human beings (and in particular men of science) are part of a *community* which, in an *ethical* or a *legal* context, can accord the human embryo a different status than that of other animals. If this is the case, researchers who, as human beings cannot remain neutral, will also have to take this into account in their behaviour and attitudes towards the human embryo.

The members of the advisory committee who are of the opinion that the status of the embryo and the foetus is determined by society find confirmation of this in the fact that historical and cultural comparisons reveal that divergent positions have been adopted here. Initially, these often concern the issue of establishing whether or to what extent embryos and foetuses are accorded a status similar to that of human *persons*. These members base their conviction on a historical analysis (seen inset).

Brief historical survey of attitudes to the status of the embryo and the foetus

Whatever the interest of the elements that may be provided by a comparative study of cultures and religions, it seems useful in particular to recall the statuses allocated to the embryo and the foetus in cultures that have influenced our own. Certain spontaneous attitudes among people in our society may still be determined by this history.

In the *ancient Near East*, unborn fruit was considered an object (of slightly less value than a plough).

This is also the case in the *Bible*: Ex. 21, 22-23. This is the only passage that is explicitly relevant to the status of the embryo and the foetus. As such it played a decisive role for centuries. This emerges among other things from Jewish tradition as expressed, for instance, in the *Talmud*: the predominant position is that which refuses to grant human status to the embryo and the foetus. For Maimonide (12th century) as well, the foetus acquires human status (and foeticide is therefore forbidden) only from the moment when, in childbirth, the head has become visible.

The same influence apparently comes into play in *Arabic-Islamic culture*: for instance, Avicenne (11th century) has no problem in recommending abortive mans alongside contraceptive means.

For the *Greeks and the Romans,* the father had to accept the newborn child *(tollere liberum*) before it was welcomed into the human community; similar customs existed in numerous cultures. So the embryo or the foetus does not seem to have been accorded any particular status.

In *Greek philosophy,* Aristotle, influenced by the distinction he made between 'form' and

'substance', raises the question of when the embryo receives its 'form', its 'soul' (after 40 days for boys, after 90 days for girls). This approach lies at the basis of the *difference in status* between a 'formed' or a 'non-formed' foetus: although Aristotle (like Plato) accepts abortion in certain cases, he advises against it for an embryo that is 'formed', 'quickened'. Stoic philosophy, on the other hand, does not grant the foetus any particular status.

This latter position apparently influenced *Roman Law* which considered the embryo (and the foetus) to be part of the mother *(mulieris portio est vel viscerum*). The rights of the child (e.g. the right to inherit) are taken into account as of conception, but subject to the condition that the child is born alive and viable.

The passage mentioned above (Exodus 21, 22-23) also exerted a great influence on *Christianity*, albeit it via the *Greek translation of the Septuagint* (3rd-2nd century B.C.). Under the Aristotelian influence, a difference is made in this translation between the 'formed' foetus (*exeikonismenon*) and the 'non-formed' foetus: in the former case, abortion carries the death penalty, in the latter a fine.

In the *New Testament* there is no indication concerning the embryo or the foetus (this is acknowledged by most experts, including Catholics). Very early on, however, (early 2nd century), a radical condemnation of contraception and abortion appeared in the *Didachè* and the *Epistle of Barnabus*.

Thus a twofold tradition was created (a) That in which under the influence of these two texts, not only abortion but also contraception was considered to be *murder*. Nor was any distinction made between early and late fruit. (b) Under the influence of the translation of the Septuagint, the *foetus informis* (until 40 days) was not granted any special status: penalties for abortion were the same as those for contraception. After this period, however, (*foetus formatus*) abortion carried the same penalties as murder. In the *East*, under the influence of *Basil,* the former interpretation predominated; in the *West,* via the interpretation of *Augustine and Jerome*, the second took precedence. This was fixed in Canon law by the *Decretum Gratiani* (1140) and in theology by *Pierre Lombard* (1154). In 1588 Pope Sixte V tried once again to promote the first principle (a) but as early as 1590 Pope Gregory XIV contested this principle and returned to principle (b). It was not until 1869 that the Church abandoned the distinction between *foetus informis* and *foetus formatus.*

It may not be deduced from these remarkable developments that the early embryo was not protected – both contraception and abortion were prohibited – but that it did not have the status of a 'person', which was the case for the *foetus formatus.*

This view must have had a major impact on the mentality of ordinary people, as a distinction has been made in *criminal law* in the countries of *western Europe* since the Middle Ages between early and late abortion (implying a different status between the early or late 'fruit'). Abortion was 'murder' as of the 'quickening' of the foetus. This distinction between early and late abortion disappeared from criminal law in the 18th century, but the penalty for abortion was not the same as for murder, again implying a difference between the embryo-foetus on the one hand and the child on the other.

Finally, for *civil law* in western countries, a human organism does not become a *'person'*, fully a subject of law, until it is born alive and viable.

It may be stated that the position towards abortion during the 19th century and in the first half of the 20th century was very negative, indicating a very high level of protection of the embryo and the foetus. Since the 1960s, attitudes have evolved in the opposite direction. This emerges from the discussions and laws on abortion. Gradually, various types of bodies have come out in favour of acceptance of abortion during the first quarter, for a wide range of indications (biologists, gynaecologists, lawyers, philosophers, theologians, etc.). The same attitude may be seen among 'conservative' and 'reformist' rabbis, the British Anglican Church and the American Episcopalian Church, the Methodist Church, the American Baptist Convention, etc. This indicates in any case that *the embryo is not accorded the same status as a newborn baby.*

Finally, a great many countries which, taken together, account for three-fifths of the world's population have drawn up laws that permit abortion during the first quarter on the basis of broad criteria. This also implies that, for many people, the status of the embryo differs clearly from that of the newborn baby.
(For references on these issues see: Vermeersch, E. *Legalisering van abortus*, Mededelingen van het Centrum voor Milieufilosofie en Bio-ethiek, Gent, RUG, 1998).

Other members of the Committee assert that the Christian churches have always placed very high value on the human embryo. The attitude that was adopted towards the human embryo was determined by the (limited) scientific knowledge of the time and by philosophical considerations. Although there was a consensus about the view that the human embryo was entitled to protection as soon as it appeared, discussions were held about the moment the human embryo received a soul. This was an important issue for the care of the soul in the event of abortion. As knowledge about the appearance of human life increased, the idea that human life is sacred right from conception also developed very quickly.

In this approach, the value of the human embryo comes from what is known as the mystery of creation. Man was created in the image and likeness of God. Therefore there is something divine about all new human life. Consequently, the value of the human embryo is related to the care and concern that God shows towards each human life, as soon as it is created. This feeling is expressed in Psalm 139: "For thou didst form my inward parts, / thou didst knit me together in my mother's womb. / I praise thee, for thou are fearful and wonderful./ Wonderful are thy works / Thou knowest me right well; my frame was not hidden from me / when I was being made in secret, intricately wrought in the depths of the earth."

The incarnation and the fact that Jesus was human also heightens the mystery of human life. The incarnation implies a divine dimension to human existence. This is illustrated, among other things, by the gospels of childhood. The American moral theologian A. Mc Cormick, considered an authority, expresses this as follows: " In other words, the biblical story teaches us to think of unborn children in a very special way (1982) ". Last but certainly not least, the

example of Jesus Christ teaches us that the smallest and the weakest should not attract less of our attention, but deserve our respect as much, if not more than the strong and the powerful of this world.
To sum up, these Committee members assert that the human embryo carries within itself an invitation to be treated with respect.

3.3. The human person

3.3.1. *From the point of view of the sciences of nature*, it is possible by convention to designate as *an organism of the species homo sapiens* that which develops from the human zygote until the final destruction of the brain of a human body. From 14 days after fertilisation we refer to an *individual* or an *individual organism* of this species (after 14 days separation into twins is no longer possible).

Some members of the Committee stress that historical study and comparison of cultures show that these beings which science calls 'organisms of the human species' have never all been considered *real humans* (or members of the tribe or the clan). In some cultures, to become 'human' newborn babies even had to be subjected to a ritual of acceptance. Above all, however, in almost all societies, *foetuses* were not counted as members of the human community and *there has never been a culture* in which *embryos* were unanimously considered 'full humans'.

Conversely, certain cultures, and especially Christian cultures, impose strict bans on abortion, particularly late abortion, very early on. It may be concluded from this that they attributed a special status to the *'foetus formatus'*, the foetus after '*quickening'*.

The question of the *nature of this particular status* has often been raised in the following form: "from what moment in time does an organism like this acquire human status, the status of a 'human person?'. Sometimes, in debates on abortion, the issue of its authorisation has been raised in this way too. The members of the Committee already mentioned above believe that a clear discussion on this subject is only fruitful if terminology is used that has the same meaning, systematically defined with care. Otherwise, problems of substance become confused owing to disagreement regarding the words.[5]

[5] If for example we ask the question *When does human life begin?* this may be understood to mean:
(a) From what period in the evolution of hominids can these beings be referred to as "humans"?
(b) At what moment does a new *unique* organism of the human species appear (which can no longer divide)?
(c) At what moment does an organism of the human species appear that has a new and unique genome (but is possibly still capable of dividing)?

With regards to the ideas set out in the previous paragraphs, *other members of the Committee* believe that human societies are increasingly enhancing the value of respect for human rights. This emerges, among other things, from the various initiatives in favour of development aid, the abolition of slavery, the abolition of the death sentence, etc. This respect is inspired by an attitude of enhancing the value of vulnerable human life. For many people, this also leads to a wish to respect the human embryo 'as a person'.

The first members Committee referred to (see point 3.3.1. paragraph 2) would like to stress once again the recommendation that it is important to take account of the type of discourse involved when questions are formulated or responses set out. If 'human' is understood to mean 'an organism of *the species homo sapiens*' then the context is usually scientific. If the term 'human' is used in an *anthropological, ethical or legal* discourse, which is usually this case in this debate, the definition need to be examined *in the context of these discourses* before the questions can be answered.

3.3.2. *These same members of the Committee* (see point 3.3.1. paragraph 2) propose the following analysis of the expression 'human person' from their anthropological, ethical and legal point of view.

Philosophical anthropology, which in the Middle Ages was known as *psychology*, considered the issue of the essential characteristics of the human being compared with animals on the one hand and with angels, devils and God on the other.

Two aspects were highlighted as early as Aristotle: man has a body like the animals, but he has reason as well: so he is a reasonable animal *(zōion logon echon, rational animal)*. Christian

---

(d) At what moment does a unique human organism appear that is granted full human rights in a given society?
(e) At what moment does a unique organism of the human species appear that, according to certain groups or individuals, *should* be granted full human rights?

For the first four questions, a response can be drawn up by means of a scientific examination, which would lead to a broad consensus:

(a) approximately 200,000 years ago, according to a convention accepted among specialist
(b) at the latest 14 days after conception,
(c) upon conception,
(d) that depends on the law. In Belgium, for example, any human organism born alive and viable. […]
(e) However, for (e), the response will differ depending on the points of view of those taking part in the debate.

The Committee members indicated here would like to be told in each case if the question referred to is (e) or one of the other questions, and they would like no new terms to be introduced into the debate without these first having been specified. If, for instance, reference is to be made to 'weak' or 'vulnerable' beings, it is essential to specify what sort of organism is referred to, as this may also refer to animal embryos. The same prudence is required when using terms such as 'individual', 'person', etc.

tradition used this twofold criterion: in this way, it was possible to distinguish man from both the beasts and the angels.

During the Renaissance, this medial position of man and his capacity to choose *freely* for the best and for the worst was seen as the core of his dignity (Pic de la Mirandole: *De Dignitate hominis* – The dignity of man).

For more recent philosophers such as Descartes, Pascal and Locke, the accent was placed on the conscience and the reflective conscience as essential characteristics of reason and as a source of freedom. For empirical Anglo-Saxon philosophers and the French materialists, the accent, moreover, was placed on the fact that humans are beings who aim for enjoyment and/or happiness and who are entitled to it.

Kant transformed this anthropological discourse into an *ethical* discourse. Self-awareness and will are what distinguish man radically from ordinary things (including animals); this is what makes man a *person*, who takes decisions freely, but who also bears full responsibility for them. This 'being a person' forms the foundation of his *human dignity.* For Kant, a *person* is a being who, by reason of his *freedom,* is himself his own end, and who can therefore never placed simply in the position of a means.

Since the American *Declaration of Independence* (1776) and the French *Déclaration des Droits de Homme et du Citoyen* (1789), the idea has spread widely that inalienable *rights* were linked to the very fact of being 'human': primarily the right to life, freedom and happiness. Kant's *ethical* call to permit every man to be his 'end in itself' was thus also given a legal dimension. Henceforth the traditional questions posed by *philosophical anthropology* concerning the *being* of humans: their relations with God, with the Cosmos, with their fellow men, their self-awareness and the sense of their existence, are matters for both ethical thinking and legal thinking.

So it may be expected that the question of which beings fulfil the conditions to be 'persons' in the Kantian sense of the term, or to be holders of human rights, would be answered in this search for the essence of the human condition. However, western thought did not develop along these lines. The question of the delimitation of *all beings* who hold these rights has only rarely been posed in philosophical thought.

This is connected to the fact that when thinking about the *essential characteristics* of the human being, both in philosophy and in human sciences (such as sociology and cultural anthropology) it is the *adult human being* who is taken as the prototype.

Characterisations such as the '*rational animal'* of Aristotle and Thomas, the '*roseau pensant*' of Pascal, the being in which '*Selbstbewusstsein'* becomes *'Selbstzweck'* of Kant, the being who '*must* not but *wants to'* of Schiller, *'the animal that knows how to promise, lie and torture'* of Schopenhauer, *'the beast that knows how to revere'* of Nietzsche, who 'knows how

to say *no'* of Scheler, the *tool-making animal'* of Franklin, the *'Dasein'* between '*Geworfenheit'* and *'Entwurf'* of Heidegger, or the one who cannot be an '*I'* without a *'You'* of Buber, etc. etc.: all these 'decisive' traits do not apply to a newborn child and even less to a seriously demented old man. And the same remark applies for 'humans' who, according to sociology, play a *role* in the *'institutions'* or for those who produce and circulate *cultural creations* according to cultural anthropology.

In short, what is described by philosophy or by the human sciences as characteristic of 'the human being' or 'the person' does not always apply to all the beings to whom we wish to grant traditional ethical and legal rights, in other words, whom we consider to be 'persons' or 'full human beings'.

Let us call '*human',* or *'person' in the anthropological sense considered here,* beings who are referred to in almost all the general definitions of 'the human' put forward by philosophical anthropology or the human sciences. When the relevant texts are examined, such a 'person' must meet at least the following traits.

This is a being of the human species, characterised by unicity. He has awareness, that is he is the subject of perceptions and/or sensations; he has reflexive awareness, that is he can take himself or his own sensations as an object of awareness; he knows suffering and happiness; he experiences desires and knows what it is to have an autonomous will.

It is an undeniable empirical fact that an embryo or a foetus, but also a newborn baby or a seriously demented old man are not 'humans' or 'persons' in this anthropological sense of the term. However, newborn infants and the demented, for instances, are considered *to be entitled to human rights*, even if no detailed arguments are usually put forward on this subject.

The reason for this gap in terms of justification lies mainly in the fact that traditionally, we have two *simple criteria* with regard to ethical and legal rights which for many years did not give rise to any discussion: birth and death.

And so a distinction is made spontaneously, without much analysis, between (a) a human being – or a person – in the *anthropological sense* and (b) a human being – or a person - as a being whom society recognises as having *ethical* and *legal* rights, or in other words, a *status*.

To describe the set referred to under (b), the definition put forward under (a) is difficult to accommodate as its limits are too vague. (For instance, from what moment in time has a child acquired the traits that are characteristic of 'humans'?). Conversely, the criteria of 'birth' and 'death' are very easy to accommodate in practice (and in law), but they do pose problems in terms of principles. So it proved possible to 'found' the right to liberty by referring to the *fact* that humans have, to a more or less similar degree, reflexive awareness and an aspiration to

achieve autonomy but, in the strict sense, this justification only applies for beings who are humans *in the anthropological meaning of the term.*

Recent developments in biomedical sciences mean that life can be extended or shortened artificially, so that 'death' becomes an embarrassment as a 'natural' criterion. Similar, we intervene at various stages in the productive process, with the consequence that the 'beginning of life' is no longer a 'natural' fact either. So a precise demarcation of the set referred to under '(b)' is becoming increasingly difficult.

This leads some people, mainly where problems related to reproduction are concerned, to use another type of unit so that the start and end of life can be set with a view to acknowledging human rights: i.e. all the 'organisms of the species homo sapiens' as this species appears in science and in nature (see for example 4.2. and 4.4.1.). As we will see later on, this choice tends to lead to a series of new problems (for instance, should people in a chronic vegetative coma be treated as 'full persons'? Should we bring all embryos into the world at all costs, even if seriously disabled? And even if this effort endangers the mother's life?).

In very general terms, it may be said that to resolve ethical and legal issues it hardly makes sense to call upon criteria that have not been developed for this type of question. In practical terms, if the human community wishes to define limits in the process of human reproduction, with a view to acknowledging rights and establishing norms, it must do so after having carefully examined the advantages and disadvantages of these criteria themselves, for individual and general well-being. The stages distinguished by scientists in their own area are not relevant with regard to these human objectives.

We conclude these thoughts on the 'human person' by stressing that it is important to make the following distinction: (1) The terms 'human' and 'person' exist in the *anthropological* sense where, in a primarily descriptive fashion, the point is to seek that which characterises the adult human. In this context, it is difficult to demarcate all these 'persons' precisely, but this is not really important. (2) Alongside this there are the terms 'person' or 'full human' in their *ethical* or *legal* sense. The criteria used to describe this set are important owing to the impact they have on life in society. When stipulating these criteria we need to take account of a number of facts, but basically, this will be a *decision* of society, taken by consensus or by a majority, after an ethical and legal debate.

As regards the embryo and the foetus, as has already been said, it emerges that the question is not what status *they have*, but what status society is to *attribute to them*.

This question may be compared to that which we may ask ourselves concerning the status of certain animals. The description of these organisms by the natural sciences does not result in a defined status for them. Taking into account the fact that are capable of feelings of pain and well-being that seem comparable to our own, arguments may be put forward with a view to *according* them a status that will alter the way we behave towards them.

3.3.3. Finally, it is important to note that the ideas developed in this section 3.3.2 are not shared by all the members of the Committee. The members referred to under point 3.1.2. have a different conception of philosophical anthropology and tend more to think that the embryo and the foetus have *intrinsic* characteristics that must place constraints on the social choices made. According to these members, one important characteristic of the embryo is its 'ultimate purpose'. This is understood to mean that the embryo as an 'organism of the species homo sapiens' contains the elements of a growth process whereby, owing to an intrinsic dynamic process (potentiality) and following a clearly defined development plan, it is capable of becoming a human individual [6].

Chapter IV. Ethical status of the human embryo

In Chapter V, which will deal with the practical conditions under which experiments on (human) embryos *in vitro* would be acceptable, roughly speaking the following points of view will be outlined. (a) Some people believe that the destruction of human embryos is unacceptable, and this renders all experiments virtually impossible. (b) Other people believe that embryos in vitro (irrespective of their origin) which are not (or no longer) part of a reproductive project, can be subjected to experiments in the same was as animal embryos, provided that they are destroyed when the experiment is over. Another group believes that human embryos must always be shown a certain respect, which leads some (c) only to accept experiments on 'surplus embryos' (resulting from the end of a parental project), and others (d) to accept the creation of embryos for research purposes should surplus embryos not be suitable.

Upon examining *ethical positions of principle* concerning the status of the embryo, which lead to these conclusions, we note that there are not four fundamental positions that correspond to these four *practical* lines of conduct. Moreover, setting out an overall view of the issue is made even more difficult by the fact that some positions only concern the embryo *in vitro*, while others are founded in a global concept that concerns the status of both embryos and foetuses.

In initial distinction can be made between (1) those who could be called 'externalists' or 'intentionalists', who believe that the status of the embryo *in vitro* is determined exclusively by the intentions of others, in this case those who have developed the parental project, in respect

[6] Cf. Encyclopédie philosophique universelle, les Notions philosophiques, I, p.994, the word Finalité: "*Parmi ces faits de finalité on mentionne la régulation et la régénération des embryons, c'est-à-dire la faculté que possède, à un certain stade de développement, un fragment de l'organisme d'édifier organisme tout entier ou d'en reconstituer une région ou un organe*".

of them and (2) the 'internalists' who build their point of view mainly on the characteristics of the embryo itself. However, (3) the two aspects can also be combined.

Within the group of 'internalists', further distinctions can be made on the basis of various criteria. There are the 'essentialists', who believe that the status of the embryo is determined by intrinsic characteristics, and the 'conventionalists', who stress that the status of the embryo is determined by a convention within society. Using another criterion, on the one hand there are those whom we will call 'fixists' who define precise separating lines that mark the beginning of a particular status, and on the other hand those whom we will call 'gradualists' who focus attention on the fact of on-going and gradual development. (Other intermediary positions are also possible among these criteria and these groups).

Those who uphold the 'externalist' or 'intentionalist' position stand out very clearly from all the others; we will deal with them first of all, as **'group (a)'**. Certain positions that are described in the literature but which do not seem to be supported by any members of the Committee will be mentioned only briefly. On the other hand, we will pay particular attention to two positions which are widely upheld. These are the positions held by the *Congregation for the Doctrine of Faith* (4.2.1.) whom part of the Belgian population may be assumed to support (we refer to them here as **'group (b)'**) as well as the position upheld by supporters of the 'potentiality argument (4.3.) which has caused a considerable stir (position of '**group (d)'** in this opinion). **'Group (c)'**, meanwhile, is made up of those who assert that the embryo has an absolute 'value to be protected' as of the 15th day and a more limited value during the first 14 days (there may be different motives for adopting this point of view). Finally, those who, within these broad outlines, may agree with the 'gradualist' position (set out in 4.4.) belong to **'group (e)'**. Here again, there may be some differences among those who support this position.

No conclusion regarding the number of members in favour of a position may be drawn from the order in which these positions are presented or the length at which they are set out in this opinion.

The accounts given below are in each case attributed to one of the *groups* mentioned above; where this is not the case, they express a consensus among Committee members.

4.1. The 'intentionalist' (externalist) point of view of the moral status of the embryo and the foetus - *(group (a))*

Some ethical theories are based on the point of view that only persons who exist have interests and hence rights. This principle has to be qualified by the consideration that beings that do not yet exist have rights if they will exist in the future and will become persons. So an embryo or a foetus does not have the right to be born (no right to life), but does have rights if it

is destined to be born. Potential persons to be or in the making have interests and rights if the intention is to make persons of them or if they are offered the possibility of becoming real people.

In this position, the embryo is accorded a variable ethical status but the big difference compared with the 'gradualist' position is that this ethical status depends very heavily on will. In other words, the fact of considering the embryo to be a person depends on the decision taken by persons who exist. The 'potential or 'future' quality is not a property inherent in the embryo, but a property that is granted to it.

The intentionalist position upholds the idea that it is up to the human being to give sense to natural events: the probability that a given process (fertilisation, pregnancy) leads to a given result (birth) is determined by the intentions of competent persons, the sense that they confer upon it. The intentionalist position does not accord the embryo any moral status on the basis of physical properties or developments. It thereby avoids the problem confronting the gradualist position, that is how to explain why a specific phase of development entails a defined moral status and a value to be safeguarded.

An embryo *in vivo* or *in vitro* may suffer damage, but only in the sense that the future person who will be born from this embryo will suffer damage. So it is possible to create damage, even at the pre-conceptional stage, if alterations affect gametes from which persons will be born later on. In Hiroshima, children were born handicapped because their parents were exposed to the radiation from the atomic bomb before they were conceived. So the care with which a given material must be treated – be it gametes or embryos – has nothing to do with the properties of this material itself, but with the fact that it is used (or can be used) to constitute persons.

The status we accord to the embryo has consequences for the behaviour we adopt towards it. There are numerous rules in the practice of IVF that are in line with the positions set out above. This treatment results in a surplus of embryos. If certain embryos display defects or for any reason are not suitable for implantation, they are destroyed. A few suitable embryos are implanted. For the others, great efforts are made (freezing) so that they may be implanted at a later date without damaging the future person. When, after a certain period of time, the authors of a parental project decide that the frozen embryos will not be kept either to be donated to other people or to give birth themselves, they can have them destroyed or freely give them for scientific research (they will be destroyed when this is finished). These embryos are therefore no longer part of the parental project[7]. With this decision, the embryos lose the status of 'future' person which they have had until then.

[7] See forthcoming opinion on the intended use of frozen embryos.

It is also possible to decide before conception that an embryo will be devoted to research. In this case it is not a future person and therefore is not accorded an agreed status or protection. In conclusion, for this view of the status of the embryo, it does not have any interests as such, but acquires a 'value to be protected' only as a future person.

This view of things also implies that embryos that are given for research and experimentation can no longer be kept for reimplantation. In fact, experiments can damage the embryo and hence the person that it would become. This reservation is cited in most of the declarations on embryo research. This incompatibility between experimentation and implantation poses problems regarding the transfer of experimental discoveries to their clinical applications. To pass from experimentation to implantation, it is necessary to apply restrictions and strict controls on experimentation so as to protect the person who could be born from this and the experimentation itself must be intended to provide a therapeutic advantage for this future person.

In most cases, ethical status is attributed to the embryo by the authors of a parental project, who are also usually the parents of this embryo. They attribute this status by the use they intend to make of their embryos. Donors have to consent to the use to which their gametes are to be put, to form embryos either for research purposes or for the purpose of reimplantation. If they intend them for reimplantation, the authors of the parental project may, in a second phase, decide to have surplus embryos destroyed or given to research. If the donors only authorise the creation of embryos for research from their gametes, this intended use may not be altered by other people at a later date.

The importance attributed to embryonic *development* also depends on intentions. This development is obviously an essential condition for the future existence of a person but it is not in itself restrictive. The transition from *in vitro* to *in vivo* does not, from the point of view of the principle, alter the ethical status of the embryo in any way but it does modify the decision-making power in favour of the woman in whom the embryo is implanted, given the weight of the medical and psychological risks she incurs as a result.

In the event of pregnancy, the partner (if there is one) loses much of his decision-making capacity regarding the embryo or the foetus of which he is, together with the woman, the intentional parent.

The ultimate limit of the woman's decision-making competence regarding the life or death of the embryo depends on the viability of the foetus (22 to 25 weeks). From the moment when the foetus is viable, its status of existence no longer depends solely on the woman, but also depends on society. So a viable foetus has approximately the same rights as a newborn baby.

The point of view developed above implies that an embryo that is not intended to become a person has only a relatively limited status. This status permits experimentation. Embryos have a

value to be protected which is similar to that of other rare materials of human origin. This value and the respect that results from it are expressed in the objectives of the research and the experiments for which the embryos are used. Research that aims to increase fundamental knowledge or practices in the field of medicine, and which can therefore contribute in the shorter or longer term to the development of methods that improve the well-being of human beings is in line with this respect.

Comments

(1) *Certain members of the Committee* draw attention to the fact that in the view set out above, the viability of the foetus constitutes a decisive moment at which society takes on the capacity to decide on the status of the foetus. No reason is put forward for the choice *of this moment*.

This position does not take account of the fact that viability is not a real separating line and depends heavily on the state of medical techniques and hence also the progress made in these techniques. Using the criteria mentioned above, this progress would therefore increasingly reduce the rights of parents: ultimately (artificial womb) this right would even disappear almost entirely.

Furthermore, this viability can only be expressed as a percentage of the chance of survival, given the risk of handicaps of varying severity. The suggestion that, when faced with these sometimes extremely weighty and difficult choices, "society takes over competence" is an unrealistic and for many unacceptable option.

Moreover, this position is incompatible with a very widespread feeling, which has had repercussions in most laws on abortion, that the more advanced a pregnancy is, the more serious the reasons have to be to justify an abortion. This implies that the foetus acquires an increasing 'value to be protected' during its development, irrespective of the wishes of the mother.

(2) *Other members* add that they disagree with a position that bases the entire ethical value of the embryo on the intentions of the adults that surround it alone. According to these members, the difficulty of the problem lies precisely in the fact that this value must be based on both the physically human nature of the embryo and the intentions of the adults that surround it. They do not consider it acceptable to reduce the human embryo to the animal embryo on the basis of intentions. However, the ways in which these members justify their positions are different and sometimes divergent, as we will see later on.

(3) *Certain members* express an objection regarding the 'parental project'. In their view it is a particularly dangerous development to make respect of the embryo dependent on the 'intentions' of the parents. One of the possible problems of a statement like this is, among

other things, that other vulnerable members of society could therefore be considered 'dependent' on the intentions of others.

4.2. 'Fixist' points of view: a precise definition of the moment when the moral status of the embryo or the foetus begins

All the points of view which we present from here on are wholly or partially *internalist*: they take into account characteristics specific to the embryo itself, irrespective of how people behave towards the embryo. In section 4.2 we present the ethical views that propose a clearly definable moment from which an embryo or a foetus must be treated as a person or, in other words, must be given a 'moral status'. The *fixist* aspect of these points of view (specifying a separating line) is not formulated in an equally clear-cut fashion for every position.

4.2.1. *The radical criterion of conception: the embryo as a person -* ***(group (b))***

1. This thesis is clearly evident in the point of view of the Roman Catholic Church regarding the embryo, as expressed in the *Donum Vitae* (DV) Instruction of the *Congregation for the Doctrine of Faith* (1987) and in the encyclical *Evangelium vitae* from Pope Jean Paul II (1995).

According to DV 1,1 the human being must be respected as a person from the first moment of its appearance. As soon as the egg has been fertilised, a life begins which is neither that of the father nor of the mother, but which is a new human being which develops alone. It will never become human if it is not so from this moment on.

From an ethical point of view, the product of human conception requires the unconditional respect that is due to every human being: this implies that it is granted all the rights of the person, first and foremost the inalienable right of all innocent human beings to life. It also has the right, as far as is possible, to all competent aid required by its medical condition.

The basic argument for this position is as follows: even if there remains uncertainty as to the precise moment when the embryo acquires a soul, it is in any case a 'potential person' – as formulated by the (French) National Advisory Committee on Ethics – a future person. Even if some uncertainty may persist regarding the status of the embryo, in case of doubt, the option of maximum respect must be chosen in accordance with the rule of prudence.

This means that in medical activity, interventions on the embryo are not permitted, unless there is a guarantee that neither the life nor the integrity of the future child or its mother are endangered.

Experiments on embryos without a direct therapeutic purpose for these embryos themselves are not permitted.

It is immoral to product human embryos to be used as biological material. The destruction of embryos resulting from IVF for research purposes is a serious offence. Similarly, freezing embryos is an attack on the respect to which human beings are entitled.

According to the Catholic Church, the State must recognise the right to life and physical integrity of every person, from conception to death. The law must expressly forbid human being, even n the embryonic state, being treated as experimental objects, mutilated and destroyed.

2. This position, which is sometimes also known as 'rigorist', is upheld by certain Catholic philosophers (including *E. Schockenhoff, L. Honnefelder,* and *O. O'Donavan,* among others). They have no doubt that human life begins with the fertilisation of the ovum and that from this moment on it is protected by law. They consider it absurd to carry out a cost/benefit analysis between the right to life of human embryo and its use for research purposes. Such an assessment would in fact be contrary to democratic law, even if it only occurred in exceptional cases. The suggestion that 'humanity' in the full sense of the term only comes into being as of implantation in the uterus is also rejected; the acceptance of the child by the mother does not have any fundamental effect on the status of the embryo and the fact the mother may not 'welcome' the embryo does not grant any right to carry out any research on this embryo.

The view of these philosophers is often based on what is known as Aristotelian-Thomist substantialism. According to this substantialism, the evolutive, dynamic aspect is accidental, whereas the being is permanent and the foundation of the substance. As of conception there is a new substance which – based on an act of the Creator God – is 'quickened', that is endowed with a spiritual soul. As the soul is the principle of thought, will and behaviour, the embryo is a person in actuality right from conception. The fact that the activity of thinking and wanting only appears gradually is accidental (*accidens)* and does not cast doubt upon the embryo as a spiritual substance or a person. This substantiality is, on the contrary, the key foundation of the absolute continuity of the embryo in the process of biological development.

Comments

A number of members expressed the following criticisms of this 'rigorist', entirely 'fixist' position.

(1) According to *certain members of the Committee* this point of view does not take into account the thesis put forward above in 3.1.1 and 3.3.1. This shows that a distinction must be made between the argument of the *natural sciences* and the *ethical argument*: an ethical status is not a fact that results logically from the data of the natural sciences, but the result of a decision by consensus or by a majority within society on whether or not to recognise a given status.

Even those who do not uphold this principle have to admit that no society in the history of the world has ever, whether by consensus or by a majority, granted the very young embryo the status of a person in its own right. Similarly, in theological, ethical, legal and biomedical circles,

no majority can be found along these lines. It would take an overwhelming argument to oppose this wide-ranging sensitivity.

These members also point out that the substantialist view of certain philosophers does not fit in well with the position to which the *Congregation for the Doctrine of Faith* refers by upholding the concept of the *'potential person'.*

(2) *Certain members of group (c),* who belong to the Christian faith, believe that this (rigorist) point of view remains too firmly attached the standards and value system of a given era, which raises insurmountable difficulties as regards ethically responsible judgement and conduct. Experience shows that a static view of the world is difficult to reconcile with our current knowledge of the dynamics of life and therefore leads to an argument which most people can barely understand and which is not acceptable. Finally, a static view of the world leaves scarcely any room for creativity as a specific dimension of man. If man was created "in the image and likeness of God", he must also be a co-creator. From this point of view, experiments on embryos and the search for therapies to treat serious illnesses may be considered to be the use by man of the possibilities given to him by God for the greater development of creation.

4.2.2. *Alternative criteria for moral status or status of a person*

In discussions on abortion, experiments on embryos, foetal surgery (possible mother-foetus conflict), etc., the issue arose of whether it were possible to find intermediate stages or moments concerning the start of the ethical status or the rights of the person, between fertilisation and birth. The common factor linking the points of view reported here is that they suggest clear separating lines *(fixism)* for authorising or not authorising specific types of experiments. They sometimes differ radically in terms of the arguments. Neither, moreover, are they 'fixist' to the same degree.

4.2.2.1. Beginning of an absolute moral status: 15th day **(group (c))**

A number of members of group (c), who are inspired by the Christian faith, take their inspiration mainly from the contribution of *R.A. Mc Cormick* who makes a difference between genetic individualisation and individualisation through development. He stresses that at less than 14 days, the embryo does have genetic unicity, but in the event of division remains capable of giving birth to two individuals with the same genome (identical twins); full individuals in their own right will be formed in the subsequent development. This is why a difference may be made between the moral status of the embryo before and after fourteen days. This is a fixist approach in that a choice is made to grant an absolute value to the embryo as of the fourteenth day. However, this point of view is also referred to as 'gradualist' because it grants the embryo a certain value as of conception, but a value that does not rule out the possibility of carrying out certain experiments on surplus embryos before the fifteenth day.

From this point of view, the creation of embryos for research remains unacceptable. On the one hand, the enormous burden that the fact of giving ova represents for the woman is stressed. On the other hand, the risk of the embryo being treated as a simple means with a view to another purpose is considered too high. Rejection of this type of experiment can of course limit our capacity to relieve suffering, but the alternative would imply that we were using and sacrificing one of the most vulnerable beings on earth: human life in its very early stages.

4.2.2.2. Other 'fixist' proposals

a. *Helga Kuhse and Peter Singer* who, in their ethical (utilitarian) views attach central importance to pain and the well-being of organisms, believe that the *moral status* of the foetus begins as of the moment when there is some question of sentience. On the basis of scientific studies, they believe that the embryo or the foetus becomes a *'sentient being'* between the sixth and the twentieth week. They set the 28th day as an absolute rule of safety.

b. *Baruch Brody* stresses the analogy that exists between the end of the human person, which is currently defined as the end of brain functioning, and the start of this person, which would begin with brain functioning. "Being a person" would therefore begin around the *sixth week*.

c. Far more widespread (according to members of group (e)) is the opinion that the rights of the person would begin *when the foetus is viable* outside the maternal womb. Depending on the medical support available and the risk of disability one is willing to take, this moment is between 22 and 30 weeks, at a weight of between 500 and 1500 grammes.

Comments

According to *certain members of the Committee,* these few examples (and other 'decisive' moments could be suggested) show that this search for a sound anchorage point at which to fix the appearance of the person is a perilous undertaking; they stress the following points.

(1) All the criteria proposed, even fertilisation, do not refer to an event that occurs at a given moment, but rather a process that can take hours, days and even weeks. This introduces a form of gradualism which seems to contradict the decisive nature of the proposed separating line. This in turn implies that there is after all a need to apply a separating line determined by convention, although this should preferably be sought in the facts themselves.

(2) The very fact that so many proposals are put on the table suggests that there are no truly decisive arguments for any of them.

(3) These proposals result largely from the idea criticised above that *ethical* status can be deduced from *natural scientific data* whereas these data can at best provide preparatory material to answer the question of which status society is to grant the embryo.

(4) Anglo-Saxon literature is not always clear about what is understood by *'moral status'*. For some people (such as Brody) this is an all or nothing concept: a being with a moral status is a person. For others, it is a variable characteristic: it is possible to have varying degrees of *moral status*, and this makes it possible to balance this status against other values.

(5) Finally, these positions do not really clarify the bases that justify the authorisation of certain experiments before the separating line and not others.

4.3. The embryo as a 'potential person': a solution for the moral status - (group (d))

The basic criterion considered here is worth examining specifically and in greater depth, not only because it is mentioned frequently in recent literature, but mainly because it has been used as a starting point for the opinions expressed by various important committees: the *Committee Consultatif National d'Ethique* (French) (CCNE), the *Standing Committee of European Doctors* and, to a certain extent, the *Warnock Report* (British). This criterion is not '*fixist'* because it does not fix any precise moment when the 'person' would begin before birth. However, neither is it '*gradualist*' because it does not result in the value of the embryo and then the foetus increasing as the moment of birth approaches.

For the CCNE, this principle is expressed as follows: "*The human embryo must be recognised as a potential person. This description constitutes the foundation of the respect due to it*" declares the Warnock report: "*The objection to using human embryos in research is that each one is a potential human being"*.[8]

As it is set out in the 'Ethical Report' the starting point for the CCNE must be interpreted in a more qualified manner than is often the case. The opinion does not so much say that the embryo *is* a 'potential person' but that it *must be recognised* as a potential person; this is not an assertion based on facts, but an ethical premise around which it is hoped that as large a consensus as possible can be achieved. The *Warnock Report* follows the same line when it states: "We hold the answer to such questions (of when life or personhood begin) in fact are complex amalgams of factual and moral judgments".

However, there remains the problem of finding out whether these subtle distinctions are maintained as the texts progress, and in particular whether readers are always aware of them.

---

[8] (a) *'Opinion on research on human embryos in vitro and their use for medical and scientific purposes'* (15/12/1986). The expression 'potential person' had already been used in an opinion dated 22 May 1984, but in the 'Ethics Report' attached to the opinion of 15/12/86 its meaning is clarified (b) '*A question of life, the Warnock Report on human fertilisation and embryology'*, 1985.

Comments

- Two comments may be made without hesitation about this attribution of 'potential person' or 'person in the making':

(a) At first glance these formulations give the impression of providing a clear meaning: they seem to express something that is intuitive and acceptable, and they thus open up a pathway towards a broad consensus.

(b) Historically they have played an important role because they appeared to open up a path between the two extreme positions: that of the 'rigorists', who assert that a full person exists from the very moment of conception, and that of the sciences of nature, which sees no essential (ethical) difference between an animal embryo and a human embryo. This therefore provided an opening towards a compromise which guaranteed a certain respect for the human embryo but without entirely excluding the legitimacy of experiments.

- *A certain number of members of group (e)* would like to demonstrate that the positive role played by these concepts has now been exhausted because a more precise analysis has revealed insurmountable weaknesses.

(1) *The meaning* of the term 'potential is not analysed in the texts referred to. This leads us to suppose that the use of this term may be referred to that found in the usual dictionaries. Now, we see here that this term designated something that is possible, that *'can*' exist, in particular as opposed to something that "actually" exists, that '*really'* exists. The only positive aspect of the definition seems to be the referral to the 'possibility' of existing, but with the negative connotation, particularly in French, that that which is '*potentiel'* – potential, is not 'real and therefore does not exist as such.[9]

Philosophical tradition does not provide much clarity regarding this term either. This concept is only used in Aristotelian thought and even here its meaning remains vague and is explained only by analogies. In contemporary encyclopaedias of philosophy, this term hardly appears, if at

---

[9] *'Oxford English Dictionary'*: "potential": possible as opposed to actual; existing in posse or in a latent or undeveloped state, capable of coming into being or in action. *Littré*:" qui existe en puissance; se dit par opposition à l'actuel ". *Dictionnaire du Français Contemporain*: "se dit d'une chose qui existe en puissance, virtuellement mais non réellement". *Robert*: "qui existe en puissance, opposé à l'actuel". *Nouveau Larousse Universel*: "qui n'est qu'en puissance".

all. All this seems to be fairly limited for a concept that is to play a central role in an ethical and even legal discourse on the embryo.[10]

Recent literature contains some critical discussions of the use of this concept. This brings us to the conclusion that it is extremely difficult to formulate an adequate definition of the term since depending on the type of discourse or context, it can take on a whole range of different meanings. It is difficult to draw conclusions that are not ambiguous from the use of the term 'potential person'. There is, however, a consensus about the fact that that which is 'potential' is certainly not 'actual' or 'real. But this does nothing to resolve the doubt about whether we should apply to a 'potential person' the Kantian standards that state that a person may never simply be given the status of means because it is also always an end in itself.[11]

(2) The lack of precision regarding the implications of this potentiality also appears when this concept is applied in practice.

In the *Donum Vitae* Instruction of the *Congregation for the Doctrine of Faith* (1987) the statement that the embryo is a 'potential person' forms a link in the argument that leads to a ban on any experiments on embryos.

In the *Warnock Report* this formula leads to a certain number of procedural restrictions concerning the handling of embryos, but not a ban on experiments even using embryos created solely for research purposes.

In the CCNE Opinion of 1986, which takes the same starting point as a basis, the conclusion reached is that experiments on surplus embryos are permitted, but that there must be a total ban on the creation of embryos for research purposes.

(3) However, the CCNE itself does not seem to be entirely unchanging as regards the scope of this principle. In fact, the Opinion of 18 January 2001 proposes that two exceptions to the ban should be permitted. Embryos can be created for research on the one hand to validate new

---

[10] In *Notions philosophiques* (3.279 p) of the *Encyclopédie Philosophique Universelle,* the term 'potentiel' only refers to 'potential energy', a concept of physics; the term 'puissance' is discussed, but from a mainly Aristotelian point of view which does not clarify the concept of 'potentiel'. The index of the *Encyclopaedia of Bioethics* (2.950 p) which contains over 6000 terms, mentions neither 'potential' or 'potentiality'. In the *Encyclopaedia of Philosophy* (Paul Edwards, 4.205 p) reference is made on about ten pages to the use of the term by Aristotle and its rejection by Cobham; no definition is given. This also applies for the recent *Routledge Encyclopaedia of Philosophy (1998, 10 vol.)* In the index (479 p) of the *Dictionary of the History of Ideas* (Philip. P Wiener, 2.531 p) the terms 'potential' or 'potentiality' are not found.

[11] See for instance Fagot-Largeault Anne, Les droit de l'embryon (foetus) humain et la notion de personne potentielle, *Revue de Métaphysique et de Morale*, 3, (1987), pp 361-385; Singer Peter & Dawson Karin, IVF technology and the argument from potential, *Philosophy and Public Affairs*, 17 (1988), 87-104; Buckle Stephen, Arguing from potential, *Bioethics*, 2 (1988), 227-253 ; Hottois,G. & Missa J.-N. , *Nouvelle encyclopédie de bioéthique ,*(2001), p.643-644.

reproduction techniques before these are authorised in France, and on the other hand, at least for a majority within the CCNE, in the context of research into therapeutic clones. It is also worth pointing out that this latter expansion appears despite the explicit statement in the *Opinion* that embryos which may be created by cloning from a somatic cell nucleus would have the same status as those resulting from normal reproduction.

The reasons for this extension of the ethical impact of the principle referred to here may be found in the following passage: "The work on the so-called therapeutic cloning of human embryos will inevitably develop in various countries ... Abandoning this would render French society dependent on research carried out abroad..."[12].

- *Certain members of group (c)* react positively to this concept (potential person) as the reflection of a minimum consensus in a tricky ethical problem in a pluralist society, and would like to add the following considerations.

The authors who support this concept wish to avoid two extremes: on the one hand the reduction of the embryo to a simple extension of the mother's body, with the result that it would not merit more respect than any other cell; on the other hand equivalence but no more, on a biological basis, of the embryo and a human person. This is why, adopting a phenomenological approach to the human image, they consider the embryo to be 'a potential human person'. They refer to it as a 'potential person', and not as a 'person' in order to stress as much the radical relationship between the embryo and a developed person as its considerable difference from this. It resembles a person in that at the end of an ongoing development process it could become an adult person. It differs just as fundamentally because a huge distance separates a fertilised egg which has multiplied into a few cells and a free, developed individual who thinks, talks and organises his behaviour. They therefore feel that it is a misuse of language to refer to an embryo as a 'full human person in its own right' immediately as of conception. According to them, it is only a person with a potential existence, among other things owing to its genetic biological individuality. This biological basis is in fact a necessary condition, but is in no way sufficient to 'be a person', or even better, for the embryo to become a person. According to those who uphold the argument of potentiality, this is where the entirely positive contribution of the argument of recognition by other human beings takes its place. According to them, the embryo can in fact only develop to become a person in the right circumstances and under specific conditions. This does not only concern the biological and maternal somatic conditions, but also psychological, affective-relational, social and cultural conditions. The possibility of becoming a person, which in this argument is insurmountably

---

[12] The shift in interpretation towards responding better to the needs of research could be seen in the *Opinion* of 1997 *'on the constitution of collection of human embryonic cells and their use for therapeutic and scientific purposes'.* See above: Langlois Anne, Is the embryo always a potential person? , *Les cahiers du CCNE*, 15, (1998), pp 32-36.

granted from the moment of conception, can in fact only be achieved to the point of becoming a full person with the contribution of other human beings. It must be clear that according to this vision of things, this recognition by human beings co-constitutes 'being a person', but does not do so alone, either. The best and most intensive efforts to raise an organism that is biologically non-human, an animal, a dog for instance, to the level of a human person will never succeed. This is because the biological conditions on which human individuality and the fact of being a human person depend, that is having a human genetic programme, are insurmountably missing. Advocates of this position maintain that recognition by humans will never be able to establish a given genetic heritage as a person if it does not contain the possibility of becoming human.

The intrinsic biological dynamics that lead from the embryo to the child also means that there is a radical difference – and not solely continuity - between the gametes on the one hand and the embryo on the other. If they unite, spermatozoids and ova can develop to form a child, and as such possess a certain potentiality. However, the difference is that a spermatozoid or an ovum alone cannot produce a child. They first have to be united. Moreover, they do no unit spontaneously, but can only come into contact with one another further to an external intervention, whether sexual or technical. The embryo, on the other hand, according to these authors, has internal dynamics that enable it - if everything occurs normally - to develop until it becomes a human person without the active intervention of third parties. So from this point of view there is a difference between contraception and abortion. Contraception prevents the formation of a fertilised egg, while abortion intervenes in the normal development process and prevents the potentialities present from developing to become a human person. Gametes are not potential persons, whereas the embryo is.

- *Certain members of group (e)* make the following comment about the above: if biological 'potentiality' is merely a necessary condition, and recognition by humans is needed to actualise it, what happens when this recognition is lacking? What ethical conclusions can be deduced from this 'potentiality'?

4.4. Gradualist approach: a variable ethical status for the embryo and the foetus - *(group (e))*

The members of group (e) believe that the efforts made to grant the status of a person at a given moment in the development of the embryo or the foetus lead to conceptual and methodological problems, and in any case do not open the way to a consensus. In a situation like this, everyone can abide by their own position so that a compromise becomes impossible. Rational debate ceases and the discussion is closed simply by balances of forces. Another

strategy consists of beginning from *points on which everyone agrees* and then looking step by step to see whether arguments can be found together to expand the consensus to include other points. With the social starting point referred to here, we are not talking about a superficial, poorly throughout out feeling, but a consensus that is also accepted by everyone who has thought about the problem.

As regards the problem confronting us here, there is in fact a consensus at least, both in legal and in ethical terms, about the fact that living and viable *newborn babies* are integrated into the human community. (The consensus here depends on the fact that *no-one proposes a later moment*). They therefore automatically share in the rights and the protection enjoyed by adults: they are considered *full human beings in their own right*, *persons (*in the ethical and legal sense of the word*)*, as regards everything that concerns their rights and their interests, in particular the protection of their life and their well-being.

There were no restrictive reasons *in the facts* to make these rights begin at birth. There is no absolute necessarily linking the norms to the facts and, as has already been said, the decisive moment occurred a little later in some cultures. However, there are good reasons for asserting that this convention is an excellent choice. In fact, autonomous existence begins with birth (without a womb or an umbilical cord) along with socialisation and integration into culture. In a word, one becomes a member of a community.

From a *psychological* point of view, as well, this is the moment when the mother, and often both parents, have a total perception of all the external traits of the child for the first time and express their initial behaviour towards it: the child is fully present in visual, auditory, olfactory and above all tactile terms for the first time. These perceptions and the first care given to the newborn baby are also accompanied by *feelings* which are probably determined partly by biology, partly by culture, and which very often lead within a very short period of time to a very strong positive investment in the child.

4.4.1. An ethical status on the basis of socially valid human attitudes and feelings ***(group (e))***

The argument set out below is based on the idea that examining certain profoundly human feelings may bring *enlightenment* to the undeniable fact that a great many people are led to attribute a certain value to the stages that precede birth. Moreover, when this explanation is examined more closely, we can see that it is also possible to draw a rational *argument* from it to support a type of status that may attract wider acceptance than the proposals put forward above.

4.4.1.1. A crucial observation

During the discussions on the status of the human foetus and embryo, we cannot escape the following *crucial observation*. As soon as we reach agreement on the fact that we have an

ethical and legal duty to welcome each *newborn* child into the human community, it becomes unbearably artificial not to adopt the same attitude towards both a *foetus* a few days before birth and that a few weeks before birth.

If, from the moment of birth, we go back day by day towards the previous states in foetal and embryonic development, we will never find a precise moment when, on the basis of the facts themselves, we can say: 'before such-and-such a moment, there were no reasons to grant it human rights, whereas after this moment there were'.

The attitudes and feelings we intuitively experience towards a baby – tendency toward tenderness, protection, worry about reacting wrongly, as well as feelings of indignation and anger faced with an abandoned or mistreated child – all these feelings are not first and foremost, as we experience them, the result of noting a *de jure* situation: "this child is legally protected ". No: they are aroused spontaneously by the actual baby we see: its appearance, its movements, its cries and everything that is specific to it.

Now, we would have to force ourselves to adopt another attitude towards a foetus of, for instance, 36 weeks. Only totally cynical people or those devoid of any emotion could behave adequately towards a baby and remain entirely without emotions before a foetus at this advanced stage of pregnancy.

The *Warnock Report*, too, indicates that there is a need to take account of the spontaneous feelings of ordinary people, but this point of view differs radically from that which we are putting forward here. The presence of certain types of feelings among ordinary people does not absolutely require us to drawn ethical consequences from this: the existence of feelings of rejection towards homosexuality, for instance, does not offer an adequate basis to judge this on an ethical basis.

As regards the point of view upheld here, it is also important to show that the feelings referred to above play an irreplaceably favourable role in psychological life and in society, such that it would be socially harmful to efface them.

As regards the feelings experienced when faced with a foetus at an advanced stage of pregnancy, it may certainly be asserted that, as regards society, it would be a regrettable backward step if people were to evolve towards a form of cynicism in their respective attitudes towards a baby on the one hand and a foetus at this stage of development on the other. Anyone who, from an ethical or a legal point of view, would authorise or encourage emotional indifference towards an eight-month foetus, for example, would run the risk of also sapping the positive effect that these feelings have on our behaviour towards children. In fact, respect for ethical values – such as the special protection that the child calls for – is strongly supported in day-to-day practice when it is interiorised and backed up by *spontaneous* emotions.

4.4.1.2. Degrees in emotional investment

a) Some people use the observation of this spontaneous transfer of attitudes towards newborn babies to foetuses at an advanced stage of pregnancy as an argument for granting all human rights to 'unborn life' from the stage of the zygote. In fact, they say, if from the earliest stages we are unable to find any moment in the development process when an essential change may occur, then we have no option but to grant the zygote human rights.

This type of reasoning could be referred to as the *sophism of continuity.* Properties that appear slowly (whether quantitative or qualitative, or both) do not in general display any very specific breakpoint in the course of their evolution. However, seen over a long period, this does not mean that fundamental changes cannot occur which justify an alteration in the assessment or a different legal status.[13] Examination of the development of the embryo and the foetus reveals this characteristic: for instance at one stage there is no trace of any organ, while at a later stage the foetus is viable outside the maternal uterus.

Just as properties change gradually, but ultimately result in major differences, so it is with the *attitudes* and *feelings* referred to above.

It is spontaneous and normal human behaviour to identify a 36-week foetus with a newborn baby. But this is far less so with a six-week embryo which we would not even be able to identify as a human embryo without the aid of a specialist.

The process of identification, and hence also our empathy, declines as we are confronted with earlier stages.

It is *artificial* to deny that a 36-week foetus arouses in us feelings that are comparable to those aroused by a baby, but it is equally artificial to assert that an embryo the size of a pinhead arouses such feelings as well.

In both cases there is a risk of harming very precious feelings, on the basis of a largely metaphysical construction.

[13] If you look at an acorn, and the first tiny shoot that emerges from it, then you look at it again day after day, you will see a continuous development. But everyone can make the difference between these first stages and an oak tree 15 metres high which grew from it after a few years. Up until a certain time, a child is incapable of walking in a straight line; after a certain period of time, it can do this without any problem; when did this ability begin?
A three-year-old child is immature, admittedly, and is entitled to totally different treatment from other people than that which will be to the adult he will have become 20 years later. However, there is no one moment when, in the facts themselves, the transition to the adult age can be fixed. A newborn baby does not know a word of language; a seven-year-old child has a good vocabulary and a substantial command of syntax. The difference is huge, but no-on can say exactly when mastery of the languages began. There are countless such examples and we have to stress that this is not just playing with words: "when do we call someone an adult?" There may also be major ethical consequences (e.g. responsibility) and legal consequences (e.g. civil responsibilities) linked to these definitions. In any case, we have to define the separating lines by means of conventions or legal provisions.

b) This means that the degree to which we identify a foetus with a newborn baby will decline slowly as we move towards the earlier stages of development and, to the same extent, these spontaneous feelings will become less intense. However, bearing in mind that it is these *socially valid feelings* that form the basis of the fact that we give the 'value to be protected' of the newborn baby to an older foetus, this 'value to be protected' is also felt less intensive towards the earlier stages. This implies that it is sensible that moral standards, as well as legal provisions, take account of these slow changes that occur in terms of both structure and appearance in the embryo and the foetus.

In short, *the same reasons* that lead us to grant value to the stages that precede birth also oblige us to see this value as *evolving*: it is less obvious as we move towards the earlier stages of development. This way of looking at the issue has the great advantage of offering an explanation for a virtually universal intuition which, for instance, has played a major role in the discussions on abortion: as we are confronted with the later stages of development, we have to attribute more value to the foetus, and the indications for an abortion have to be weightier.

c) A second aspect of this approach is to show once again that owing to the continuous nature of development and of the feelings that accompany it, we will not always be able to find clear boundaries *in the facts themselves*, and those which are used, both ethically and legally, will have to be based on a *convention.* This convention will need to take full account of certain factual data – including the socially valid feelings mentioned above - but ultimately the separating lines will have to be set by a consensus or a majority.

4.4.2. 'Gradualist' conception of the expression 'potential person' - ***(group (e))***

It has been shown above that the poorly defined and unqualified use of the term 'potential person' does not provide a basis for a clear description of an ethical and legal status. However, the terms 'potential' and 'in the making' may, if appropriately analysed, provide clarity in the debates.

When examining the successive stages in the development of an embryo and a foetus, it is difficult to shake off the impression that each time there is 'something' here that plays an important role in the appearance of a human being. This impression also forms part of the 'spontaneous feelings' of many people. However, the term 'potential person' applied without nuance to the early embryo is simplistic because it distracts our attention from the huge importance of various external factors in the process of becoming, and the great differences in 'potentialities' that result from this depending on the stage of development.

It therefore seems necessary to analyse in detail the concepts of 'potential' and 'potentiality' to reach a definition that permits the judicious use of these terms when presenting an argument.

Let us refer to a developing entity (for instance an embryo or a foetus) as “E”; let us refer to the final stage in this development as “H” (e.g. human).

When we say that E is an H *'in the making'*, or that E has the ‘*potentiality*’ to become H, we can then distinguish the following factors that play a role here: (1) The degree of *probability* that E will indeed evolve as far as H: of course, this probability is stronger for a seven-month-old foetus than for a two-day-old embryo. (2) The degree of *resemblance in structure* (isomorphism) between E and H: the structure of a nine-week-old foetus resembles H more strongly than a six-day-old embryo, but less strongly than an eight-month-old foetus. (3) The degree of *independence* or autonomy of E in relation to a specialised environment (e.g. the uterus): a 20-week-old foetus has less independence that a 30-week-old foetus.

Each of these characteristics can be examined objectively: taken as a whole, they express to a considerable extent what we feel spontaneously when we find that a nine-week-old foetus, for example, ‘is more human’ than a pre-embryo, but less so than a 30-week-old foetus.

A definition like this shows that the attitudes and feelings which we have described under 4.4.1. have a sound basis in observable facts. It clarifies the meaning concealed in the term 'potentiality'. Many people think that an embryo, a foetus, whatever stage it has reached, is nevertheless ‘something’ that is part of the process of becoming a human being: this falls into the domain of ‘the human’ and there merits being approached with a form of respect or restraint.

However, this detail added to the expression ‘E is a human being in the making’ also underlines once again that this ‘potentiality’, this ‘being in the making’ is not an ‘all-or-nothing’ characteristic and that we have to take account of this characteristic of *variability* when recognising its value.

An entity E which is poorly placed in respect of one or more of the three relevant factors mentioned above cannot be given the same status as another which may lie closer to H on these three points. Similarly, although an embryo in vitro is 'something' which may finally lead to the birth of a human being – which must give rise to a certain amount of respect – it is so far removed from this end result in terms of all its relevant characteristics that granting it the same status as a 35-week-old foetus is totally counter-intuitive and lacking in any reasonable foundation[14].

[14] In addition to the three characteristics mentioned above, we should also include the ‘time’ factor: the closer the childbirth stage, the more the being is felt to be 'a child' or 'almost a child'. This time dimension is largely at the basis of the other three, so it does not seem useful to introduce it as a fourth parameter.
It is mainly the ‘structural resemblance’ characteristic which is related to both the internal and the external structure, that contributes towards clarifying the situation in concrete ethical dilemmas. For example, with regard to the abortion of an older foetus, owing to a serious disability: to what extent can an older foetus be considered a human person? To compare this being to a human, or even a mammal, it must have a functional neocortex – this is a necessary but not a sufficient condition. Now, the first synapses between the neocortical cells form towards the 18th week. To be able to interact with the rest of the body, the neocortex must, in addition, be connected to the thalamus. The first thalamocortical connections appear in about the 22nd week. It may therefore be said that in terms of brain activity, a

Similarly, the demonstration given in 4.4.1. makes it acceptable to grant 'value to be protected' to the embryo and the foetus in increasing degrees, but shows that the facts themselves do not allow any obvious decision to be taken as to this value. If the boundaries have to be marked out, they have to be set by *consensu*s or by a majority.

Comments

Among the members of group (e) – who support the gradualist hypothesis set out above – some feel that it is useful to supplement the argument put forward with a number of psychological and anthropological considerations. The virtually universal feeling of protection and cosseting that is shown towards newborn babies does not, in their view, result from a cultural consensus or a majority, but a fundamental structure of the psyche which these disciplines describe using the term 'taboo on murder', understood in the positive sense of identification with one's fellow creatures and recognition. As regards the human psyche, the emergence of the introspective conscience is not a solely cognitive process but also the introduction of an affective relationship with oneself: every individual has to nurture sufficient acceptance and benevolence towards themselves to maintain their desire for their own life and life with their fellow creatures. Now, the psychological clinic clearly shows that this relationship with oneself is copied by identification with that which parents or educators display towards the child. This process is remains necessary for adults, as can be seen from the concern so often expressed 'to be recognised'. When this relationship of acceptance or recognition by others is lacking, the subject sometimes is no longer able to esteem himself or establishes a relationship of violence towards others.

So it is understandable that this positive aspect of the ban on murder, which is the stipulation that parents accept their children and, above and beyond this, each member of society accepts the others, constitutes a structural psychological process. Moreover, this same process lies at the basis of the social link that enables members of a society to live and work together.

The virtually universal feeling described above towards newborn babies expresses the real-life experience of this stipulation, and the feeling of psychological vital necessity which it arouses in the vast majority of people. Furthermore, the processes of identification involved

---

second-quarter foetus cannot exceed the level of the brain of a reptile and in practice is even inferior to this. Consequently the sensitivity to pain which is characteristic of mammals does not appear before the 22nd week and probably only takes on any meaning much later on. This only concerns the pain felt by mammals, and not yet typically human pain.

As has already been mentioned numerous times, these facts do not lead directly to ethical conclusions, but they can contribute towards enriching and deepening the ethical debate.

here obviously make it possible to understand that these feelings only become established gradually during the growth from the embryo to the newborn baby.

4.4.3. Gradualist conception of the expression 'parental project' - ***(group (e))***

As those who uphold the point of view '4.1.' rightly stress, there is another consideration that meets with a broad consensus. Whatever the human feelings and thoughts relating to the embryo and the foetus as such, as soon as a couple or a single person develops a procreation project, the embryo is seen from the start of the pregnancy as 'the expected child'. The feelings and expectations planned here will grow stronger as the weeks and months pass, but this does not alter the fact that right from the outset the future parents attach great value to that which is developing in the womb. With IVF this attitude appears even before pregnancy: the embryos in vitro acquire intense value. In these cases, the 'value to be protected' of the embryo is very high from the start.

However, it is important to see that this valuation is linked to an *intentio*n, to the parent project itself. So no general standard or value can be extrapolated from it. For instance, when someone is confronted with an unwanted pregnancy, these feelings are no longer present, or at least they exist in a highly ambivalent form. So parents whose desire for a child has been realised by IVF often no longer worry at all about the surplus embryos and sometimes even totally forget that they still exist. So it is not the embryo itself which is the object of the valuation, but only 'the embryo which is to lead to the birth of a desired child'.

Within the procreation plan, it is not only IVF embryos that are valued: sperm and ova are seen as living stages towards the child in the making and acquire a high 'value to be protected'. Laboratory experts therefore have to show them respect similar to that due to the embryo.

Artificial reproduction techniques give rise to another relationship that does not pose any problem with natural reproduction: the *right to decide* about the embryos. The individual rights that each person has regarding their own body extend to their genome and in particular to its reproduction in interaction with the genome of a partner. In the parental project, this right to decide is greater still as there is a commitment to give birth, via this genome, to a full person and to bring this person up. This implies that in addition to the values of which we have spoken, any manipulation of the embryos and gametes is only legitimate with the *informed consent* of those who produced them, or those at whose disposal they have been placed by donation.

This context of the parental project is not necessarily relevant with regard *general* questions relating to the status of the embryo and the foetus, but it has a certain role to play *once and as long as it exists* [15].

[15] See forthcoming opinion on the intended use of frozen embryos.

4.4.4. Gradualism and the embryo in vitro ***(group (e))***

4.4.4.1. Respect – Instrumentalisation - Protection

a. The gradualist approach indicates that the embryo *in vitro* is certainly not a person. The most important characteristics of the person as set out in the Universal Declaration of Human Rights and in the anthropological definitions (3.3.2.) are missing entirely here: (a) reflexive conscience and the resultant self-responsibility and (b) aiming for happiness and avoiding suffering, are entirely missing in an embryo like this.

For many people since Kant, the specific dignity of the human being is linked to the fact that it is a person: so the fact that the person is an end in itself and can never be reduced simply to the status of a means does not apply to the embryo.

There is no foundation either in logic or in fact for having to grant the embryo this ethical dimension on the basis of 'potentiality'. Moreover, it has been shown that this potentiality is itself a variable characteristic that the embryo in vitro possesses to only a limited extent.

From the gradualist point of view, however, it is possible to maintain that even limited potentiality (4.4.2.) and the related limited feelings (4.4.1.) constitute a sufficient argument to give rise to behaviour of *respect*, including towards the embryo in vitro - respect which becomes far greater in the context of a parental project (4.4.3).

b. It is often wrongly suggested that the embryo can only have two statuses: a) a sort of value that is more or less similar to that of a 'person' (in the ethical or legal sense of the term), which would rule out any 'instrumentalisation', or b) reduction to an 'ordinary object' in respect of which any form of restraint would be pointless. Those who argue in favour of a form of 'respect' towards the embryo would therefore necessarily be referred to type a).

This acceptance of the word 'respect' does not fit in at all with the way in which it is considered in human life. There are series of terms, including 'esteem', 'respect' 'reserve', 'deference' and 'appreciation', which express particular attitudes towards their object. The behaviour that matches these attitudes expresses veneration, fear, affection, piety, etc. depending on the various gradations.

Setting aside the typically 'Kantian' respect appropriate for a person (end in itself), there are all sorts of forms of respect and reserve in a less absolute sense, which we grant to living beings and even inert objects. We show *respect* for the mortal remains of human being. Muslims have great veneration for the black stone in the Kaaba of Mecca ; and certain works of art are considered the inviolable heritage of humanity. In numerous cultures certain animals are surrounded by a particular prestige, and according to our laws we have to treat animals used in experiments with restraint and guarantee their well-being as well as we can.

Clearly, then, there are numerous intermediate forms between the status of person and that of an object of no value.

The respect shown for certain beings does not mean that they cannot be used for a higher purpose, subject to founded arguments. The use of the demeaning term instrumentalisation or 'reification' is inappropriate in this context. Examinations and research on human bodies are entirely legitimate subject to the informed consent of those concerned and treatment that respects their dignity. Moreover, many of those who certainly do not consider animals to be 'objects of no value' and call for them to be respected due to their sensitivity to suffering accept that we subject them to experiments for the well-being of humanity, provided that certain precautions are observed.

Similarly, those who argue in favour of a variable ethical status for embryos and foetuses, and who therefore deny that these are 'persons', continue to argue in favour of respect and restraint towards these embryos, but do not at all deduce from this that they cannot be subjected to experiments. Moreover, this restraint requires that this be done with circumspection and in the interests of valid objectives. How far we can go, and to achieve what goals, will depend on the degree of 'respect' that each individual wishes to accord at each stage and the importance for human well-being of the research being considered.

The term *'value to be protected'* which we use in this context expresses a greater form of respect in two situations in particular. First of all, in the context of a *parental project* (4.4.3) in which every effort has to be made to achieve successful fertilisation, implantation and the following stages with as many guarantees as possible for the expected child. The second type of context involves the reasons referred to under 4.4.1 and 4.4.2: *as and when a pregnancy develops* – whether wanted or not – this calls for increasing protection.

c. Finally, as regards respect and the 'value to be protected', it is worth wondering whether a distinction should be made between embryos that are the result of ordinary fertilisation and those which originate in the transfer of a somatic cell (diploid) in an enucleated oocyte. A third type could even be distinguished: those that are the result of the division of an embryo into its totipotent cells.

According to the members of the Committee who uphold the gradualist theory, one single question has to be asked *from the ethical point of view.* If this organism were transferred to a uterus, could it develop to the stage where it could become a normal child? If the answer is 'yes', then on the basis on the arguments put forward under '4.4.1' and '4.4.2.', it must be placed on the same level as any other embryo as regards everything relating to its *ethical* or *legal* status.

Moreover, in its Opinion of 18/1/2001, the CCNE adopted the same position, putting forward the argument that the consequence of the opposite hypothesis would be to

compromise the fully human status of a child which may be born as a result of reproductive cloning – however unacceptable this may be. [16]

4.4.4.2. Other ethical dimensions

a. In order not to neglect any of the ethical dimensions, we have to consider the issue of experiments on embryos in accordance with the basic practical rules usually adopted in medical ethics.
(group (e))

1). 2). *Beneficence, non maleficence.* The rule *' ōphelein ē mē blaptein' 'help, or at least do not harm'* has existed in medical ethics since the time of the Ancient Greeks. It is worth wondering to what extent this rule applies to experiments on embryos. '*Acting well'* or beneficence involves promoting the well-being of the other party in one way or another. This may concern the present or the future. Bearing in mind that the embryo *in vitro* does not have any trace of a nervous systems, or in other words is not a *'sentient being',* it may not experience well-being for the time being; from this point of view, it is not possible to act with '*beneficence* towards it; for the same reasons, it cannot be harmed or caused pain by the experiments.

However, it could be said that by putting an end to their existence, such embryos are deprived of future well-being, or that the simple fact of existing should be considered good in itself. Under the planned conditions, however, they do not incur any harm. In fact, surplus embryos are no longer part of a reproduction project, and will be destroyed in any case, and embryos created solely for research purpose would otherwise never have existed.

On the other hand, it may be argued that experimentation itself is a form of 'doing good' because scientific progress serves '*general well-being'*.

3) *Autonomy.* Over the past few decades in particular, self-disposal or autonomy has become a central theme in medical ethics. Embryos are not conscious and therefore certainly not in a position to dispose of themselves. Moreover, the rule of autonomy is indeed observed in respect of persons whose gametes have given rise to the embryo: the procedures always require their informed consent.

4) *Justice*. This rule, which is now growing in importance, is applied above all so as to avoid any discrimination in patient treatment. It does not apply to embryos themselves, bearing in mind that in their situation they can sense neither harm nor well-being. In the long term, the

[16] See along the same lines 'First principles in cloning', *The Lancet, Vol. 353, January 9, 1999, 81*

results of research will benefit all humanity. In the short term, those who benefit from results earlier are favoured, but this situation occurs with medical progress in many fields.

5) *Impact social*. In addition to these four general rules, it seems reasonable to formulate a fifth from the point of view of a gradualist approach. This refers to the fact that certain practices may disturb people's 'general feelings' (see 4.4.1.), as is the fact, for instance, with the profanation of cadavers (although these themselves do not suffer at all). It is also possible that people are shocked by certain applications of biotechnology. However, the analysis put forward under 4.4.1 shows that as regards experiments on embryos *in vitro* this should only be feared to a very slight extent, which does not carry much weight compared with the advantages to be expected for humanity.

b. ***1.*** *Some members of the Committee* point out as regards point a.5 that there remain general injustices in the choices of priority for investment in research as regards the well-being of humanity. Embryo research does not necessarily seem to be a priority when faced with pathologies other than sterility, such as the major infectious and parasitic diseases that are decimating the populations of the third world, for instance. We realise, however, that this is only a partial aspect of a much wider issue of world economic justice.

2. *Some members of the Committee* also stress the precautions to be taken so as to avoid another possible injustice relating to the production of embryos for research.

In some cases, this involves the need for women to undergo hormonal stimulation and the removal of oocytes, which means they run somatic risks and which are in any case unpleasant for them. These members feel that the stakes of embryo research do not justify these risks and this suffering, even if certain women consent to them voluntarily.

For *certain members of group (e),* this discussion falls under the general conditions for the legitimacy of experiments on people defined in Opinion No 13 of 9 July 2001 on experiments on people when these are patients, and the future *Opinion* 'Experimentation on healthy volunteers' already announced in the aforementioned '*Opinion*, if it involves women volunteers who are not in need of medical treatment. In fact, suggesting that they may be less capable than any other responsible adult of deciding to take part in an experiment of this type, given that every citizen has the right to take part in experiments, would be to consider women in a discriminatory and to say the least paternalistic manner.

Moreover, this ban would call into question the practice currently admitted of donating oocytes (or even organ donations from living donors, at a risk that is often greater than that incurred when oocytes are removed). It does not take into account that procedures other than ovarian stimulation are being developed to gain access to oocytes, among other things for the purpose of experimentation.

3. Obviously - and here there is a consensus among *all the Committee members*, there must be no possibility of asking women to undergo such procedures in return for *payment*. In fact, only those women who may find themselves in financial difficulties would make use of such as source of revenue.

Moreover, the Committee members feel that the respect and reserve that must be shown towards the human embryo absolutely forbid any *marketing* of this embryo.

4.4.5. Conclusions (group (e))

Analysing feelings and attitudes reveals that most people tend, to a certain extent, to identify the embryo and the foetus with a newborn child (4.4.1). This means that it is socially valuable to grant the embryo and the foetus a certain status of respect and protection, but to an extent that diminishes as we move closer to the earlier stages of pregnancy. The analysis of the changing characteristics of a 'person in the making' confirms the coherence of meaning and even the operational nature from the techno-scientific point of view of an evolving status like this (4.2.2). Finally, the attention paid to the 'parental project' shows that specific contexts can give rise to specific forms of valuation (4.4.3).

It may be concluded from this that granting embryos and foetuses a 'value to be protected' can meet with a broad consensus among the human community if this value is considered in terms of the concrete stage of development and the way in which people react spontaneously to this.

It is not possible to respond with one voice to the question of the degree to which this value should be estimated in each specific case. The value attributed on the one hand to the embryo and on the other to the results hoped for from the research depends on each individual's view of life. However, when clarifying the relevant aspects of these issues, in the face of concrete situations and issues, a majority or even sometimes a consensus may emerge.

Comments

- *Some members of group (c)* express a series of criticisms regarding the points of view referred to as 'gradualist'. First of all, these members feel that it may be dangerous in an ethical debate to base one's arguments on a point of view 'that is accepted by everyone' (4.4 as well as 4.4.1.c). Bearing in mind the major impact of the media in our western society today, and the sometimes inadequately qualified points of view put forward by these media on ethical questions, serious questions arise as to what is 'accepted by everyone'. Countless examples in the past and even today clearly show that such a point of view can lead to manipulation and to the possible abuse of power in sensitive ethical topics. These members add that certain ethical

topics are virtually never presented. Here too, they doubt the possibility and the feasibility of looking at whether or given proposal 'is indeed accepted by everyone'. In their eyes, this is therefore a very weak and debatable starting point for ethical reasoning. They also feel that using this starting point has very harmful consequences or at least may have such consequences for the credibility of the arguments put forward from the 'gradualist' position.

In addition, these members doubt that from a psychological point of view, birth is the moment when those around actually become fully aware of the value of the child. Various currents of psychological thought in fact stress the huge importance of the prenatal surroundings for the well-being of the child.

Thirdly, the "reverse" reasoning (that is beginning with respect for the child at birth and then moving backwards towards the earlier stages of prenatal development) is, in their view, not very convincing. They assert that parents have as many 'spontaneous feelings of respect' for the fertilised eggs that come from their gametes. These members find it difficult to trace the demarcation lines here. They feel it would be far more legitimate, for instance, to do this on the basis of 'potentiality'.

Fourthly, these members stress that those who uphold the 'gradualist' position support the argument that respect for ethical values in daily life is greatly stimulated when these values are interiorised. This is why these members are convinced that the great value of the protection of human life, including life that is not yet born, is interiorised to such a degree that it forms a better starting point for ethical reasoning concerning the embryo than the reasoning based on 'feelings' for the 'newborn child'.

- *Some members of group (e)* point out (1°) that they understand the word 'consensus' to mean the agreement of all the *experts* who however follow differing trends; (2°) that the importance of the prenatal surroundings is not in any way denied, but that they are talking about the psycho-social impact of birth; (3°) that under 4.4.3. they stress that parents display strong feeling towards their embryos, but that this is not true of everyone towards embryos in general; (4°) that the broad acceptance of abortion in the first quarter does not indicate a high level of interiorisation of protection of the embryo.

Chapter V. Experiments on human embryos in vitro

5.1. Objectives and characteristics

a. Experiments on embryos have come into being the context of the search for solutions to the problem of female infertility. This proved successful in 1978, with the birth of the first 'test-tube baby' by *in vitro fertilisation (IVF).*

The applications of this method were subsequently improved by *freezing embryos* (CRYO) (1984).

In 1992 the VUB obtained the first birth by *intracytoplasmic injection* of a single spermatozoid (ICSI), which provides a partial solution to the problem of male infertility.

Each of these techniques, once discovered, expanded significantly in terms of its application in the world. Since then, tens of thousands of IVF and ICSI babies have been born.

A number of members of the Committee (including group(e)) feel it is important to recall that these techniques were developed by creating embryos specifically for experiments.

They are surprised that several ethical bodies, both international and in certain individual countries, adopt a position of refusing this type of experiment, even though the results obtained are applied there without any problem and even without any restraint. This means that on the one hand the work of these researchers is considered a contribution to human well-being, and on the other fundamentally unethical.

b. It is generally admitted that research on embryos in vitro is desirable for the following objectives.

1). Generally speaking, to improve fundamental knowledge and intervention in human reproduction (for example as regards contraception, fertility, etc.).

- The acquisition of better fundamental knowledge of the processes of cellular differentiation and embryo growth, as well as the causes of the appearance of abnormalities (for instance, knowledge of embryology, congenital malformations, stem cells, cancer treatment or research, etc.).
- The development of knowledge and diagnostic possibilities as well, according to some people, as interventions in the genetic field (for instance genetic diseases, preimplantation diagnosis, etc.). It also seems plausible that the introduction of preimplantation diagnosis or ICSI in laboratories which have no experience of this will require a certain number of tests on embryos which will not be intended for implantation.

From the specifically scientific point of view, it is up to the specialists to demonstrate whether research can be carried out on surplus embryos, in which cases and when it will be useful or even inevitable to make use of embryos formed for research. For example, intensive research is currently being carried out to develop techniques for freezing human oocytes and ovarian tissue to preserve the fertility of young women before cancer treatment. Now, everyone can understand that the final stage (before the transfer of the embryo) of this research is only possible with embryos formed for research.

However, as has been stressed above, these scientific considerations do not give rise to any direct conclusions concerning their ethical acceptability. Developments in this field need to be followed up closely by those in charge in society and this calls for great transparency.

2). A new interest in experiments on embryos has recently emerged with the research into *stem cells.* Many people are convinced that the development of tissue (with a view to transplantation) offers more possibilities if embryo stem cells can be used rather than stem cells taken from adults or foetuses.

If this supposition were to be confirmed, there would be a need to carry out experiments on embryos to be able to realise the substantial medical hopes in this field. This research can be carried out using mainly surplus embryos for which the parental project is over.

However, many experts are convinced that the creation of stem cells from embryos using 'therapeutic cloning' gives rise to even greater medical hopes as regards transplantation, owing to the *immunological compatibility* between donor and recipient. But this type of research requires the creation of embryos (by cloning a somatic cell) intended solely for research.

So in the current scientific climate, in the opinion of many researchers, there is a clear need for experiments both on embryos created for research and on surplus embryos[17].

5.2. Points of view within the Committee

Chapter IV of this opinion set out in a fair amount of detail a series of positions regarding the status of the embryo that are echoed either within the Committee or in society. As was stated in the introduction - and this also applies for this chapter - there is no direct link between the positions of principle and the positions taken regarding concrete problems relating to the types of research carried out on embryos which are considered permissible or not. Although the basic points of view play an implicit role here, it is not possible to refer to the various groups in Chapter IV in the account of the choices set out in this chapter. So it is up to the readers themselves to deduce their initial positions of principle from the practical proposals regarding regulations. The following main points could provide useful suggestions for this purpose.

5.2.1. Consensus

The following consensus exists among the Committee members.

1°) Experiments on embryos that are still part of a procreation project are only acceptable if either they are risk-free, or they have a therapeutic purpose for the embryo itself. In this

[17] Van Steirteghem A., "Recherche sur les embryons humains in vitro" in "*L'embryon humain in vitro", Bioethics Advisory Committee, Englert Y., Van Orshoven A (Eds), (De Boeck - Université, 2000),* p.69-75.

context, it is essential that neither the health of the child nor that of the mother run any risk than is greater than the anticipated benefit. Should this occur nevertheless, and depending on the gravity of the case, termination of the pregnancy could be considered.

(2°) Experiments on embryos *in vitro* can only be carried out in the context of a research project undertaken by qualified researchers who have adequate infrastructure. This project must provide guarantees of valid results, whether this be in terms of fundamental knowledge concerning the human organism or with a view to practical applications of benefit to human well-being.

(3°) Embryos that have been subject to experiments may no longer be reimplanted except in special cases which move on from the experimental stage to the therapeutic stage.

(4°) Experiments on embryos, whatever their nature, are only acceptable if the persons from whom the gametes are taken or, if this is the case, who have donated these gametes, either with a view to carrying out experiments in general or in the context of a specific project have given their properly informed consent.

(5°) This informed consent must appear clearly by contract between the parents or authors of the parental project on the one hand and the head of the research project on the other. These gametes or embryos must be made available in a context of free and informed consent and be subject to the general rules governing human experiments on adult and competent persons described in Opinion No 13 of 9 July 2001 on experiments on people, when a patient is involved, and the future Opinion on the use of healthy volunteers for human experiments in other cases.

(6°) The requirement of important goals at which the research is striving to achieve and the conditions set out above demonstrate the account taken of the need for respect for embryos. It also means that the embryos may never be considered goods: they may never be marketed. Researchers will treat them with restraint; this means that they will use them only for strictly scientific purposes and all handling which would suggest that these embryos are merely 'objects' is forbidden.

(7°) Just as for research projects involving human experiments, research projects on embryos must be submitted to a *Local Ethical Committee* attached to a university. In addition to the general recommendations (see Opinion No 13 of 9 July 2001 C1), these committees have to ensure that conditions (a) to (e) are scrupulously respected.

(8°) Referring to Opinion No 10 of 14 June 1999 on reproductive human cloning, the Committee points out that it expressed a consensus on the fact that given the current position as regards medical progress and the ethical debate, at least a moratorium must be ordered on this subject.

(9°) Research must be undertaken transparently, for example in the form of a mandatory declaration to a recognised public body. In fact, many fantasies are linked to ignorance of what is actually being done.

5.2.2. Divergent points of view

The differences of opinion on the conditions under which experiments on human embryos in vitro may be carried out result mostly from the various positions set out above regarding the status granted to this embryo.

(1°) Some members feel that if the conditions laid down in '5.2.1.' are respected, there is no need to make differences between surplus embryos and embryos created for the purpose of research. They disagree with the rules of 'progressivity' put forward under '(3°)'. On the contrary, thy feel that research on human embryos should begin straight away, if this research can guarantee advantages in the following areas: progress in research, very probable benefits, extent of the scope of application (the number of diseases that can be treated), technical feasibility, safety and reliability of applications. The subsequent freezing of embryos which are in any case to be destroyed is morally no more valid than immediate use for research: valuable time and experience is lost, as experiments will necessarily have to be carried out on human embryos.

(2°) Other members feel that only experiments on surplus embryos may be carried out, when the authors of the parental project abandon a procreation project which they had undertaken and agree to donate their embryos for research.

(3°) *Others still* feel that the various types of research described above are acceptable as long as the following rules of progressivity are observed. First of all, if possible research should be carried out on animal embryos, then on surplus embryos, and only in cases where this is essential, should embryos be created for research purposes. In this latter case, there must be guarantees regarding the voluntary commitment of women who will donate oocytes, in accordance with the criteria laid down in Opinion No 13 of 13 July 2001 on experiments on people, and the future opinion on the use of healthy volunteers.

(4°) Some members feel that research on embryos older than 14 days is not acceptable for reasons of principle, and that thereafter the embryo must be destroyed (the period of freezing is not taken into account).

Others do not wish to set a definitive limit of principle here, but can accept a moratorium being declared on this period.

Others still do not what general limits to be set in this field.

Finally for others, the 14-day limit has no rational basis or moral relevance. So there is no reason not to permit experiments after this period if good reasons can be provided for this.

(5°) As regards the desirability of establishing legal regulations, *certain members* feel that the legislator should avoid specifying *which types of experiments* would be authorised and which types would be forbidden. They stress that it is difficult to predict the future direction which research will be called upon to take either for fundamental knowledge or with a view to human well-being. The experience of France demonstrates that overly explicit laws on the types of research that are acceptable can become a serious impediment. The ethics committees referred to below guarantee more competent monitoring of the various types of research.

(6°) To avoid variances without pointlessly hampering research, first of all there are the *Local Ethics Committees* attached to a university.

Some members feel that it is possible to respond to these two requirements more effectively by setting up a *federal commission on embryo research.* This commission must be able to examine favourable or unfavourable opinions from local ethics committees and also keep in mind the drafting of coherent national jurisprudence. Both the members of the local committee and the researchers who have submitted a research project on embryos would be able to appeal to this federal commission against a decision taken by a local ethics committee.

(7°) *Other members of the Committee* believe that monitoring by the local ethics committees is sufficient to avoid blunders.

An individual note was submitted during the discussions. It reads as follows:

"It seems necessary to make the political decision-makers who will have to deal with the legitimisation of experiments on embryos aware of the fact that the protagonists of these experiments are first and foremost women. In the history of in vitro fertilisation, women have always been compliant subjects of experiments, as they were rendered socially vulnerable by their sterility or that of their partner. Socio-political reflection among women has developed certain criticisms regarding the techniques from which they have benefited and suffered the risks. This experience has led them to uphold and draw attention to the following points.

1. Political feminism in Europe is based on the fight to acquire the right to abortion which was recognition of the right of women to the embryos they carried. This argument was ranged alongside the classical rules of public debate and these rights were obtained after having long been demanded and further to increased awareness among the political classes that led to the decriminalisation of abortion. This decriminalisation, limited to a few weeks, implied a gradualist definition of the embryo.
2. As the private sphere of sexuality became a political issue through AMP (preventive medicine agency) legislation and regulations in the 1990s, women today are calling for the right to participate - as women and special forces in reproduction - in political regulations on these issues which have become overly medicalised.
3. The fourth world conference of women in Beijing clarified the issue of assisted reproduction from the point of view of women. It stressed that, since 1995, the reproductive rights of women have been threatened. This phenomenon is heightened by the return of the fundamentalist right in many European countries, and of religious fundamentalism in the countries of the south. This results in indulgence by governments with regard to anti-termination commandoes, lobbies promoting family values, the non-application of the law on professional equality, the threat to the right to abortion, etc.
4. The issue of assisted procreation affecting the reproductive rights of women has been taken into consideration since 1997, and on occasion included in the law or constitution of certain European countries. The differentialism of genders has been introduced over the past decade in the arena of citizenship and has led to the regulation of parity. This phenomenon is paradoxically counter to the desexualisation of reproduction permitted by techniques of medically assisted fertilisation.

The core of the contradiction concerns the right to filiation and the difference between the sexes. In fact, maternity remains at the heart of the social oppression of women, even if it is a factor of private emancipation for most of them. The social question posed by medically assisted fertilisation is that the de-biologisation of filiation, though the a-sexual reproduction it enables, calls into question the social acquired rights of women. In fact, in the face of this de-

biologisation of filiation, the "power of mothers" is deemed to be abusive. The right to abortion, linked to the new social and egalitarian rights of women, is perceived as a source of inequality between the sexes. In fact, men cannot assert this right, attributed by law to the mother, to abort or give birth. So the possibility created by techniques of assisted reproduction to make the pregnancy of the woman negotiable, artificialisable, open to substitution, is perceived by some women (rightly or wrongly) as a new ritual of the appropriation of maternal power. The new argument of women of an age to procreate is to claim biological asymmetry while at the same time aiming for social equality. As writes Françoise Collin: "We have moved from the sex without generation to the generation without sex." The speed of technical progress and its non-negotiated application in the field of artificial reproduction are pushing women to ask the following question: do techniques of artificial reproduction constitute an extension of the demand of women to be in control of their reproduction or a deviation from their actual intention?

Women in the 1980s wanted to separate sexuality and procreation. Medical science now offers them procreation without sexuality with, at the heart, the promise of a more adequate child, without a disabling disease, of the desired sex.

However, it is the "invention of the foetus", then the embryo, as a *person,* more than scientific progress in reproductive techniques, that poses the problem of a conflict of interest between woman and embryo. In-vitro fertilisation has made the woman's uterus a public uterus. Foetal imagery has given the foetus a presence and enabled the creation of an early affective link for mothers. But even if the embryo is frozen, destroyed, manipulated for research, reproductive or cognitive purposes, it is claimed that a consensus must be established on the status of a person to be given to the embryo, as if the visibility of embryos had made the argument of women invisible. These comments, made by female researchers in social sciences and committed women must, like the other arguments, be included in this opinion, heard by the political decision-makers, so that the social and legal impact of research on embryos for women can be considered in its entirety.

Two arguments put forward by women predominate on this issue since the emergence of political feminism.

1. That which aims to liberate women from reproduction as a destiny thanks to techno-sciences, as maternity is perceived in an unequal society as a cause of their social alienation.
2. That which considers maternity and reproduction an inalienable power of women, which medical assistance must only reinforce.

It is therefore important to note that the issue of assisted reproduction remains a source of divergence among women themselves. Nevertheless, there is a consensus around the need to preserve the dignity of women, by placing intrusive techniques of assisted reproduction solely as the service of their needs.

So it is a matter of reconsidering greater coherence between the institutionalisation of parity and the socio-cultural use of assisted reproduction. It seems essential that women be heard by the political decision-makers on this issue that affects their acquired rights, and their future responsibility towards embryos and oocytes which remain products of their bodies, whether fertilisation has been technically assisted or not."

The opinion was prepared by the select commission 2001/1, consisting of:

Joint chairpersons	Joint reporters	Members	Member of the Bureau
L. Michel	L. Cassiers	M. Baum	Y. Englert
G. Pennings	E. Vermeersch	G. Leunens	
		G. Verdonk	
		R. Winkler	
		Authors of written amendments	
		M.L Delfosse	
		M. Dupuis	
		E. Eggermont	
		A. Pierre	
		P. Schotsmans	
		F. Van Neste	
		A. Van Steirteghem	
		L. Vermylen	

Members of the secretariat
Monique Bosson

The working documents of the select commission 2001/1 – request for an opinion, personal contributions of the members, minutes of meetings, documents consulted – are kept as Annexes 2001/1 at the Committee's documentation centre, where they may be consulted and copied.

* * *

This opinion is available on the website www.health.belgium.be/bioeth