Modern genetics holds out the promise of great benefits, but it has also created new problems which will require the participation of different state and public policy bodies for their solutions. Various religious groups have also communicated their concerns. The Roman Catholic Church, among others, has frequently expressed her position. Many have said that the Church represents a rigid position concerning the problems of modern genetics and that her general standpoint is contrary to the rapid development of this branch of science. The aim of this paper is to demonstrate what is in fact the teaching of the Church’s magisterium in this field.

The standpoint of the magisterium of the Church regarding the problems linked to the development of modern genetics can be found both in official Church documents (which are few) and in papal speeches and addresses.

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The Documents of the Church

The magisterial teaching discussed here is representative of the whole Church and ought to be accepted by her members with obedience. There are also various Church bodies which proclaim their teaching but, they are either not valid for the whole Church (e.g., the teaching of a particular conference of bishops) or do not constitute a part of the magisterium (e.g., the Pontifical Academy for Life).2

The documents of the magisterium of the Church which concern the problem of modern genetics can be divided into two groups. Some documents only mention genetic discoveries or their applications in order to offer statements on other important matters. This first group contains the Declaration of the Congregation for the Doctrine of the Faith De abortu procurato; the document of the Holy See From the Very Beginning, issued on the occasion of the International Year of Disabled Persons; the document Racial Prejudices, issued by the Pontifical Commission “Justice and Peace”; and the encyclical Evangelium vitae.6

The second group is composed of three documents which suggest some solutions to the ethical problems created by the progress of modern genetics. Two of


4This document asserts the duty of research aimed at a more accurate diagnosis of the causes of disabilities: “Present developments in the fields of genetics, fetology, perinatology, biochemistry and neurology, to mention only some disciplines, permit us to foster the hope of noticeable progress.” Secretary of State, Document of the Holy See From the Very Beginning, to all who work for the disabled, for the International Year of Disabled Persons (March 4, 1981), in Enchiridion 7, 1151.


6The encyclical indicates that the science of genetics confirms that human life begins at the moment of conception. John Paul II, Encyclical Letter, Evangelium vitae (Città del Vaticano: Libreria Editrice Vaticana, 1995), n. 60.
them, however, do not directly concern the issue of genetics,\textsuperscript{7} while the third does. They are the \textit{Instruction on Respect for Human Life in its Origin and on the Dignity of Procreation}, or \textit{Donum vitae}, issued by the Congregation for the Doctrine of the Faith; the Post-Synodal Apostolic Exhortation \textit{Christifideles laici} of Pope John Paul II; and the “Observations on The Universal Declaration on the Human Genome and Human Rights” of the Secretary of the State of the Holy See.

The Church, responding to its vocation, proclaims in the Instruction \textit{Donum vitae} moral teaching concerning the beginning of human life. As the documents previously mentioned also state, the Instruction indicates that the discoveries of modern genetics confirm that human life begins with conception. The Instruction underlines the importance of developing medical and biomedical sciences and technologies; however, it draws attention to the possibility of ambiguity in their employment. The procedure of in vitro fertilization makes possible various manipulations, genetic as well as other kinds. Solutions to emerging problems should be sought on the basis of an appropriate anthropology, not only because they concern humanity in general, but also because their subject is an individual human being, who ought to be perceived in terms both of earthly existence as a person and of transcendent destiny.\textsuperscript{8}

Respect for life and for the integrity of the embryo or fetus which is affected by the diagnosis or therapy are indispensable conditions for any morally acceptable prenatal diagnosis.\textsuperscript{9} The Instruction condemns using the results obtained from diagnosis for the purpose of aborting of the fetus. Embryo therapy may be approved if it does not involve disproportionate risks, if it improves the health or the chances of an individual fetus to survive, and if it exhibits the basic respect already mentioned.\textsuperscript{10}

\textit{Donum vitae} distinguishes between research (which is an inductive/deductive procedure) and experimentation (in which a human being is made the subject for verifying a scientific hypothesis), and condemns all nontherapeutic experiments with human embryos. Even parents cannot give permission for this type of intervention;

\textsuperscript{7}There are many fields of human life and activity where the methods of genetics and the results of genetic experimentation are used, e.g. artificial insemination, in vitro fertilization, experiments on embryos. The latter create some terminological ambiguity in defining what belongs to human genetics. Human genetics (which is the focus of most of the Church statements) is the sphere of knowledge and activity restricted to interventions which directly involve the genetic material of man. See E. Sgreccia, \textit{Fondamenti ed etica biomédica}, vol.1, \textit{Manuale di bioetica} (Milano: Vitae Pensiero, 1994), 233; B.M. Ashley and K.D. O’Rourke, \textit{Healthcare Ethics}, 3\textsuperscript{rd} ed. (St. Louis: The Catholic Health Association of the United States, 1989), 316–327; R.M. Veatch, \textit{Medical Ethics} (Boston: Jones & Bartlett Publishers, 1989), 201–228.


\textsuperscript{9}Ibid., 1180.

\textsuperscript{10}Ibid., 1183–1184.
they are not allowed to make decisions concerning the physical integrity of their progeny. Additionally, the Instruction points out manipulations which are forbidden: fertilization of human gametes with animal ones, gestation of human embryos in animal uteri, projects concerning the construction of an artificial uterus for human embryos, early embryo splitting (and the “production” of embryos in this way), cloning, parthenogenesis, and all types of nontherapeutic interventions which tend to produce human beings selected according to pre-established qualities.

The exhortation Christifideles laici states that believers should not remain indifferent to scientific and technological developments, as they are often ambiguous in their implications. Some applications create a real threat to human biological nature, especially those which aim at altering the genetic patrimony of individuals and of human generation in general.

The “Observations on the Universal Declaration on the Human Genome and Human Rights,” issued by the Secretary of State of the Holy See, indicates that some statements in the document of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) are less than accurate. In particular, the dignity of the human genome comes from the dignity of the human being and not vice versa. The UNESCO document also states that the human genome is the heritage of humanity, but it does not indicate in a detailed way who is responsible for its protection. In addition, the document undermines the individual dimension of the problem by its lack of any reference to the human embryo and fetus, which are very often the objects of genetic examination and intervention. The “Observations” also indicate the proper conditions for any genetic intervention on the genome of a person who is unable to give consent. Other comments concern the information obtained from genetic testing and the right to conscientious objection on the part of researchers and health workers, which should be secured. This document of the Holy See also states that freedom of thought should not be the only justification for

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11Ibid., 1186–1187.
12Ibid., 1192, 1194–1196.
14Christifideles laici, 1769–1771.
15“When this research is carried out not for the sake of any direct health benefit for the person, but in the interests of a third party, it is envisaged that such research will be carried out only ‘by way of exception, with utmost restraint.’ Given that it is a question of research, and therefore a very restricted intervention on the patient, it can be acceptable, provided that ‘it is not otherwise possible’ and, if the subject is unable to give consent, that further conditions are met: minimal risk, consent by those whose legal right is to give it, undoubted advantage for the health of persons in the same category, lack of other resources and possibilities for research.” “Observations on the Universal Declaration on the Human Genome and Human Rights,” see www.vatican.va/roman_curia/pontifical_academies/acdlife/documents/rc_pa_acdlife_doc_08111998_genoma_en.html, last visited September 13, 2002.
research. It should always be accompanied by freedom of conscience and religion. The UNESCO declaration states that human cloning for reproductive purposes should not be allowed, but the “Observations” point out that human cloning for other purposes (research, therapy) should also be excluded.

**Papal Speeches and Addresses**

The second major grouping of documents concerning the problem of modern genetics is composed of speeches and addresses of Pope John Paul II. The total number of discourses which mention genetics is greater than seventy, but among them only just over thirty indicate any solutions to the problems created by the development of modern genetics. In addition, these would be quite difficult to present individually, especially since some of them touch upon the same moral dilemmas. Therefore they will be presented as though they were parts of one great study, namely the teaching of Pope John Paul II concerning what is relevant to the ethical problems presented by the development of modern genetics.

The questions treated in the Pope’s discourses can be categorized according to six major issues:

- the role of the Church;
- the applications of genetics to plants and animals;
- the achievements of human genetics;
- the dangers of modern genetics;
- positive moral norms (what can be done); and
- negative moral norms (what should be avoided).

**The Role of the Church**

In his address on the occasion of the centenary of the death of Gregor Mendel, the Holy Father highly commends the achievements of the science of genetics. He emphasizes that science and faith are not contradictory, but that prudence and responsibility, which are fruits of faith, provide a correct measure in scientific investigation and applications.

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16Although the various papal pronouncements regarding the problems of modern genetics are mainly contained in Pope John Paul II’s discourses (especially in their theological and anthropological parts), they are nonetheless based upon the fundamental teachings (documents) of the Church, e.g., upon the Pastoral Constitution *Gaudium et spes* of the Second Vatican Council.

17There are also well known texts by Pope Pius XII which involve the problems at issue. Two of them are significant: Pius XII, “Problems of Heredity,” to the International Society for Blood Transfusion (September 5, 1958), *The Pope Speaks* 6.4 (1960): 386–391; Pius XII, “Morality and Eugenics,” to the Seventh International Hematological Congress (September 12, 1958), *The Pope Speaks* 6.4 (1960): 392–400. Although these express governing principles, they do not concern the typical dilemmas facing modern genetics (i.e., those linked to the development of genetic engineering) which are the object of this paper.

The Pope notes that the achievements of modern science and technology have not only changed the conditions of human life. They have also resulted in various threats to man (in particular some experiments which have alarmed society). For this reason there is an urgent need to confront them.\(^\text{19}\) For his part, modern man asks important existential questions which should be considered in the light of the Word of God. Some of them concern the meaning of science and technology (genetic and others).\(^\text{20}\) The Church has a special mission to fulfill here,\(^\text{21}\) which is limited, however, to the moral dimension of human activity.\(^\text{22}\) John Paul II notes the special role of bioethics, which is a privileged area of dialogue between the Church and science, and he underlines the importance of the pastoral and educational work of various Church institutions.\(^\text{23}\)

**Applications of Genetics to Plants and Animals**

The Holy Father highly regards the results and applications of techniques of genetic engineering in agriculture and medicine, but emphasizes that caution

\(^{19}\)John Paul II, “La Chiesa ha voluto davvero abbracciare il mondo,” alla solenne commemorazione del XXX anniversario della promulgazione della Costituzione Pastorale del Concilio Ecumenico Vaticano II Gaudium et Spes, L’Osservatore Romano 259 (1995), 4; idem, “Goodness and Love Will Save the World!” discourse to representatives of the world of science, art, and journalism at the “Festspielhaus” Theatre in Salzburg, Austria (June 26, 1988), L’Osservatore Romano (English), September 5, 1988, 14-15; idem, “Society Must Protect Embryos,” to a working party sponsored by the Pontifical Academy of Sciences and the Bilbao Vizcaya Bank Foundation (November 20, 1993), L’Osservatore Romano (English), December 1, 1993, 3.

\(^{20}\)John Paul II, “Human Dignity Can Be Protected only if the Person Is Considered Inviable from Conception until Natural Death,” at the University of Uppsala, to representatives of all of the universities of Sweden (June 9, 1989), L’Osservatore Romano (English), June 19, 1989, 17–19.

\(^{21}\)“The Church has the historic mission of helping contemporary man to recover the meaning of life and death from which in many cases today he seems to flee. Once again, in view of eternal salvation the effort of evangelization appears as a determining factor in the authentic development of man on earth…. Ours is a battle not only for the faith but also for civilization.” John Paul II, “By Proclaiming Christ, the Lord of Life, We Fight for Mankind and Civilization,” to the Symposium of the Bishops of Europe (October 17, 1989), L’Osservatore Romano (English), November 27, 1989, 10.

\(^{22}\)“It is not the Church’s task to establish the scientific and technical criteria of medical research, but it is up to the Church in the name of her mission and her centuries-old tradition, to recall the limits within which any process is beneficial to man, for freedom must always be ordered to the good. In Christ, the Church contemplates the perfect Man, the model par excellence of all men and the way to eternal life; she wishes to offer lines of thought, to enlighten her brothers and sisters in humanity and to propose to them the moral values necessary for action, which may also serve as indispensable reference points for researchers led to take decisions in which the dignity of man is involved.” John Paul II, “Society Must Protect Embryos,” 3.

\(^{23}\)John Paul II, “Celebrate and Serve Life!” to participants in the World Pro-Life Congress organized by the Pontifical Council for the Family (October 3, 1995), L’Osservatore Romano (English), October 18, 1995, 3.
should be exercised. 24 He appreciates the benefits of biological experimentation which produce “the important advantages that come from the increase of food products and from the formation of new vegetal species for the benefit of all, especially people most in need.” 25 The Pope hopes that some problems of developing nations can be resolved if they receive sufficient assistance from the countries “which have developed the most advanced modern techniques.” 26 In his address to the participants of the twenty-fourth assembly of the Food and Agricultural Organization of the United Nations, he asserts that this kind of help should be provided according to the requirements of interdependence and solidarity. 27

The Pope approves experiments on animals but also places some restrictions on them:

It is certain that animals are at the service of man and can hence be the object of experimentation. Nevertheless, they must be treated as creatures of God which are destined to serve man’s good, but not to be abused by him. Hence the diminution of experimentation on animals, which has progressively been made ever less necessary, corresponds to the plan and well-being of all creation. 28

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24John Paul II, “Science Must Contribute to true Progress of Mankind,” to the participants in the convention “The Academies of Sciences towards the Year Two Thousand” sponsored by the National Academy of Sciences (September 21, 1982), L’Osservatore Romano (English), October 4, 1982, 3.

25The Pope concludes this discourse addressed to the participants of the meeting of the Pontifical Academy of Sciences: “In terminating these reflections of mine, which show how much I approve and support your worthy researches, I reaffirm that they must all be subject to moral principles and values, which respect and realize in its fullness the dignity of man.” John Paul II, “Biological Experimentations Should Contribute to the Integral Well-being of Mankind,” to the participants of the Week of Study sponsored by the Pontifical Academy of Sciences (October 23, 1982), L’Osservatore Romano (English), November 8, 1982, 4–5.

26Ibid.


28John Paul II, “Biological Experimentations,” 4–5. Idem, “A Very Strict Moral Code Is Needed for the Use of and Experimentation with Medicines,” to the Pontifical Commission for the Apostolate of Health Care Workers First International Conference “Medicines at the Service of Human Life” (October 24, 1986), L’Osservatore Romano (English), November 24, 1986, 15. The confirmation of this teaching is then provided by the Catechism of the Catholic Church: “Animals, like plants and inanimate beings, are by nature destined for the common good of past, present, and future humanity. Use of the mineral, vegetable, and animal resources of the universe cannot be divorced from respect for moral imperatives. Man’s dominion over inanimate and other living beings granted by the Creator is not absolute; it is limited by concern for the quality of life of his neighbor, including generations to come; it requires a religious respect for the integrity of creation.” See n. 2415, and also nn. 2416–2418.
Achievements of Modern Genetics

In his discourse to the members of the Pontifical Academy of Sciences on October 3, 1981, John Paul II expresses his high opinion of the achievements of molecular biology and genetics.\(^{29}\) Progress in these fields promises great advantages in the near future:

It is also to be hoped ... that the new techniques of modification of the genetic code, in particular cases of genetic or chromosomal diseases, will be a motive of hope for the great number of people affected by those maladies....

Through the transfer of genes, certain specific diseases can be cured, such as sickle-cell anemia, which in many countries affects individuals of the same ethnic origin. It should likewise be recalled that some hereditary diseases can be avoided through progress in biological experimentation.

The research of modern biology gives hope that the transfer and mutations of genes can ameliorate the condition of those who are affected by chromosomal diseases; in this way the smallest and weakest of human beings can be cured during their intrauterine life or in the period immediately after birth.\(^{30}\)

The greatest expectations, however, are connected with the Human Genome Project (HGP), which is highly welcomed by the Pope. If the scientific investigation linked to the HGP respects the sacredness and inviolability of human life and human dignity, it is recognized as consistent with the moral teaching of the Church.\(^{31}\) This great scientific enterprise not only manifests the greatness of God, the Creator, but also brings new data which help us to know better the biological mechanisms which are proper to man, as well as various limits to his freedom.\(^{32}\) It opens a new perspective on the treatment of genetic diseases and disorders, particularly genetic therapy:

The prospects of genetic therapy for treating diseases are likewise hopeful and deserve the commitment of science and the skill of those carrying out research. But in genetic therapy extreme care must be taken to avoid endangering the physical integrity and the life of each individual.\(^{33}\)

\(^{29}\)“I realize the advantages that result—and can still result—from the study and applications of molecular biology, supplemented by other disciplines such as genetics and its technological application in agriculture and industry, and also, as is envisaged, for the treatment of various illnesses, some of a hereditary character.” John Paul II, “Spiritual Heritage of Humanity Should Accompany and Control Scientific Research,” to the Pontifical Academy of Sciences (October 3, 1981), L’Osservatore Romano (English), October 12, 1981, 4.


\(^{32}\)John Paul II, “The Human Person Must Be the Beginning, Subject and Goal of All Scientific Research,” to Pontifical Academy of Sciences (October 28, 1994), L’Osservatore Romano (English), November 9, 1994, 3.

\(^{33}\)John Paul II, “Teach a new and respectful Attitude Towards the Environment which Will Ensure the Preservation of Natural Resources,” to a group of scientists attending a
The discourses of John Paul II testify clearly that the Pope is aware of the ambiguous implications of science, and in particular, of the science of genetics. The Dangers of Modern Genetics

One of the greatest dangers of modern genetics comes from the improper application of its achievements. Much depends on the social climate (the attitudes of consumerism or permissive hedonism, the utilitarian culture, and a materialist mentality in particular), which influences individual moral decisions. The Holy Father speaks about a tolerance that tends to become indifference, a release from moral obligation, and moral relativism, which is manifested by the conviction that everything is allowed that is not forbidden by law. John Paul speaks also about other factors which are similarly influential:

Disregard for the sacred character of life in the womb weakens the very fabric of civilization; it prepares a mentality, and even a public attitude, that can lead to the acceptance of other practices that are against the fundamental rights of the individual. This mentality can … prepare the way for those forms of genetic engineering that go against life, the dangers of which are not yet fully known to the general public.
The development of medical science brings about the so-called “medicalization” of the beginning and the end of human life, obliteration of its transcendent and mysterious dimension, so that “the experience of life is no longer ontological, but technological.”\(^39\) The Holy Father calls attention to two particular attitudes which violate the sacredness of life and threaten its beginning, namely the “right to a baby” (as if people had a right to have a baby) and the “quality of life” (the value of life depends on its quality).\(^40\) According to John Paul II, the dangers of genetics are enormous and comparable to the destructive power of chemical and atomic weaponry (he mentions these three dangers together many times).\(^41\) This serious threat has two sources: the risk of genetic interventions and the abuse of scientific capabilities, which are otherwise good in themselves.

In his discourses the Pope concentrates mainly on the possible misuse of acquired capabilities, and primarily on those involved in genetic manipulation,\(^42\) which could radically harm man through an illegitimate control of his genetic makeup.

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\(^39\)The Pope quotes here the words of the participants of the Seventh Symposium of European Bishops. John Paul II, “By Proclaiming Christ,” 5.

\(^40\)The surprising scientific developments of genetics and biogenetics, in fact, tempt people with the prospect of extraordinary results of technical perfection. However, these results are radically ruined by being included in the logic of the manufacture of a product and not the procreation of a person.” Ibid., 10. See also John Paul II, “There Is No Moral Justification for Neonatal Euthanasia,” to the participants in the eleventh European Congress of Perinatal Medicine (April 14, 1988), L’Osservatore Romano (English), May 2, 1988, 11; idem, “L’uomo deve trovare spazio nella Chiesa per difendersi non più dal sistema ma dal cattivo uso della libertà.” Varsavia: L’incontro con la Conferenza Episcopale Polacca (9.VI.1991), Insegnamenti XIV, 1 (1991), 1642.

\(^41\)For example, John Paul II, “Man’s Entire Humanity Is Expressed in Culture,” to the representatives of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (June 2, 1980), L’Osservatore Romano (English), June 23, 1980, 9–12; idem, “The Crisis of the Neo-Scientific Mentality Opens a New Place for the Vital Dialogue Between the Church and Post-Modern Society,” to the participants in the plenary assembly of the Secretariat for Non-Believers (March 5, 1988), L’Osservatore Romano (English), March 21, 1988, 10–11; idem, “Celebrate and Serve Life!”, 3.

\(^42\)John Paul II, “‘Keep Holy the Lord’s Day’ in the Interests of Workers, Families, and Culture,” at Bottrop, Germany, to miners and other representatives of the industrial sector (May 2, 1987), L’Osservatore Romano (English), May 25, 1987, 5–7; idem, “Renew the Conscience of Europe in the Light of the Gospel Message,” general audience (October 12, 1988), L’Osservatore Romano (English), October 17, 1988, 11. On the other hand the Pope notices the ambiguity of the term genetic manipulation: “To tell the truth, the expression ‘genetic manipulation’ remains ambiguous and should constitute an object of true moral discernment, for it covers on the one hand adventurous endeavors aimed at promoting I know not what kind of superman and, on the other hand, desirable and salutary interventions aimed at the correction of anomalies such as certain hereditary illnesses, not to mention the beneficent applications in the domains of animal and vegetable biology that favor food production.” Idem, “The Dangers of Genetic Manipulation,” 11.
thereby negatively influencing human life, integrity, and fulfilment. Apart from the wrongfulness of the manipulation itself, the Holy Father also points out other possible causes of deep anxiety, in particular the breaking of confidentiality in regard to genetic information, and the misuse of this type of information, which may result in eugenically motivated embryo selection or marginalization of people with genetic disorders.

*Positive Moral Norms (What Ought to Be Done)*

In light of the great potentialities of modern genetics, as well as their ambiguous implications, Pope John Paul II lays a great stress on the standard of human dignity. Progress in genetics is beneficial and should be developed by reference to moral norms founded on an integral vision of man. Each person is responsible for his or her own genetic patrimony, which information should be protected. On the other hand, when a couple plans procreation, data about the possible transmission of a genetic disorder should be seriously taken into consideration. Pointing to the obligation to protect the human genetic patrimony, the Pope also postulates various norms as a kind of safeguard for human integrity, especially in relation to embryos. The law ought to defend human subjects against the growing power of technology. If it allows abuses, it will contradict the dignity of the human person.

The Holy Father distinguishes between two types of genetic interventions: therapeutic, the object of which is the cure of illness and which, as such, is directed towards the natural development of the human being; and nontherapeutic, which exceeds these limits of therapy *sensu stricto*. Therapeutic interventions which

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47 John Paul II, “Scientific Progress Cannot Prescind from the Dignity of Man’s Destiny,” to the participants of the First International Medical Congress “Pre-Natal Diagnosis and Surgical Treatment of Congenital Malformations” of the Pro-Life Movement (December 3, 1982), *L’Osservatore Romano* (English), January 3–10, 1983, 19.


50 “A strictly therapeutic intervention whose explicit objective is the healing of various maladies such as those stemming from deficiencies of chromosomes,” John Paul II, “The Dangers of Genetic Manipulation,” 10. Nontherapeutic is defined as: “an intervention
involve the genetic makeup of man, if they tend to promote individual health conditions and neither harm the integrity of the subject nor make the conditions of his life worse, should be considered morally acceptable. Therefore experimentation on an embryo is permitted only if it is the sole means for saving the embryo (i.e., if it is a therapeutic intervention). Similarly, other possible interferences, such as prenatal diagnosis, are acceptable only when the good of the embryo or fetus is their object.

The Holy Father also mentions the fundamental norms for any interference in the human genome: it absolutely must respect the specificity of the human species, the transcendent vocation of humanity, and its incomparable dignity. The human genome concerns the biological identity of each human subject and is a part of the human condition, through which God carries out the mission He has given to parents. The possibility of determining the genetic map of a human being cannot lead to a reductionist vision of man (as if he had only a genetically determined biological dimension).

John Paul II does not reject nontherapeutic genetic interventions, but specifies conditions for their acceptance:

♦ respect for the origin of human life, i.e., procreation must be linked to the spiritual and biological union of parents, united in marriage;
♦ respect for human dignity and the biological nature of man which determines his liberty;
♦ avoidance of manipulations aimed at modification of the genetic patrimony and the creation of different classes of people with the resulting risk of divisions in society;
♦ the motive of intervention should not be based on racial factors, a materialistic mentality grounded in a reduced vision of man and motivated ideologically, or by scientific or social utility.

Genetic manipulation is arbitrary and unjust when the subject is reduced to a mere object, devoid of autonomy and not treated in accordance with criteria founded on an integral vision of the human person. Scientific and technical progress should always preserve the dignity of the human person. As human life is the most impor-
tant value in the hierarchy of medical values, the first principle remains always the same: “first oppose everything harmful, then seek out and pursue the good”\textsuperscript{55} (\textit{primum non nocere; bonum est prosequendum et faciendum}).

Considering problems of modern genetics which are of great importance not only to individuals but to whole societies, the Holy Father underlines the necessity that the public be given appropriate and complete information.\textsuperscript{56}

**Negative Moral Norms (What Is Forbidden)**

John Paul II draws attention to the dangerous effects of certain forms of genetic manipulation which merit condemnation: the threat to future generations and the violation of human liberty and dignity.\textsuperscript{57} All attempts to subordinate the individual to society at the expense of the good of the individual,\textsuperscript{58} or to subordinate man to science (medicine) viewed as the supreme value, should be condemned. The Holy Father asserts that increase in human knowledge should not be sought at any cost.\textsuperscript{59} He confirms the prohibition of experiments not directed to the good of the individual and in particular nontherapeutic interventions on gametes or embryos, and any ideologically motivated nontherapeutic interference (e.g., dictated by eugenic or discriminating considerations).\textsuperscript{60}

In his address to the members of the Pontifical Academy for Life (February 24, 1998), the Pope also excluded intervention on germ line cells and early embryos (germ line genetic therapy) from the morally acceptable forms of genetic therapy. The context of his statement suggests that the reason for this exclusion is the extremely high risk of this kind of medical intervention.\textsuperscript{61} The Pope also rejects all

\textsuperscript{55}John Paul II, “The Dangers of Genetic Manipulation,” 11.

\textsuperscript{56}John Paul II, “Harmonize the Values of Technology with the Values of Conscience,” at the European Center for Nuclear Research (CERN) to the scientific community (June 15, 1982), \textit{L’Osservatore Romano} (English), July 26, 1982, 7–8.

\textsuperscript{57}John Paul II, “Biological Experimentations,” 4–5; idem, “Human Dignity Must Be Secured in Computer Age,” at the diocese of Iyrea, Italy, during a tour of the Olivetti complex of factories (March 19, 1990), \textit{L’Osservatore Romano} (English), March 26, 1990, 1, 7; idem, “Society Must Protect Embryos,” 3.

\textsuperscript{58}Experimentation, in fact, is justified \textit{in primis} with the interest of the individual, not with that of the collectivity. John Paul II, “The Person, Not Science, Is the Measure and Criterion of Every Human Manifestation,” to two congresses on Internal Medicine and General Surgery (October 27, 1980), \textit{L’Osservatore Romano} (English), November 17, 1980, 20.

\textsuperscript{59}Ibid., 20; John Paul II, “Society Must Protect Embryos,” 3.

\textsuperscript{60}John Paul II, “Society Must Protect Embryos,” 3; idem, “Biological Experimentations,” 4–5; idem, “Medical Science and Law,” 9.

\textsuperscript{61}“The Catholic Church, which considers man redeemed by Christ as her way ... insists that the recognition of the dignity of the human being as a person from the moment of conception also be guaranteed by law. Furthermore, she asks political leaders and scientists to promote the good of the person through scientific research aimed at perfecting appropriate treatments that are feasible and without disproportionate risks. This is possible, as scientists themselves acknowledge, in therapeutic interventions on the genome of somatic cells, but not on the genome of germinal cells and that of the premature embryo.” John
forms of human cloning, including so-called therapeutic cloning which uses the beginning of new human life as a source for spare parts (stem cells) for future transplantations.62

The data obtained from the Human Genome Project, and which concern the functioning of the human body, should serve all people and should not be patented as if they were the property of small groups of people.63

Anthropological Basis for Magisterial Teaching

The magisterium of the Church rejects some genetic interventions and provides moral guidelines for others. It does not do this, however, in an arbitrary way. The statements of the magisterium concerning the problems of modern genetics are based on the immutable moral law, ontologically founded,64 and its first moral principle: avoid what is evil and seek out what is good.65 This is a moral order created by

Paul II, “Genetic Research Must Benefit Every Human Life,” to the Pontifical Academy for Life (February 24, 1998), L’Osservatore Romano (English), March 18, 1998, 5. The aim of germline genetic therapy is correction of genetic defects in such a way that they are no longer transmitted to offspring. It would be (at present it is forbidden by law) performed on the germcells or early embryos. The outcome of such an intervention is at present unforeseeable. It differs from the somatic gene therapy, which is manipulation of somatic (body) cells in the patients. The literature of the subject suggests that the other objection to germline genetic therapy comes from the fact that this form of therapy requires in vitro fertilization (IVF).

62“In any event, methods that fail to respect the dignity and value of the person must always be avoided. I am thinking in particular of attempts at human cloning with a view to obtaining organs for transplants: these techniques, insofar as they involve the manipulation and destruction of human embryos, are not morally acceptable, even when their proposed goal is good in itself. Science itself points to other forms of therapeutic intervention which would not involve cloning or the use of embryonic cells, but rather would make use of stem cells taken from adults. This is the direction that research must follow if it wishes to respect the dignity of each and every human being, even at the embryonic stage.” John Paul II, “Cloning, Involving Use and Destruction of Human Embryos, Is Morally Unacceptable,” to the Eighteenth International Congress of the Transplantation Society (August 29, 2000), L’Osservatore Romano (English), August 30, 2000, 2. The only intervention labeled as cloning, and approved by the magisterium is multiplication of recombinant human DNA (e.g., as ancillary procedure for somatic genetic therapy). See G. Russo, La clonazione di soggetti umani (Messina: Coop. S. Tommaso, 1997), 11–13.

63“We rejoice that numerous researchers have refused to allow discoveries made about the genome to be patented. Since the human body is not an object that can be disposed of at will, the results of research should be made available to the whole scientific community and cannot be the property of a small group.” John Paul II, “The Human Person,” 3.

64“The rights to which one refers are not in the first place those which are recognized by the changing legislations of civil society, but they are rooted in fundamental principles, in the moral law which is based on being itself and which is immutable.” John Paul II, “The Dangers of Genetic Manipulation,” 10.

65Ibid., 11.
God which man recognizes; man does not decide for himself what is good and what is evil. 66

The magisterium of the Church has invariably proclaimed that God is the Creator and the Lord of the world, of life, and of man. The world has been created in order to serve man and to glorify the Creator; among all other beings man is the only creature which God wanted for his own sake. 67 Man is created in the image of God, redeemed by Jesus Christ, and destined to eternal life. 68 He is called in Jesus Christ to become the son of God. The particular relationship with God, especially the creation in the image of God and the divine adoption, constitute the great dignity of each human person. 69 Dignity is the source of human rights. Thus rights are proper to the human person not because someone (e.g., a human authority or community) granted them; it is the very existence (the creation) of the human being which is the basis of rights. A human is a subject of rights for as long as he or she lives (from the moment of conception until natural death). Human rights entail goods which should never be neglected, and these rights impose on all the moral obligation to respect them. The duty to respect such rights involves in a special way those areas of human activity which have man as their object, such as biomedical sciences and biotechnology. The good of the human person also provides the moral justification for scientific research and its applications. 70

The most fundamental human right is the right to life, which is the principal condition of other rights, especially the rights to health and to physical integrity. 71

68 “The convictions to which I witness before you are those of the Catholic Church of which I have been appointed universal Shepherd. For us, man is a being created in the image of God, redeemed by Christ and called to an immortal destiny. These convictions then ring true, I hope, in the case of the believers who accept the Bible as the Word of God.” John Paul II, “The Dangers of Genetic Manipulation,” 10. See also Congregation for the Doctrine of the Faith, Donum vitae, 1171; and John Paul II, Christifideles laici, 1763.
69 “It is this which the Church must put before contemporary man with an even greater commitment, since she knows that God calls the new being not only to be born to human dignity but also to be reborn as his child in the only-begotten Son. The prospect of divine adoption, which in the present economy of salvation is reserved for every human being, underlines in a uniquely eloquent way the highest dignity of the person, prohibiting any type whatsoever of exploitation, which would degrade him to a mere object and thus go against his transcendent destiny.” John Paul II, “By Proclaiming Christ,” 10.
71 The person’s right to life—from the moment of his conception till his death—it is the first and fundamental right, the root and the source as it were of all other rights. In the same sense, one speaks of the ‘right to health,’ that is, to the conditions most favorable for good health. One is reminded also of the respect for physical integrity.” John Paul II, “The Dangers of Genetic Manipulation,” 10.
The Pope states that much attention should be paid to the rights of those who are defenseless, human embryos in particular. He insists that nobody has the right to decide either the beginning or the end of human life. God is the only Lord of life; life is sacred and belongs to Him. There are no conditions (disease, age, social needs) which could deprive the human person of his or her rights.

A central notion in magisterial teaching is that of the human person and his bodily-spiritual nature. The human person is a “unified totality” of body and spirit. He is neither a purely spiritual nor a purely corporeal being. Human nature is at the same time both corporeal and spiritual. That is why the human body may be treated neither as simply a complexity of tissues nor in the same way as any other kind of animal body, because the human body is an essential part of the person, its expression and manifestation. Thus the fact that many life sciences deal only with the bodily dimension of the human being does not justify their treating the human person as if he or she were exclusively a corporeal entity. It is always the human being in his or her unity and totality who is the object of scientific investigations and medical or other interventions. The Pope affirms this truth in his address to the participants of the Congress of the Pontifical Academy of Sciences:

Man is also ... the ultimate term of scientific research, the whole man, spirit and body, even if the immediate object of the sciences ... is the body with all its organs and tissues. The human body is not independent of the spirit, just as the spirit is not independent of the body, because of the deep unity and mutual connection that exist between one and the other.

Since the bond of both elements (body and spirit) of the human being is very tight, to preserve human rights we must avoid the violation of either part of this unity. Any interference in the human psycho-physical dimension is at the same time an interference in his or her spirit and vice versa. John Paul II emphasizes that the biological nature of each human being is inviolable because it conditions the personal identity of the human being during the whole of his or her history. It is precisely the human body which determines human uniqueness.

The magisterium also provides some criteria for the moral evaluation of various manipulations which involve the beginning of human life. New human life is a free gift of God’s love. He creates the spiritual soul of the new human person. His creative act is linked to the sexual union of husband and wife which expresses their mutual love. John Paul II states that the union of husband and wife is “the proper context of the dignity of the person” who can never be reduced to an object to be
used. Therefore the procreative function of man and woman is sacred since it is linked to God’s transcendent economy involving every human life. Any intervention which aims at changing God’s design should be recognized as offensive to human dignity and because of that illegitimate and immoral. Attempts to replace the logic of self-giving love by the logic of production which is based on technical skills merits such condemnation primarily.

According to magisterial teaching, not only should human rights be upheld but they should also be protected by the law. Nobody has a right to violate human life and dignity, human identity and uniqueness. All people have equal rights. Equality is founded on human dignity. The human being should not be totally subordinate to other people or to the requirements of society (or any other collectivity). That is why experiments on man may be performed only for the individual’s own sake and not exclusively for the sake of society.

**The Mission of the Church**

The position of the Catholic Church is not an absolute rejection of modern genetics and all its possible applications, even though it is much easier to identify the interventions rejected by the Church than those which are accepted. In fact, she accepts the majority of the already known genetic interventions or enterprises; however, the magisterium provides a number of moral requirements that need to be met if these fields of scientific research are truly to serve the good of the human community.

Interventions which aim at the cure of disease or genetic disorders are in principle recognized as morally good. The objections to them are restricted either to circumstances (mostly the risks of interventions) or to wrong intention of their application (e.g., prenatal diagnosis as a preliminary step to abortion). Special attention should also be paid to germ-line genetic therapy which is not only very risky but also “would be very likely to be associated with in vitro fertilization or similar techniques, with all the disrespect for human procreation, and for actual human lives, which these techniques involve.”

The nontherapeutic interventions which tend to improve specific genetically-based traits are also acceptable on certain conditions. There are, however, some

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78 Ibid., 5, 10.
79 Ibid., 10.
80 John Paul II, Christifideles laici, 1765.
81 “The dignity of the person constitutes the foundation of the equality of all people among themselves. As a result all forms of discrimination are totally unacceptable.” Ibid., 1764 (Translation: Catholic Truth Society, London).
82 See footnote 58.
nontherapeutic interventions which should always be recognized as morally inadmissible, independent of circumstances and the intention of the one who performs them (a wrong intention may intensify their evil; a good intention cannot make them good).

It is said that the Roman Catholic Church and her magisterium in particular are opposed to the rapid progress of science; however, the moral teaching of the magisterium concerning problems of modern genetics clearly demonstrates that the number of genetic interventions rejected by the Church is very limited. What is more, they are not rejected arbitrarily. The reason for their condemnation is the good of man, of any human being (whose life begins at the moment of conception). If one attempts to criticize the teaching of the Church and to express discontent with it, one should always take into account the mission which the Church has to fulfill.