



*Pierre Subleyras (Saint Gilles du Gard 1699 – Rome 1749)
1598: St. Camillus de Lellis saves the sick of the Hospital of the Holy Spirit in Sassia after
the Tiber has burst its banks*

By the promotion of health, the treatment of disease and the relief of pain, we cooperate in the work of God the Creator, we glorify God in the human body and express our faith in the resurrection

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Leo PESSINI

GLOBAL BIOETHICS
AT A TIME OF
UNCERTAINTY,
PERPLEXITY AND HOPE



Generalate House - ROME

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St. Camillus and the charism of the great Camillian family – by Nino Musio



The conversion of St. Camillus (2 February 1575) – by Nino Musio, kept at Killucan (Ireland)

With esteem and gratitude ...

To my dear religious family, the Order of the Ministers of the Sick (Camillians) – the Camillian Province of Brazil. To all my 1,146 religious confreres who as Good Samaritans serve the sick in forty-one countries of our planet. I thank you for the privilege and the grace that I have had in meeting you and in learning so many beautiful things from God and from human and Camillian multicultural diversity during my mandate as Superior General of the Order.

To my beloved family of Italo-Brazilian blood (my ancestors came from the Province of Cremona – San Daniele Po). You have always been present during the whole of my life, supporting me unconditionally in my choice to become a Camillian religious ever since my youth. To my dear parents, *Laurindo* and *Therezinha*, to my sisters *Saete* and *Bernardete*, and to my brother *João (in memoriam)*, I express my infinite gratitude, hoping that you will still be able to enjoy your lives together, lives rich in valuable moments and a happy and peaceful togetherness.

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| Preface |

To write the foreword of a book by an *author* who is not oneself always constitutes an exercise of profound empathy: it is an – always precarious – attempt to enter on tiptoes into the world of the intellect, the passions and the spirit of another person.

During these years experienced together in the context of the General Consulta of the *Camillians*, I have had an opportunity to share time, reflections, experiences, discussions, projects, difficulties, interests and passions with *Fr. Leo Pessini*.

Amongst the intellectual ‘passions’ that forcefully emerge from the biography of Fr. Pessini, his interest in ‘bioethics’ takes pride of place: research into the *ethics-of-life* and *life-ethics* that has for many years directed and defined his studies, his choice of a religious vocation, and his Camillian ministry.

This volume entitled ‘Global Bioethics in a Time of Uncertainty, Perplexity and Hope’ seeks to meet one of the basic coordinates of the epistemological status of bioethics itself – ‘acquiring the instruments to reunify what technology has divided’ (E. Sgreccia)

Ever since antiquity, moral thought has examined the *humanum* in all of its historical and transcendent dimension, being concerned about its defence according to its own ontological status. Today enormous scientific knowledge; an amazing and growing capacity for technical and bio-medical intervention; the perception of the possibilities of manipulation and thus of the responsibility of man towards the creation; together with the general process of the secularisation of knowledge and the fragmentation of values typical of late modernity, have radically changed the criteria for thinking about and exercising the *ratio etica* in relation to *life*.

Fr. Pessini, chapter after chapter, goes through all these elements: the guardianship of human nature (man and the creation); the growing and pervasive advance of science within the *bios*; the analysis of the problematic dimensions that emerge from the use of *téchne*; a realistic description of the perplexities and uncertainties that the promethean power of science provokes in social consciousness; the appeal to human responsibility and the exercise of wisdom in the good and worthy management of these acquisitions; and the hope that humanity, thanks to these profound insights, can live authentic progress in truth, in solidarity and in justice, achieving, thereby, lasting peace.

‘Two things fill the mind with ever new and increasing admiration and awe, the more often and steadily we reflect upon them: the starry heavens above me and the moral law within me’ (I. Kant, *Critique of Practical Reason*). In this book emerge the *admiration and awe* of Fr. Pessini for man and the creation, experienced specifically as wonders – *the starry heavens* – and constant paradox: the cogent need for a *moral law*; the images (thoughts and photographs) that he has

chosen to use; the intuitive and painful attempt to move in the not always easy spaces of dialogue with post-modernity; the realism of his analysis of the risks that we run; the constant re-launching of hope in this sphere which could appear ascetic and alien to the exercise of a such a high and fragile virtue; and the search for the possible points of constructive intersection between the Magisterium of the Church and post-modernity.

Lastly, but perhaps this is the primary concern that guided Fr. Pessini in writing this book, I detect his wish to offer space to greater continuity between bioethics and the exercise of our Camillian charism. If ‘moral life is not specifically the doctrine of how to make ourselves happy but, rather, how we must become worthy of possessing happiness’(I. Kant), then we Camillians, who have ‘received from God, through [our] Founder St. Camillus de Lellis, the gift of reliving the ever-present merciful love of Christ for the sick and bearing witness to it to the world’(Const. 1), and are called ‘By the promotion of health, the treatment of disease and the relief of pain, [to] cooperate in the work of God the creator, [to] glorify God in the human body and express our faith in the resurrection’(Const. 45), should really nurture our charismatic identity with a healthy interest of a bio-ethical character as well!

Fr. Gianfranco Lunardon
Secretary General

| Introduction |

'A particularly crucial battleground in today's cultural struggle between the supremacy of technology and human moral responsibility is the field of bioethics, where the very possibility of integral human development is radically called into question. In this most delicate and critical area, the fundamental question asserts itself force-fully: is man the product of his own labours or does he depend on God?'

Benedict XVI, *Caritas in Veritate*, n. 74

'When a human being learns to respect even the smallest element of creation, whether animal or vegetable, nobody will need to teach him to love his fellows. The great tragedy of life is what dies inside man while he is living'.

Albert Schweitzer (1875-1965)

Introduction

Today we live immersed in the extraordinary techno-scientific development of the fields of the sciences of life, of health, of genetics and of genomics under the hegemony of *bios*. Every historical epoch of humanity is marked by some key words that become paradigms for an understanding of the cultural, socio-economic and political aspects of that particular historical moment

Historians, anthropologists and archaeologists divide so-termed *human pre-history* into three consecutive spans of time, according to the progressive development of the method of the production of tools and weapons. The so-termed period of the *stone or Neolithic age* (from 6,000 BC to 2,500 BC); the *bronze age* (the Middle East, 2,300 BC), with the development of a metallic alloy produced by fusing copper and tin; and, lastly, the *iron age* (from 1,200 BC to 550 BC) when there was a widespread organised use of iron, even if the first indications about the use of iron go back to 3,200 BC.

Today we are living through a time identified as that of the hegemony of '*bios*': a season that began with the discovery of the double helix of DNA (by Watson and Crick in 1953). This opened up the path to *genomics* which was presented

from the outset as an interesting new development that was attractive for technological-scientific advance. This was accompanied by the promise of a *miraculous revolution* but also by a series of questions and concerns about the future of life on the planet and the identity of human beings, who in this scientific context run the risk of being manipulated and made even more vulnerable.

Economists argue that biotechnology will be the flagship of the economy of the twenty-first century. In our new dictionaries, the sequence of words with the prefix ‘bio’ has been increasing rapidly: bio-logy, bio-genetics, bio-genomics, bio-terrorism, bio-power, bio-statistics, bio-fuel, bio-diesel, bio-degradable, bio-gerontology, bio-diversity, bio-science, bio-energetics, bio-energy, bio-engineering, bio-physics, bio-informatics, and many others.

The famous British scientist, the physicist Stephen Hawking (1942-2018), who defined himself as a ‘post-humanist’ and an atheist, after excluding God Himself (‘He does not exist’) strenuously defended the right of humanity to establish ethical guidelines so that man with his wisdom could limit the consequences of this bioethical and genetic revolution – a revolution that threatens the future of living beings on our planet.

In his posthumous book *Brief Answers to the Big Questions*, Hawking offers some challenging observations: ‘I am sure that during this century, people will discover how to modify both intelligence and instincts such as aggression’¹.

‘Laws will probably be passed against genetic engineering with humans. But some people won’t be able to resist the temptation to improve human characteristics, such as memory, resistance to disease and length of life’.

‘Once such superhumans appear, there will be significant political problems with unimproved humans, who won’t be able to compete’, he wrote. ‘Presumably, they will die out, or become unimportant. Instead, there will be a race of self-designing beings who are improving at an ever-increasing rate’.

To sum up, Hawking supports the thesis that human wisdom must always place itself above technology:

‘Our future is a race between the growing power of our technology and the wisdom with which we use it. Let’s make sure that wisdom wins’².

In this scenario held up by Hawking which is full of fear, uncertainty and perplexity, the tendency of humanity to forget to build bridges of dialogue, spaces of encounter and welcome towards the diverse *other*, is by now evident. Humanity is more inclined to erect walls of separation and exclusion. These tensions of humanity are located in this complex of neologisms connected with the prefix ‘bio’ that define new processes of research and give a name to new products, discoveries and historical epochs. A new development is emerging towards which

¹ HAWKING Stephen, *Brief Answers to the Big Questions* (New York, Brentan Book, 2018).

² Cf. www.bioedge.org/bioethics/Stephen-hawking-transhumanist/12863

This is a news site on bioethical issues directed by the Australian bioethicist Michael Cook. *Stephen Hawking trans-humanist*. Consulted on 21 October 2018.

we cannot be indifferent and in relation to which we have the duty to shoulder our historic responsibilities!

In a progressive way, this new development has gradually acquired greater visibility and is seen as a necessity in all the fields of life, from the personal dimension to the ecological dimension. One is dealing with the emergence of a new area of knowledge called 'bioethics', understood specifically as *ethics of life*, in the sense that it involves all living beings, and not only human beings, in their environment (ecology). The prefix 'bio' refers to the knowledge of the life and health sciences. The concept of 'ethics', on the other hand, refers to a critical analysis of the human values that guide our actions in situations of conflict or dissent, so as to make a free and aware choice.

In the outlook of one of the pioneers of this discipline, the American biochemist and researcher in the field of molecular biology, Van Rensselaer Potter (1911-2001), bioethics should have been a *bridge to the future*, the *science of survival*, or the *morality of human survival* (1970)³.

We are undoubtedly faced with a wave of hope for humanity if we consider the humanisation of technological advance; the protection of the environment (ecology); the valuing of *life and ethics*, or *ethics of life*; the development of human wisdom; knowing how to use knowledge to protect the dignity of human beings; and the promotion of social wellbeing and cosmic-ecological life.

1. The Original Insights of Bioethic

Van Rensselaer Potter introduced the term 'global bioethics' to express a broader vision of, and approach to, ethics in relation to health, illness, life and death, society, public policies and bio-politics. Potter criticised 'principalist' bioethics (principles: respect for people, autonomy, doing good, not doing harm, justice) and thus limited his thought to the field of biomedical action.

In substance, this is 'biomedical ethics' under the guise of a new name. It places emphasis on subjects connected with the survival of the individual and deals with visions and solutions of a short-term character. It stresses individual autonomy, it is specialised, although it has its own value, it is limited to clinical goals, and thus it does not have a public, collective and global perspective. This traditional *bioethics* does not have a global approach of any kind and it is directed towards the specific challenges of developed countries, ignoring the problems of public health in other parts of the world and in developing countries. In addition, the ethics of the environment, the ethics of agriculture and social ethics are not on the agenda in his approach. Thus we need a more inclusive and global approach to

³ The person who used the neologism 'bioethics' for the first time was Fritz Jahar, an educator and German Lutheran pastor, in 1926. Unfortunately with the advent of National Socialism and the Second World War (1939-1945) all of his thought came to be buried in the ashes of time.

bioethics. This has been given the name of ‘global bioethics’ because it includes all the geographical areas of the globe as well as various ethical questions that unfold from the micro-level – the relationship between doctors and patients, to the macro-level – the public health-care policies of various countries, applying the advances of techno-science to the field of the life and health sciences.

2. The Development of the Concept of Global Bioethics

Curiously, the ‘global’ dimension was not expressed in the concept of bioethics as it developed in the early 1970s. Mention was not made of the global dimension of problems or of the global nature that should characterise the solutions required to address these challenges.

Potter’s idea of global bioethics (1988) was reflected in the principles of the Universal Declaration on Bioethics and Human Rights (2005), issued by UNESCO, relating to the right to treatment and health care, the biosphere, future generations, research on vulnerable beings and social justice⁴.

Some of the characteristics of the bioethics of Potter are:

1. *An orientation towards the future.* To avoid disasters such as nuclear war or ecological catastrophes, we must develop positive visions of the future. The ultimate objective of bioethics for Potter is the long-term survival of humanity.
2. *An inter-disciplinary approach.* The problems of humanity are multidimensional and addressing them involves interaction with different types of knowledge, with different disciplines such as biology, the social sciences and the humanities.
3. *Human beings are a part of nature (the environment).* Human beings are a part of the ecosystem and this includes the earth, water, plants and animals. Bioethics is concerned with environmental questions. Human beings can no longer, and should no longer, degrade and destroy the environment.

To define his vision of bioethics, Potter uses the metaphor of a ‘bridge’ as a symbol of communication and connection. *Bioethics: Bridge to the Future* is the title of his classic work (1970).

This metaphor of a bridge has four meanings:

- a. *A bridge between the present and the future:* bioethics constitutes a new approach that concentrates on long-term questions and objectives that can assure the survival of humanity.
- b. *A bridge between science and values:* bioethics is a new discipline that combines biological knowledge with knowledge of the system of human values.

⁴ POTTER Van Rensselaer, *Global Bioethics – Building on the Leopold Legacy*, (Michigan State University Press, East Lansing, Michigan, 1988).

- c. *A bridge between nature and culture*: bioethics is responsible for the future and tries to conjoin scientific knowledge of biological realities and the nature of human beings with the goal of assuring cultural development.
- d. *A bridge between human beings and nature (the environment)*: bioethics represents new ethics that take the new science of ecology into account and considers human beings in relation to their environment⁵.

3. The Complex Ethical and Anthropological Question

Another important basic subject in contemporary bioethical debates is the anthropological question. In scientific academic milieus, so-called *secularised (secular) anthropologies* predominate.

We may speak about five broad categories of answers to the anthropological question:

1. The *empirical-positivist vision*, whose image and idea of man is reduced to what is observable and verifiable by the methods of the natural sciences (man as a 'machine').
2. The *behaviourist-psychological vision* which emphasises human subjectivity, that is to say a combination of feelings, insights and emotional experiences (man as a set of feelings and emotions).
3. The *philosophical vision* which privileges human reason to understand truth (man as a thinking being).
4. The *pragmatic utilitarian vision* according to which man creates new things and is able to transform the environment in which he lives.
5. The *economistic vision* which holds that man is a being capable of producing and accumulating possessions and wealth (*homo oeconomicus*).

Each one of these approaches, in essential terms, highlights and perhaps absolutises an essential aspect of human existence, some aspects of truth, but in itself has a radicalised and absolutised outlook that will always be ideological and therefore reductive, given that it does not include the whole of a human being. We must, therefore, engage in a synergic approach, taking into account the important aspects of each dimension and integrating it into an approach of transcendence.

In this *global market of ideas and values*, we have first of all to seek to highlight life with its very diversified forms and modalities. Reference has begun to be made to 'bioethics' in the plural more than 'bioethics' in the singular, given that today we have before us a pluralism of visions and paradigms of bioethics. Faced with such pluralism we must have a clear awareness of the identity of the ethical values that we share. We must define and choose the ethical outlook we have.

⁵ POTTER Van Rensselaer, *Bioethics: Bridge to the Future*, (Prentice-Hall, Inc, EngleWood Cliffs, New York (U.S.A.), 1971).

In this volume I align with ‘personalism’, that model of bioethics that places the integral human person at the centre of things, starting with his cosmic-ecological connections with openness to the transcendent and beginning with the Christian perspective (‘eminent dignity of the human being’, ‘image and likeness of God’)⁶.

4. Pope Francis and Bioethics

It is interesting to observe that Pope Francis, differently from his predecessors (Pope John Paul II and Pope Benedict XVI) who in many contexts commented on and valued this new area of human knowledge known as ‘bioethics’, until a short time ago when dealing with eminently bioethics subjects did not use the neologism ‘bioethics’ in his ethical discourse. A clear example of this is his fine encyclical *Laudato si’*: a document of the Magisterium seen as being essentially bioethical by the most diverse associations of our planet.

When Pope Francis denounces the deleterious effects of ‘technocracy’ and the need to go beyond ‘anthropocentrism’, and proposes the need for an ‘ecological conversion’ in order to achieve ‘integral ecology’, we find ourselves faced with a question and a subject of enormous bioethical relevance.

We can analyse this subject starting with the speech given by Pope Francis to those taking part in the *Plenary Assembly of the Pontifical Council for Culture* (18 November 2017)⁷ who met in the Vatican to discuss ‘The Future of Humanity – New Challenges for Anthropology’. The subjects that were addressed were techno-scientific innovations that seek to redesign human nature itself (genetic medicine), human beings, the relationship between the brain and the soul (the neurosciences), and the possibility of living in a society of autonomous and thinking machines (artificial intelligence).

How can we respond to these challenges generated for human life by the techno-scientific revolution? Pope Francis emphasised that to begin with we should cultivate an attitude of gratitude towards ‘the men and women of science for their efforts and for their commitment in favour of humanity’.

Pope Francis stated that ‘Science and technology have helped us broaden the confines of our knowledge of nature and, in particular, of the human being. But they alone are not enough to provide all the answers. Today we are increasingly aware that it is necessary to draw from the treasures of wisdom preserved in religious traditions, from popular wisdom, from literature and the arts, which

⁶ PESSINI Leocir, ‘Qual antropologia para fundamentar a bioética em tempo de incertezas?’ in PESSINI, L., SIQUEIRA, J. E. de, HOSSNE, William S., *Bioética em tempo de incertezas* (São Paulo, Centro Universitário São Camilo /Edições Loyola, 2010), p. 23-40.

⁷ Pope Francis, *Address to Participants in the Plenary Assembly of the Pontifical Council* (18 November 2017).

Cf. http://w2.vatican.va/content/francesco/en/speeches/2017/november/documents/papa-francesco_20171118_plenaria-cultura.html

touch the depths of the mystery of the human being, without forgetting, indeed rediscovering, those contained in philosophy and in theology’.

Adopting this outlook, in his encyclical *Laudato si’* Pope Francis observes that ‘We urgently need a humanism capable of bringing together the different fields of knowledge, including economics, in the service of a more integral and integrating vision’ (n. 141). The approach is to overcome the tragic division between humanistic-literary-theological knowledge and scientific knowledge, a fracture which leads to mutual impoverishment and constitutes a challenge for us in order to create greater dialogue even among the Church, the community of believers, and the scientific community.

Pope Francis in his address to the plenary assembly of the Pontifical Council for Culture did not refer explicitly to bioethics but he did invoke three principles of the tradition and the social teaching of the Church in order to address this complex reality:

1. *The centrality of the human person in his inalienable dignity*, as a ‘loving guardian of the work of the Creator’, who should always be treated as an end and never as a means.
2. *The universal destination of goods*, which also involves knowledge and technology. Scientific and technological advance and its benefits should serve the whole of humanity and not just a chosen few. In addition, the important decisions about the direction and the investments of human research should be taken by society as a whole and not be dictated solely by the rules of the market or the interests of the few.
3. Not everything that is *technically possible* or achievable is thus *ethically acceptable*.

The Pope ended his address by affirming that ‘Science, as any other human activity, knows that it has limitations to respect the good of humanity itself, and that it needs a sense of ethical responsibility. The true measure of progress... is that which seeks the good of each man and the whole man’.

5. Pope Francis Proposes a Global Vision of Bioethics

We previously noticed that Pope Francis simply does not use the already consecrated neologism ‘bioethics’ and the emblematic case of this lexical approach is his extraordinary encyclical *Laudato si’*.

There are clear indications that this silence as regards the term ‘bioethics’ was broken by Pope Francis in his speech to those taking part in the plenary assembly of the *Pontifical Academy for Life* (25 June 2018) which directly addressed the subject of global bioethics – ‘Human Life in the Context of the Globalised World’⁸.

⁸ Pope Francis, *To the Participants in the Plenary Assembly of the Pontifical Academy for Life* (25 June 2018).

In this speech, Pope Francis recognised the existence of, and need for, global bioethics. Since this new area of human knowledge does not yet have an agreed definition and a description of its field of concern does not yet exist, Pope Francis indicated a clear programme:

‘The *global vision of bioethics* that you have drawn from the Christian vision and are preparing to re-propose in the field of social ethics and worldwide humanism, will strive with greater commitment and rigour to break free from complicity with the dirty work of death that draws its strength from sin. It will be able to bring us back to the covenant with the grace that God has destined to be part of our lives. This bioethics will not begin with a consideration of sickness and death in order to reach an understanding of the meaning of life and the worth of the individual’

In the view of Pope Francis, this vision of global bioethics ‘will begin with a profound belief in the *irrevocable dignity of the human person*, as loved by God – the dignity of *each* person, in *every* phase and condition of existence – as it seeks out those forms of love and care that are concerned for the vulnerability and frailty of each individual’.

As a consequence, this global bioethics will have as a specific task that of developing the approach of integral ecology which is specific to the encyclical *Laudato si'*: ‘the intimate relationship between the poor and the fragility of the planet, the conviction that everything in the world is connected, the critique of new paradigms and forms of power derived from technology, the call to seek other ways of understanding the economy and progress, the value proper to each creature, the human meaning of ecology, the need for forthright and honest debate, the serious responsibility of international and local policy, the throwaway culture and the proposal of a new lifestyle’ (n.16).

Secondly, this bioethics should ‘within a *holistic vision of the person*...express with greater clarity all those connections and concrete differences present in our universal human condition and involve us – *beginning with our own bodies*. Indeed, “our body itself places us in a direct relationship with the environment and with other living beings. The acceptance of our bodies as God’s gift is vital for welcoming and accepting the entire world as a gift from the Father and our common home, whereas thinking that we enjoy absolute power over our own bodies turns, often subtly, into thinking that we enjoy absolute power over creation. Learning to accept our body, to care for it and to respect its fullest meaning is an essential element of any genuine human ecology”.

It is necessary to do this in order ‘to undertake a careful discernment of the complex *fundamental differences present in human life*’, as well as of all the difficult conditions and all the delicate and dangerous situations that call for ‘particular ethical wisdom and courageous moral resistance’. These questions of ethics and human life must find a suitable context within a global anthropology and not be confined to the limit-questions of morality and law. We need a conversion as

Cf. http://w2.vatican.va/content/francesco/en/speeches/2018/june/documents/papa-francesco_20180625_accademia-provita.html

regards the *centrality of integral human ecology*, that is to say a harmonious and global understanding of the human condition.

Lastly, the Pope observed that ‘a global bioethics calls us to engage with wisdom in a profound and objective discernment of the *value of individual and community life*, which must be protected and promoted *even in the most difficult circumstances*...A vision of globalization that, left to its own devices, tends to increase and deepen inequalities, calls for an ethical response that promotes justice. Attention to social, economic, cultural and environmental factors that affect health is part of this commitment’.

In addition, this global bioethics would be open to a transcendent dimension in order to achieve a culture of life. It concerns the *serious question* of the ultimate destiny of a human being and life. Human life goes beyond itself after death; there is an infinite and mysterious horizon to be taken into consideration.

The principal challenges for global bioethics are currently linked to the structural situations of injustice and social inequalities in the field of health care and care for the sick. The American anthropologist Paul Farmer observes that ‘the fundamental problem of our epoch is the persistence of illnesses that are already completely treatable and the growth of injustice both in science and in the economy’.

The real goal is to promote a series of organised initiatives in favour of global justice. Before concentrating as a priority on sophisticated technologies – a complex question linked to cutting-edge technology (clinical bioethics) – bioethics should concentrate on basic questions of injustice, of marginalisation, and the exploitation of the most vulnerable. Those that benefit from globalisation today are a prosperous minority as opposed to the unpredictable impoverishment of millions of people. And in this context does not bioethics, in this context global bioethics, have something to say, to think about, and to do?

To the reader remains this disquieting message of Lisbeth Sagols, one of the directors of UNESCO, who on this point asked herself: ‘What can the future of bioethics be in a world that is characterized by the scarcity of basic natural resources, hunger, excessive over-population, the global ecological crisis, multiple financial crises, migration and unaccepted multiculturalism, the risk of nuclear disasters, a permanent state of war, the use of chemical weapons, the threat of biological weapons, economic and techno-scientific globalization and the superiority of North over South?’⁹.

6. The Proposal of an Ethics Based on Christianity

During the international conference on theological ethics that took place at Trento¹⁰ (24-27 July 2010), whose subject was ‘In the Current of History: From

⁹ Cf. UNESCO, *Global Bioethics: What for?* (2015).

¹⁰ This international conference was organised by the Catholic Theological Ethics in the World Church of Boston College (U.S.A.) and was coordinated by the North American Jesuit theologian James Keenan.

Trento towards the Future', Archbishop Bruno Forte in his speech spoke about the urgent need for an ethics based on the gospel of a prophetic character that should address the needs of post-modernity.

He used the metaphor of a 'boat': a ship of humanity, in the open sea, after a strong storm that has damaged all the navigation instruments, drifts towards the shallows and is about to sink. The survivors of the wreck in the lifeboats have learnt to live together, to cooperate with each other and not to fight each other, in order to reach the land safe and sound.

Msgr. Forte offered an ethics based on the gospel and Christianity which had four fundamental dimensions:

1. *Never without the other.* There cannot be ethics without recognition of the face of the other, seen in his or her irreducible originality. We need an ethics of nearness. In the boat of humanity, drifting in the ocean, we need each other to survive.
2. *At the beginning of everything there is always a gift.* There are no ethics without free giving, starting with the value of human life itself. We must save the irreplaceable presence of unconditional love which is located above any commercial contract or economic exchange between human beings. We have to promote and defend life where it is at risk, where it bears the deep mark of vulnerability and point to a need for urgent care.
3. *There is no ethics without the practice of justice.* We must learn to combine morality with the practice of justice, with the ethics of solidarity. This is what makes up the *global village* (Marshall MacLuhan), the world of people for each other and not people against each other. Unfortunately, in this process of excluding globalisation, inequality and injustice amongst human beings is increasing. We have to invert this process with an approach of solidarity in order to create the best conditions for navigation for the ship of humanity.
4. *An ethics of transcendence is needed.* Here the face of the *totally Other* (God) emerges. Love for the *last of the earth* reminds us of the *ultimate love*. The ethics of transcendence is the ethics of love and Samaritan hope. This must be the GPS that is needed to guide the ship of humanity in a save way in order to overcome the storms and the frenetic seas of human history in the present and in the future.

7. The Proposal of this ‘Book’ in the Context of the Camillian Charism



More heart in those hands! (Saint Camillus de Lellis)

This book, entitled ‘Bioethics in a Time of Uncertainty and Perplexity and Hope’, brings together a number of texts which have already been shared in digital form through the *monthly Camillian Newsletter (the world seen from Rome... and Rome seen from the world)* and in the quarterly bulletin of the Order, *Camilliani/ Camillians*, published in Italian and English, the two official languages of the Order.

These reflections of a bioethical character, which also contain the ethical outlook of Camillian pastoral care, were born from contact with, and knowledge of, the various and plural realities of the world during a series of journeys. These took place during my mandate of service for the Order in the period 2014-2019 on the occasion of my visits to Camillian communities that work in the field of health and care for the sick in forty-one countries of the five continents of the world: Africa (Benin, Togo, Burkina Faso, the Central African Republic, Kenya, Tanzania, Uganda, the Ivory Coast and Madagascar); Asia (Thailand, Vietnam, mainland China, Taiwan, the Philippines, India, Indonesia and Australia); Latin America (Brazil, Argentina, Bolivia, Peru, Ecuador, Colombia and Mexico); and South America (the United States of America), without mentioning various European countries in which the Camillians are present, principally Italy – the cradle of the Order.

Our Order of Camillians has borne witness for over four centuries to the heroic spirit of Samaritan service (martyrs to charity) in the health-care world towards those who have been assaulted on the road of life; towards human illness, pain and suffering. The strong image of which we have been the custodians down history

is to take care of the body and the spirit of a human being who is lying on a bed or stretched out upon the ground.

Today we have before us the urgent need to put this human being ‘back on his feet’, fully alive and healthy. This is to carry out the message of the *good shepherd*: ‘I came so that all may have life, and have it in abundance’ (Jn 10:10), without depriving anyone of Samaritan care. You need a great deal of determination to take on the responsibility for implementing a Copernican paradigmatic revolution in the world of health and health care in which we work and inside our own health-care works. The gift of health constitutes ‘the authentic infrastructure of human fullness and happiness’.

Until a short time ago, there was little scientific knowledge about the prevention of illness. Thanks to the development of technology in the field of health and health care, and new knowledge in the field of public health, today we are more aware of the value of the prevention of the most common illnesses that still afflict millions people every year in the world, in particular children, the most vulnerable individuals.

Today when reference is made to an effective presence in the complex world of health and health care, experts remind us of the need to act in at least five strategic fields: 1. promoting a healthy life; 2. preventing illness; 3. caring for the sick; 4. rehabilitating and treating the consequences of illness; 5. implementing health-care systems in line with the spirit of palliative care.

This agenda of subjects radically involves our Camillian ministry in the fringes of the planet, in Africa, Asia and Latin America. Spiritual care is not enough: we need to have the courage to go beyond this, to act prophetically in the public health polices of various countries and in public and private institutions in order to make them more effective and efficient in meeting the health needs of the population, in particular people who are most vulnerable people and who live in precarious conditions of life.

Naturally, our health-care institutions should be an example from this point of view, otherwise their existence would run the risk of not being justified in evangelical terms. Without ever forgetting the man stretched out upon the ground who is suffering, together with this dimension of solidarity we must also fight prophetically to ensure that man does not fall sick. Education in health, in addition to health care, plays a crucial role in this context!

Our bioethical approach is profoundly marked by the *fringes* of the world. We perceive a deep oppositional tension between the various socio-cultural horizons in which humanity lives today, in particular as regards the reality of Asia which is very different and original compared to the Western world. Inside this environment, we Camillians find that we live as *moral strangers* (cf. T. Engelhardt) from a religious, social, cultural, political and historical point of view, and this dynamic generates in us a profound existential anxiety and tribulation. This creative *anxiety* turns out to be not pathological: it has not paralysed us, rather it has mobilised our interior forces, generating healthy existential disquiet and expanding our horizons beyond our short-sighted boundaries.

Codifying these reflections in an ethical key has been a healthy pathway of a therapeutic value, involving attempt to pour a little balsam on these tribulations about human sensibilities ‘wounded’ by terrible affirmations and negations of life itself: the contrast between abundance and a scarcity of goods; the comfortable existence of a few people who are insensitive to the risk of survival suffered by many; the sensitivity of many and the indifference of many!

And we ask ourselves: in the near future will we live in a more just, more supportive and more fraternal society and world? Will the so-termed ‘globalisation of solidarity’, which Pope John Paul II spoke about so much, not perhaps be a utopian mirage on the horizon? Pope Francis with his prophetic voice never tires of crying out and denouncing these tragic paradoxes during his international journeys, taking various opportunities to speak in various international contexts, inviting people to be vigilant and prudent to ensure that globalisation is not a multiplier with dramatic effects of exclusion, indifference and inequality in the world.

I thought that it would be suitable and useful to publish together in a single volume five essays of a bioethical character which were written during my period of government of the Order, not least in order to offer a more integrated and organised vision of the *ethical challenges* which, in my view, are crucial for the future of humanity.

The new scenario brought about by biotechnologies has inevitably had a great resonance and provoked important thought about its unpredictable consequences, for our lives as well. We therefore need to cultivate vigilance, prudence and ethical wisdom in order to address these subjects with the necessary peace of mind. *The creation has been placed in our hands? What will humanity do with the work of creation?*

The ecological and prophetic encyclical of Pope Francis, *Laudato si’*, has already pointed out to us some warnings and directed us towards some approaches that we cannot ignore if we want to construct a promising future for life and for humanity.

8. The Thematic and Aesthetic Architecture of the Work

The architecture and the aesthetic welding of this publication are organised according to a precise thematic order. The work begins with a proposal about the meaning and value of global bioethics (I). This is followed by the difficult *anthropological question*, the search for a new human being in the twenty-first century, in times that are fascinating for post-humanism (II).

Then I engage in a re-reading of the *role of science today (the re-creation of life?)* starting with a study of *Frankenstein* by the English author Mary Shelley. The year 2018 was the two-hundredth anniversary of its publication (III). I also look to the construction of a future of hope, precisely at a historical moment when a return to the past is feared (cf. *Retrotopia* by Zygmunt Bauman) (IV).

For us Camillians, *the question of human health* is at the centre of our charismatic identity. The challenge is to broaden our vision of health which should be no longer limited to the individual but, rather, should include all living beings, embracing humanity in its interaction with cosmic, environmental and ecological reality. In addition to public and global health, *planetary health* (a phrase coined at Harvard University in 2015) is also addressed (V).

The rapid ageing of the world's population has caused profound changes and has introduced elements of political-economic crisis into public policies relating to health care in the majority of countries of the developed world. Human beings live longer today but at the same time they have to face the challenge of 'adding more life to the years'. I offer some data on the current reality of human ageing and longevity in the world through an ethical and pastoral approach to our elderly and sick (VI).

The next essay is of a humanistic character with some pastoral and ethical guidelines for a *good Samaritan accompanying* for elderly people and the terminally ill (VII).

Lastly, I could not develop any provocation about *the future of bioethics and bioethics of the future* (VIII) without analysing 'excluding' globalisation, yet also continuing to sow our hope, directed towards the construction of a future that is promising for everyone.

At the end of this book there is a special section with four appendices:

- a. The Declaration of Astana: the Pathway to Universal Health Care in the World.
- b. Amazonia: the Urgent Need for *Ecological Ethics* and the Promotion of *Integral Ecology*.
- c. A Tribute to Iomerê (SC, Brazil): a Setting for the Birth of the First Generation of Brazilian Camillians.
- d. To Know about the *Author* and his Principal Academic and Scholarly Works.

The aim of this work includes offering an aesthetically pleasing graph that is able to capture the attention of the reader with emblematic images of the subjects that are addressed and facilitate in an effective way an understanding of the subjects discussed. Beauty leads us into, and always raises us up to, the transcendent dimension of our lives. Dostoevsky himself observed that 'beauty will save the world'.

I wish the reader a happy reading of this volume, which I hope will be of help at the level of analysis, so that amidst uncertainty and perplexity we can always be the champions of ethical hope!

Lastly, I wish to express especial thanks to the members of the General Consulta of the Order: Fr. Laurent Zoungrana, the Vicar General; Fr. Aris Miranda, who is responsible for ministry; Br. José Ignacio Santaolalla, the financial administrator who is also responsible for missions; and Fr. Gianfranco Lunardon, the Secretary General.

For me it is a privilege and honour to share with you the service of authority for the religious of our Order, in union, communion, freedom, mutual trust and evangelical transparency.

This publication was able to see to the light of day because of your cooperation as well. God bless you!

Rome, 8 December 2018

Feast Day of the Immaculate Conception of Mary

Fr. Leocir Pessini

Superior General of the Camillians

CHAPTER I

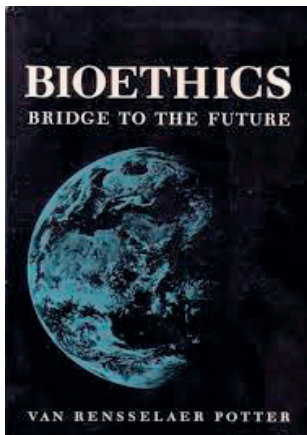
| What do we Mean by ‘Global Ethics’? |

‘Global bioethics provides us with a milestone and also a moral compass to be able to counter this culture of individual privileges in which we are immersed. Global bioethics seeks to unite people and religious leaders. It seeks to sensitise organisations that deal with specific subjects such as nature, fauna, wildlife, pollution, orphans, immigrants and the grave problems that afflict the world, looking for shared solutions, reflecting on the moral and ethical problems that are involved as well’.

Van Rensselaer Potter (1911-2001)

‘Global bioethics is not a finished product that we can simply apply to solve global problems. It is the result of a continuous interaction and exchange between local practices and global discourse. It combines the recognition of differences with respect for cultural diversity, converging towards an approach of common and shared values’.

Henk Ten Have



Potter Van Rensselaer, *Bioethics: Bridge to the future* (1971)

There are two places in the United States of America where, contemporaneously, at the end of the 1960s and the early 1970s, the neologism ‘bioethics’ (ethics of life) (from the Greek *bios*, which means life, and *ethos*, which means ethics, was created): the university campus of Madison at the University of Wisconsin, by the biochemist Van Rensselaer Potter, and Georgetown University (Washington), by André Hellegers.

With the publication of the pioneering work ‘Bioethics: Bridge to the Future’ (1971) by Potter, a new epoch of contemporary ethical thought was inaugurated in the context of the extraordinary development of science and technology and man’s interventions involving manipulation upon the environment, nature and the planet earth (Potter, 2016).

In Washington D.C., the Dutch obstetrician André Hellegers, at Georgetown University, six months after the publication of Potter’s

Bioethics: Bridge to the Future, specifically used the term ‘bioethics’ for the name of a new centre for ethical studies: ‘The Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics’.

We have here a dual paternity, with a dual meaning attributed to the term ‘bioethics’. For Potter, the approach was at a ‘macro-bioethics’ level, namely ethical thought that goes beyond the realm of human life and includes the challenges of cosmic-ecological life. On the other hand, the focus of Georgetown University, the approach of Hellegers, was directed towards the questions of ‘micro-bioethics’, questions of clinical ethics and questions of biomedical ethics, in line with the principalist paradigm: respect for individuals (autonomy), doing good, not doing harm, and justice (Reich T. Warren, 1995).

Hans-Martin Sass, a German bioethicist who settled in the United States of America and is now emeritus professor at the Kennedy Institute for Bioethics in Washington D.C., discovered in his research that the first to coin the neologism ‘bioethics’ were not the Americans Potter or Hellegers but the German, Fritz Jahr, in 1926 (Pessini and Barchifontaine, 2013).

Unfortunately, Jahr was not able to make history because he was swallowed up and buried in the ashes of Nazi ideology which subsequently dominated Germany politically and brought about the beginning of the Second World War (1939-1945) (cf. Sass, 2008). In 1975 Potter expressed all of his disapproval of the approach and the use of the term ‘bioethics’ adopted in his country (the U.S.A.): in his view it was a term which had become fashionable, a new word adopted to address old ethical

questions (Potter, 1975). ‘The time has come to recognise that we can no longer address the various health-care options without a connection with ecological science and the problems of society on a global scale... A global bioethics is born therefore from the unification of medical bioethics with ecological bioethics... These two branches must be harmonised and unified in order to be able to arrive at a consensus vision that we can define as global bioethics, highlighting the two meanings of the adjective *global*: an ethical system is global if, on the one hand, it is unified and complete, and, on the other, if it aims at embracing the whole world’ (Potter, 1988, pp. 2, 76, 78).

The interpretation of the concept of bioethics offered by the Kennedy Institute of Georgetown University in Washington

[CANCER RESEARCH 31, 2297-2306, September 1975]

Humility with Responsibility—A Bioethic for Oncologists: Presidential Address¹

Van Rensselaer Potter

McArdle Laboratory for Cancer Research, University of Wisconsin Medical School, Madison, Wisconsin 53706



In 1970 I coined the word “bioethics” and used it for the title of a book published as *Bioethics, Bridge to the Future* (23). As I attempt to describe the quality of “humility with responsibility” in relation to the role of the membership of the American Association for Cancer Research in national policy decisions, the connection between bioethics and the present effort may become more evident. I should indicate that I look upon the quality of humility as perhaps the opposite of arrogance (28).

First, I wish to characterize humility with responsibility as the basic bioethic. The reason for this categorization stems from the fact that this basic bioethic emerges from a consideration of what bioethics is all about, namely, an understanding of how our thinking brain can combine biological knowledge with a social and philosophical consciousness. In this presentation I will proceed from a consideration of biological and cultural evolution to the

evidence and inference suggesting the importance of probabilistic or partly random happenings in human and other living systems. From this introduction I will describe the nature and importance of the Eureka! feeling and especially its inherent possibility for error. I will then go on to derive the basic bioethic of humility with responsibility, which follows logically from any admission of fallibility. Finally, having proposed this bioethic, I will inquire how policy decisions in general might be arrived at and how this final conclusion might be applied in the case of the membership of the American Association for Cancer Research.

From the beginning, I have regarded bioethics as the name of a new discipline that would combine science and philosophy. To be more specific, it would constitute a cybernetic approach to humankind’s ongoing search for wisdom, which I defined as the knowledge of how to use knowledge for human survival and for improvement of the human condition (Table 1).

What kinds of knowledge should be brought together under the rubric of bioethics? I chose *bio-* to represent biological knowledge, the science of living systems and I chose *-ethics* to represent knowledge of human value systems (23). On the one hand we are concerned with biological evolution, and on the other we are concerned with cultural evolution.

Biological Evolution and Cultural Evolution

As suggested in Table 2, there are many parallels or analogies between biological evolution and cultural evolution. The discipline of bioethics must attempt to develop in individuals an understanding and appreciation of both branches of knowledge. In keeping with my theme of humility with responsibility, I must emphasize my own inadequacy in presenting the following remarks, which are made more to open the discussion rather than to finalize it.

Table 1

Definitions

1. CYBERNETICS is the science of information, communication, and feedback control in general and organized systems.
2. BIOCYBERNETICS is the science of cybernetics applied to living individuals and populations.

Article by Potter Van Rensselaer, *Humility with Responsibility – A Bioethic for Oncologists: Presidential Address*

D.C., where bioethical principlism was developed, is in substantial terms that of a *redefined medical ethics*. This was not a new approach but only the application of traditional ethical thought to a series of new questions brought about by advances in techno-science. Potter was dissatisfied with this approach which in essential terms identified bioethics with biomedical ethics.

For this reason, he preferred the term 'medical bioethics' to delineate the difference between it and his broader vision. His criticism of the dominant paradigm of 'bioethics' was that in basic terms it was medical ethics with a new name, confined to medical and health-care applications and with especial attention paid to the survival of the individual, in an attempt to solve problems with a short-term vision. The emphasis was placed on individual autonomy and not on the social good; it was a specialised form of ethics and as such did not have a general point of view; and it was applied ethics but without a new interdisciplinary approach.

In addition, its focus of interest was on the specific problems of developed countries and ignored the health problems of other parts of the world that were marked by injustice and poverty; it seemed to be an ethics that was not interested in a social and environmental approach. This approach to thinking about bioethics assumed, in addition, that a bioethical perspective born, developed and matured in the richest countries of the planet could be exported as a universal model and applied to all countries in the world, with the very realistic risk of establishing a new kind of imperialism – *bioethical imperialism* (Ten Have, 2014, 2016, 2016a).

1. The Emergence of the Concept of Global Bioethics



Potter Van Rensselaer, *Global Bioethics: Building on the Leopold Legacy*

The concept of global bioethics was introduced by Potter in his second work, *Global Bioethics: Building on the Leopold Legacy*, a work published in 1988. In this publication, Potter showed that he had a strong ecological approach that was inspired by his colleague at the University of Wisconsin (Madison, WI), Aldo Leopold. Leopold, a forest engineer and a pioneer in the United States of America in protesting in favour of the conservation of wild fauna, introduced the concept of 'earth ethics'. Although Potter had never met him personally, he drew inspiration from Aldo Leopold when he suggested that there are three stages in the development of ethics. The subtitle of *Global Bioethics* already points us in this direction by presenting his approach to ethical thought: 'building on the Leopold legacy'. In the first appendix of the book, Potter speaks about the legacy of Aldo Leopold and his famous work

Sand County Almanac which was published for the first time in 1949 and then went into various editions (Leopold, 1949).

For Aldo Leopold, the first stage of ethics concerns the relationship between individuals; the second stage concentrates on the relations between individuals and society; and during the third stage, which does not yet exist (in Leopold's view!), ethics will be concerned with the relations between human beings and their environment, that is to say the earth, animals and plants. Potter was convinced that the emergence of global bioethics would be a consequence of this third stage of the ethical vision of Aldo Leopold (Ten Have, 2014, p. 9). From this would spring a new structured ethical vision that was more balanced as regards the world of 'humans' and the world of 'animals', with a broader objective that would connect medical challenges with social, cultural and environmental dimensions. The adjective 'global' demonstrates that it must be new; it means that it aims at a planetary commitment and a unified and complete approach in its thinking.

Bioethics, seen as global ethics, acquired two meanings. The first is the planetary aspect in geographical terms. To begin with, bioethics became established in the United States of America in the 1970s, spread to Europe in the 1980s, and then in the middle of the 1990s reached Latin America, Africa and Asia. One can affirm that since the beginning of the new millennium it has expanded in every country of our planet. Today we see clearly that ethical questions transcend national boundaries and have become global questions. Global bioethics is more than simple 'international bioethics': today it has become relevant for all countries and is connected to the concerns of all human beings, independently of their religious or cultural beliefs

The second meaning of the adjective 'global' that Potter uses to define bioethics refers to a more inclusive and global bioethics that unites traditional professional ethics, in particular in the field of medicine and care, with ecological concerns and other 'macro' questions of our society and culture. The development of ethics in the current context of health care reflects this process: from medical ethics there was a move to medical (clinical) bioethics, with an expansion of the horizon of vision and action with an approach of inter-multi-trans-disciplinary health-care ethics, covering all the health-care professions, and on, finally, to global bioethics (Ten Have, 2016a, pp. 32-35).

In Potter one can identify three fundamental concepts of bioethics (stages) since its birth. 1. Bioethics as a *bridge*; 2. *global* bioethics; 3. *deep* ethics. The first concept expresses the metaphorical paradigm of bioethics as a bridge, which is already well known. There are four kinds of bridges to be built: 1. between the present and the future; 2. between science and the world of human values; 3. between nature and culture; 4. between human beings and nature (the environment).

We should describe what Potter means by 'deep ethics'. This was a concept developed together with his friend and disciple Peter Whitehouse, a neurologist at the Case Western Reserve University of Ohio. Dr. Whitehouse observed that Potter 'demonstrated an incredible ability to construct words capable of capturing

complex concepts. I saw him invent and try out various new terms to describe his vision of bioethics. We coined the term *deep bioethics* as an alliance between *deep ecology* and *global bioethics*' (Whitehouse 2002, p. 332).

Global bioethics as a metaphor attests to a wider concern about the whole planet (an anthropological, cosmic and ecological approach) and at the same time is a paradigm of analysis and thought regarding this subject, a complete and inclusive system.

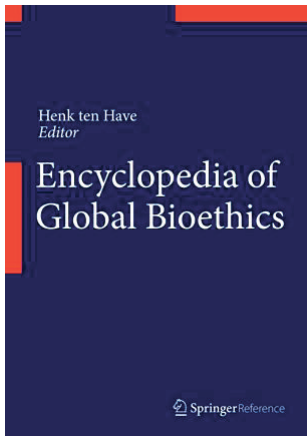
Deep ecologists ask us to think about our spiritual ties with the natural world, as Aldo Leopold did. The concept of 'biophilia', that is to say love for life, is aligned in this sense with deep bioethics. In the view of P. Whitehouse, the word 'deep' introduced a spiritual dimension into the heart of bioethics. *Deep* ecologists are those who have felt a mystical connection with nature and who have been critical of those who have addressed ecological questions in a reductionist way, that is to say only from a materialist and short-term perspective (Naess, 1995; Whitehouse, 2003).

2. Potter: from his Anonymity and that of his Work in the United States of America to International Recognition and Consecration

For a long time Potter's ideas obtained neither recognition nor appreciation in the United States of America. His was a voice in the desert! His two classic publications (*Bioethics: Bridge to the Future* – 1971 and *Global Bioethics* – 1988) were not recognised by the leading figures of the early stirrings of bioethics of the Kennedy Institute of Georgetown University, Washington, D.C. To give just one example of this neglect: the work of Potter was not even mentioned in the first edition of the *Encyclopedia of Bioethics*, published in 1978, whose chief editor was Warren Thomas Reich. Only in the revised edition of 1995, with the same chief editor, do we find in the introduction a short passage in which the paternity of Potter in relation to the neologism 'bioethics' is recognised (Reich, 1995, p. XXI).

Potter went abroad for the last time in 1990. He was accompanied by his son Carl who helped him because he was by then elderly. He visited Florence in Italy in response to an invitation that had been extended to him by Professor Brunetto Chiarelli, a lecturer in anthropology at the University of Florence. Potter had been invited to speak about global bioethics and on that occasion Prof. Chiarelli inaugurated a review entitled *Global Bioethics* (Potter declared: 'Professor Chiarelli asked my permission to use the term 'global bioethics' as the title of a new publication in English, a new version of a local review'). The journal *Global Bioethics* is still published today.

As regards the original paternity of the term 'global bioethics', Chiarelli expressed himself in the following terms: 'the term 'global bioethics' was the scientific formulation of globalised thinking promoted in 1980 by me, Van Rensselaer Potter, Antonio Moroni, Laura Westra and other scholars who sought to commu-



Warren Thomas Reich, *Encyclopedia of Bioethics* (1975)

nicate beyond the ideological and scientific domain in order to be able to begin a new stage for the reawakening of consciousness, perceiving the need to re-establish the balance between humanity and nature. This phrase fostered the creation of an alliance between life and the environment in which all the environmental, ideological, physical, psychological, social and economic factors are recognised as being inter-dependent, motivated by the aware vision that only by defending our ecosystems can we protect ourselves and all other forms of life (*bios*) on the planet earth' (Chiarelli, 2014, p. 19).

In the 1990s things began to change for Potter. His work became famous outside the United States of America, in countries such as Colombia, Brazil, Croatia, Italy and Japan. In 1998, at the fourth world congress of bioethics whose subject was 'Global Bioethics: North and South, East and West', Potter was invited as a speaker but was not able to take part because of his frail state of health. However, he sent a paper entitled 'Global Bioethics and Human Survival' (Potter, 1998). I was present at this congress and I took part in the showing of a video for all the participants. The video was greatly appreciated, especially by the Asian scholars. Incredibly, many American scholars in the fields of ethics, the philosophy of health and bioethics did not display great enthusiasm. The words of Jesus were confirmed: 'no one is a prophet in his own country'.

In this video, when speaking about the decline of his own life, Potter left behind him some valuable recommendations for his scholar-disciples: 'As I reach the end of my life, I feel that the bridge of bioethics, deep bioethics and global bioethics have reached the threshold of a new season that has gone well beyond what I could have imagined or developed. However, I need to remind you of the message of 1975 where humility united to responsibility as basic bioethics was emphasised...Humility is a consequence of the statement that you could make a mistake and requires the responsibility to learn from experience and available knowledge. In conclusion, what I ask of you is to think of bioethics as a new scientific ethics that unite humility, responsibility and competence that is inter-disciplinary and intercultural and increases the meaning of humanity. Thank you!' (Potter, 1998a, p. 347).

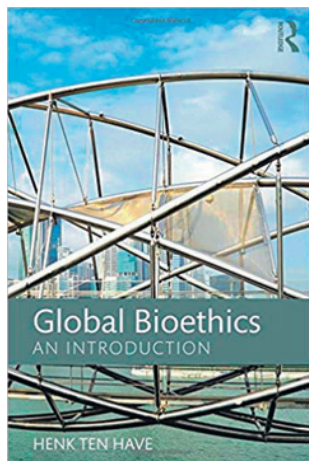
As he was no longer able to travel because of his state of health, he honoured the invitation that he had received from his friends of the Global Bioethics Network and sent a video of his lectures. To his friend Dr. Ivan Segota, of Rijeka, a port city in Croatia, in 2001 he sent his last message shortly before his death which took place on 6 September 2011 at the age of 90.

At the symposium of Rijeka whose subject was 'Bioethics and Science in a New Epoch' and was organised by this distinguished lecturer, with a retrospective

perspective on his involvement in the field and the conceptual evolution of his vision of bioethics, Potter observed: 'in this congress, as in other symposiums, bioethics has begun to be recognised not only as a medical question but also as thought that involves other environmental and social questions as well'(Potter, 2012, p. 152). Potter ended his statement by saying: 'I recognise that global bioethics must develop an international bioethics that is politically stimulated and socially engaged: a global bioethics for the twenty-first century requires care of people, health and the earth, for all living beings'.

He then addressed the subject of bioethical sustainability, namely 'an ethics of sustainability that should be based on the concept of respect for future generations...As bioethicists we need a bioethical sustainability: sustainability for whom? For what? And for how long? My answer is sustainability for the world's population in its diversity that embraces the protection of the biosphere in order to be able to construct a long-term society of dignity. For the next hundred years we need a political bioethics, with a sense of urgency...We have never had so little time as we do today to be able to do so much...Today we have a different kind of urgency. We need political action. We need to ask our leaders to structure a global bioethics with the goal of long-term global sustainability. In this way, we have two possibilities with which to face the future: the third millennium will be the moment of global bioethics or anarchy. The choice is ours'(Potter, 2012, pp. 153-155).

3. The Contemporary Relevance of the Legacy of Potter Today and in the Future



Henk Ten Have, *Encyclopedia of Bioethics* (2016)

A few days before his death, Potter wrote the last message of his life, his 'Final Message on Global Bioethics', in which he addressed his beloved 'global bioethics network', the group of friends who shared in his bioethical cause: 'this is my final message and I thank you all...I am a little weak and it is difficult to write. I hope that my memory will help me. For a long time, from 1970 to 1990, nobody recognised my name or wanted to be a part of this mission. In the United States of America there was an immediate expansion in the use of the word 'bioethics' by professional doctors who did not mention my name or the titles of my four publications of the years 1970-1971. Unfortunately this vision of bioethics delayed the emergence of what exists today' (Potter, 2012, p. 115).

Today we emphasise the importance of UNESCO for the support that it has given to Potter's cause of

global bioethics through its section ‘The Ethics of Science and Technology’ and more in particular through the International Bioethics Committee (ICB). With the coordination of this organisation, on 5 October 2005 the Universal Declaration of Bioethics and Human Rights was approved. This was without doubt an updating of the Universal Declaration of Human Rights of the United Nations of 1948 (UNESCO, 2005). In this Declaration, the legacy of Potter for the twenty-first century was accepted and re-launched with the approach and the vision of global bioethics. No less significant in global terms was the publication in 2016 of the *Encyclopedia of Global Bioethics* whose chief editor was the bioethicist Henk Ten Have, who was also the coordinator of the International Bioethics Committee of UNESCO.

The *Encyclopedia of Global Bioethics* offers a complete panorama and a systematic analysis of all the new questions and challenges that have emerged in relation to global bioethics. It offers descriptions and analyses of a vast gamut of important and new questions, approached with a truly global perspective and an intercultural approach. The new topics addressed in the *Encyclopedia of Global Bioethics* had often been neglected in the more traditional works on bioethics: the sponsoring of research and training in bioethics, bad scientific practices, the integrity of research, the exploitation of participants in research in contexts that are poor in resources, the brain drain and the migration of health-care workers, trafficking in organs and transplant tourism, indigenous medicine, biodiversity, the trade in human tissues, the sharing of the benefits of human research, the biotechnology and food industries, malnutrition and hunger, human rights and climate change (Ten Have, 2016).

At a time when the United Nations is seeking to define an agenda for the whole of humanity for the development of the new millennium (2015-2030), discussion has re-emerged about the need to correct our understanding about the concept of ‘sustainability’ or the concept of ‘sustainable development’. Potter during his epoch was already alerting us to the need for a planetary ethics, given that he was an acute visionary and a paladin of wisdom in the context of the extraordinary advance of scientific knowledge.

For Potter, ‘dangerous ignorance’ was much more threatening than so-called ‘dangerous knowledge’. The United Nations through the international committee for the environment and development and the leadership of the Norwegian Prime Minister, Gro Harlem Brundtland, drew up a document entitled ‘Our Common Future’ (this report is better known as the Brundtland Report). In this document we find the classic definition of what is meant by sustainable development which is defined as ‘that development that meets the needs of the current generation without compromising the capacities and the opportunities of future generations to meet their needs and their aspirations’. It is certainly the case that Potter would have signed this document with enthusiasm. When looking at our future world and working for the construction of a bridge of global bioethics, as Potter would say, mankind has a fundamental programme of work to address the immense

challenges highlighted in the '2030 Agenda for Sustainable Development'(UN Agenda 2030).

Undoubtedly Potter inspires us, instigates and makes us reflect on the reality of the world of life and our lifestyles in order to bear concrete witness to our responsibilities and to build a new more just and healthier society, as well as a future of hope for humanity. Beyond the superficiality of things and ideologies, there is an urgent need to cultivate a *deep* bioethics, one not closed up in itself: bioethics that is inclusive and *global*. We can, therefore, understand Potter when he declares: 'deep bioethics is the search for wisdom defined as a judgement on how to use knowledge for the social good. We ask for a bioethical wisdom that combines ecological knowledge with a sense of moral responsibility in order to live in a healthy world'(Potter, 1998b, p. 3).

Perhaps it is because of this contemporary relevance of his vision of bioethical wisdom in relation to the future that Peter J. Whitehouse, one of his disciples, later observed that 'the future of bioethics lies to a notable extent in the past. The original formulation of bioethics of Potter includes a deep commitment to a future that the world desperately needs. Our health-care system is morally and medically sick. Bioethicists must find the courage and the wisdom to lead the revolution in organisational change and not simply conform to dysfunctional systems'(Whitehouse, 2003).

4. Conclusion: Promoting Bioethics at a Planetary Level. The International Association of Bioethics (IAB) for the Promotion of Global Bioethics



The principal publications of the IAB (International Association of Bioethics)



Poster of the congress of the IAB held in 2016 in Edinburgh (Scotland). Subject: the individual, interests and the public good

The principal publications of the IAB (International Association of Bioethics)
The International Association of Bioethics (IAB) is an international organisation that brings together scholars, lecturers and researchers of the discipline of bioethics and various areas of knowledge. The IAB adopted the following definition of bioethics in its Constitution (revised in 2014): 'Study of the ethical,

social, juridical and philosophical questions and other emerging questions in the field of health care and the biological sciences'. It has educational and scientific goals that are exclusively defined by the following categories: 1. To facilitate contacts and the exchange of information between those who work in the field of bioethics in various parts of the world; 2. to organise and promote congresses and conferences in the field of bioethics; 3. to encourage the development of research and teaching in bioethics; 4. to support discussion on bioethical questions in a free and rational way.

This association is also responsible for a biennial organisation of world congresses in various parts of the planet. Hitherto fourteen international congresses have been organised. I failed to take part in only two of these world events – the first held in 1992 in Amsterdam, given that I did not know about it, and the last held in 2018 in Bangalore in India.

Below is a list of the congresses that the IAB has organised and their respective subjects. Through this list one can clearly understand the development and the expansion of the agenda of the subjects of international bioethics:

- a. The year 1992 in Amsterdam (Holland). At this first and inaugural congress of the IBA many and broad subjects were debated – the beginning, the development and the end of life; the practice of euthanasia – which occupied an important position in the discussions. The first Constitution of the IBA was drawn up and approved at this congress.
- b. The year 1994 in Buenos Aires (Argentina). Subject: bioethics, foundations, principals and the emphasis on end of life questions.
- c. The year 1996 in San Francisco (U.S.A.). Subject: bioethics in an interdependent world.
- d. The year 1998 in Tokyo (Japan). Subject: global bioethics: East and West, North and South of the world.
- e. The year 2000 in London (England). Subject: ethics, law and public policies.
- f. The year 2002 in Brasilia (Brazil). Subject: bioethics: power and injustice.
- g. The year 2004 in Sydney (Australia). Subject: listening deeply: creating ridges between local ethics and global ethics.
- h. The year 2006 in Peking (China). Subject: towards and more just and healthier society.
- i. The year 2008 in Zagreb/Rijeka (Croatia). Subject: bioethics and intercultural challenges.
- j. The year 2010 in Singapore. Subject: bioethics in a globalised world.
- k. The year 2012 in Rotterdam (Holland). Subject: thinking about the future: bioethics in the future and the future of bioethics.
- l. The year 2014 in Mexico City (Mexico). Subject: bioethics in a globalised world: science, society and the individual.
- m. The year 2016 in Edinburgh (Scotland). Subject: the individual, interests and the public good. What is the contribution of bioethics?

- n. The year 2018 in Bangalore (India). Subject: health for all in an unequal world: the obligations of global bioethics (<http://www.bioethics-international.org>).

The *2030 Agenda* of the United Nations for sustainable development offers to the whole of humanity a horizon of meaning and a long-term vision that all of us should know about and adopt at a personal level: 'We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development... We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind' (UN – Agenda 2030).

It is possible to construct another world, a fairer and healthier society, that is interdependent and respectful of cultural differences, in harmony with nature and able to protect the biosphere and life on the planet. We must be pro-active and take on our personal, professional and political responsibilities in this direction.

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CHAPTER II

I Bioethics, Humanism and Post-humanism in the Twenty-first Century: the Search for a New Human Being? I

‘O, Adam! We have made you neither heavenly nor earthly, neither mortal nor immortal, so that as a free and extraordinary shaper and sculptor of yourself you will be able to forge yourself in the form that you prefer’.

Pico della Mirandola, Oratio de hominis dignitate [1486]

‘Humanity will be radically changed by technology in the future. We foresee the feasibility of redesigning the human condition, including such parameters as the inevitability of ageing, limitations on human and artificial intellects, unchosen psychology, suffering, and our confinement to the planet earth’.

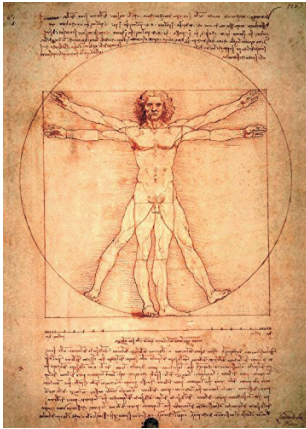
*Transhumanist Declaration
(World Transhumanist Association, 1988)*

‘A day will come when we will have the possibility of increasing our intellectual, psychological, emotional and spiritual capacities beyond what appears possible today. We are moving out of the childhood of humanity and entering a post-human era’.

Nick Bostrom (2005)

Introduction

We began to speak about ‘transhumanism’ or ‘post-humanism’ in the epoch of ‘post-everything’! What is meant by ‘transhumanism’? Science or mere science fiction? Illusion or hope? At the beginning of our twenty-first century, thanks to the rapid and extraordinary advances in the field of techno-science, biotechnology and genomics, it is not easy to discern whether we have before us a scientific proposal that will lead to the authentic hope of being able to improve the quality of human life or whether we are faced with a utopian ideology of a technological character that seduces us and projects us into an illusory world. In essential terms, we are faced with the dream of human beings of being able to improve their lives, given that it is specifically human intelligence that is seeking to improve the human condition. But this can also conceal a dream of negation: *the death*



Leonardo da Vinci, *Vitruvian man*.
A study of the proportions of the
human body. Venice Academy

of death. Could not this dream of earthly immortality, of ‘decreeing the death of death itself’, if it is not a mere illusion, place us in a nightmare? The questions do not stop there.

At the present time, the most curious case is that of the leader of the Transhumanist Party, Zoltan Istvan, who was a candidate at the presidential elections of 2016 in the United States of America. Istvan visited various cities in North America in his so-named ‘immortality bus’. This was a bus changed to look like a coffin, painted brown, with written on its side ‘immortality bus’. This initiative provoked amazement but certainly called the attention of the wider public to the cause of transhumanism. This candidate defined ‘transhumanism’ as ‘a radical domain of science that aims at transforming men, for lack of a better term, into gods’. In his view, our responsibility today is to transgress evolution. He has expressed himself as follows: ‘The human body is a mediocre part of our current possibilities in our material universe. Our biology severely limits us. As a species, we are far from being complete and this is unacceptable. Biology is for the beasts not for future transhumanists. Whereas many thinkers want to abolish God and transform the human being into a mere animal amongst others, the transhumanists want to abolish evolution and death and recreate new ‘gods’. For many transhumanists, the principal goal of this movement is to overcome human mortality, a goal that is held to be achievable by the year 2045’ (Istvan, 2016).

This initial statement demonstrates the relevance and the topicality of the ethical debate about this subject today.

One of the most urgent and fundamental questions of the contemporary bioethical debate is the anthropological question. Reference is made to the human being, this fantastic and mysterious being who is able to achieve through his creativity and inventive intelligence wonderful and amazing things that make life more beautiful, comfortable and pleasant, also offering some solutions to the tensions and sufferings of the past. At the same time, reference is also made to the human being as a being able to project and create the saddest and most degrading situations: he generates wars, destroys works of culture, poisons the environment and compromises the future of life itself on the planet.

Faced with this paradox, which profoundly troubles us, the need arises to change our vision of what a human being is. We must have the wisdom to go down the pathway of rectitude, of human fulfilment, and, lastly, of happiness. Hence the importance of focusing in a rigorous way on what is the contemporary vision or concept of the human being, which is implemented when we are faced with numerous technical possibilities and scientific actions that can profoundly change the identity of human beings.

In this sense we may observe that almost half a century since the birth of bioethics – namely in the year 1970 and the insights of Van Rensselaer Potter (Madison, WI) and Andrew Hellegers (Georgetown University, Washington) – the anthropological question has not yet been addressed as it should be. This is one of the fundamental concepts from which analysis about the very concept of human dignity derives.

A little more than a decade ago, Ruth Macklin, an American bioethicist, actually stated in an editorial in the *British Medical Journal* that the concept of human dignity was useless (Macklin, 2003), that it had been exploited politically, and that today it is of use only to those who have been in favour, and those who have been against, specific questions of a bioethical character. This provoked a striking international reaction by bioethicists and a flood of publications and papers by national bioethics committees, in particular in the United States of America, in order to protect the importance of this concept. Thus the concept of human dignity became a part of the bioethical debate and was seen from an anthropological point of view as the foundational starting point for discussing and analysing the principles and/or subjects of bioethics.

The transhumanist movement has forced thinkers, philosophers and bioethicists to address the anthropological question, but from a retrospective perspective. We have before us the possibility of radical changes in the nature of man that until a short time ago were absolutely inconceivable. This scenario provokes anxiety and perplexity but also, along its way, hopes of saving human beings from threats of destruction (wars, chemical and biological weapons). There has thus emerged the imperative need to develop means by which to identify and eliminate the dangers of the self-annihilation of humanity and to promote the acceptance and promotion of new opportunities for the creation of a *new humanism*.

This text takes up, broadens and in a certain sense deepens previous bioethical works of mine – one addresses what anthropology should be chosen as a basis for bioethics and the other is a discussion of transhumanism: utopia, ideology or hope? (Pessini, 2010a; 2010b). This essay has five parts. First of all, it offers a survey of the history and development of classic humanism, its values and its limits, analysed starting with the contemporary situation (I). It then outlines, starting with the origins and the characteristics of transhumanism, its foundations in the contemporary world (II). Thirdly it seeks to understand the concepts of human nature and the concepts that relate to how human beings are values (III). It then proceeds to investigate wise science and the urgent need for bioethics in a very special mission in this context (IV). Lastly, the need is felt to draw up a new humanism for the twenty-first century that will filter through by way of the importance of formation, in the outlook of Edgar Morin, in order to teach people to be, to act and to live together (V). I will end by asking what future awaits us in the face of the challenge of going beyond the ‘paradigm of technical instrumental reason’ towards the ‘paradigm of sensitive and cordial reason’.

1. Humanism: the Origins, Concepts, Values and Limits of the Classic Heritage

1.1 *The rise of humanism*

In the fifth century BC the Greek philosopher Protagoras defined man as the ‘measure of all things’. This point of view was seen as one of the first expressions of humanism, that is to say the philosophy that made human beings, human life and the life of humans on the earth its principal concern. Pico della Mirandola, for his part, stated that ‘human beings can be free: their potential is limitless (1956). The humanist movement flourished in Europe during the Renaissance (the sixteenth century) and the Enlightenment (the eighteenth century), but in every epoch, country and culture it has reinvented its anthropological values, trying to provide fundamental answers to the same basic questions, amongst which there is the unveiling of this mysterious creature, that is to say the search to understand what human beings are.

Humanism is an eternally new concept that has been constantly reshaped (Halimi, 2014). For Irina Bokova this is an idea, a vision and a concept of the human being (anthropology) that has been reinvented at every historical moment of human development. Many rapid changes and profound transformations completely altered the relationship between man and his environment at the beginning of the twenty-first century. The traditional model of growth is rapidly exhausting the natural resources of the earth and coming up against the biophysical limitations of the planet. This is degenerating towards an ecological crisis whose consequences are not yet completely known. We have apocalyptic predictions produced by famous scientists. We are witnessing an epochal change. Socio-economic inequalities are growing and are creating increasingly complex scenarios, while the development of emerging countries, social change and democratic transitions are provoking new hopes about the reduction of poverty and the promotion of human rights. The emergence of information technology is creating the premises for the creation of a new global space, allowing the drawing near of different cultures and people as has never happened before in history, given that they practically lived in isolation. On the other hand, this phenomenon of the encounter of cultures is generating conflicts, incomprehension and disagreements and creating the premises for tensions in many cases, leading on to violence and the deaths of innocent people (Bokova, 2014).

We have before us various simultaneous crises that affect the lives of people who live in society. This situation is inexorably testing our ability to resolve states of conflict that often end up with threats of terrorist activity. On the other hand, signs of hope also exist, with the emergence of innovative ideas and projects. We have witnessed the birth of new actors in civil society: the younger generations are creating new forms of solidarity and social action, placing faith in the unlim-

ited resources of human intelligence. With this style, a new humanism is being generated that is more suited to our contemporary situation.

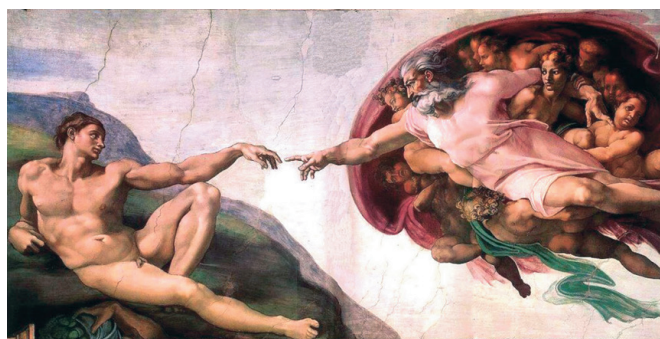
What does it mean to be a humanist today? It means adapting in a creative way the power and the values of the ancient message about what it means to be a 'man' to the challenges of the contemporary world. It means thinking anew about the conditions for mutual understanding in order to build peace and protect human dignity, using in the best way possible the instruments that are available for the full development of the potentiality of each person. In the fifteenth century the philosopher Giovanni Pico della Mirandola (1463-1494) defined this central concept: 'human dignity is the power of every human being to give to himself some of that identity that he has chosen'(1956). This effort begins with the essential process of formation and has no end given that it is infinite

The then Director General of UNESCO, Irina Bokova, in 2014 stated that 'respect for cultural diversity is the central element of humanism in the twenty-first century. This is a fundamental constituent in these times of globalisation. No culture today has a universal monopoly. Everyone can contribute to the strengthening of our shared values'.

The *Universal Declaration of Human Rights* (1948), issued by the United Nations (UN), was drawn up immediately after the Second World War and is still today a text of universal relevance, even if humanity is still not able to implement a large part of the list of the rights that are enunciated in the Declaration. Half a century later the UN launched two important projects at an international level: the millennium development goals (2000-2015) and at their end the sustainable development goals (2015-2030), embracing a humanistic agenda involving all its 193 member States.

1.2 Western humanism: the values of the classic heritage

Humanism developed in the whole of Europe from the fourteenth to the eighteenth centuries. It was inspired by ancient writers whose works were translated by great scholars and began to circulate in the societies of that epoch thanks to



Michelangelo Buonarroti. *The creation of Adam*. Detail from the vault of the Sistine Chapel. Vatican Museum (Rome).

the invention of printing: Homer (eighth-ninth centuries BC), Plato (427-347 BC) and Euripides (c. 480-406 BC) of the ancient Greeks; Caesar (100-44 BC), Cicero (106-42 BC), Sallust (86-35 BC) and Juvenal (first century AD) of the Latin classical authors. The ‘ancients’, as they were called, became a common source of inspiration for writers and artists.

There are figures that are linked to the development of the humanist movement. In Italy, amongst other eminent humanists, we may list Petrarch (1304-1374) and Boccaccio (1313-1375); in Holland and Germany, Erasmus of Rotterdam (1466-1536) and Johan Reuchlin (1455-1522); in France, Pico della Mirandola (1463-1494) and Jacques Lefèvre d’Etaples (1455-1536); in England, John Colet (1467-1519) and Thomas More (1478-1535); and in Spain, Juan Luis Vives (1493-1540). All of these men, together with others, made their contribution to the establishment and the fulfilment of humanism.

The message of the humanists adopted a form of basic optimism in line with the new European approaches typical of the end of the Middle Ages. This optimism was founded on trust in the fact that man was a rational creature. Rationality was the faculty that distinguished human beings from animals. Rationality was seen as the power that enabled man to know and control himself, freeing himself from the dangerous rule of the passions. Reason was seen as the universal attribute of humanity. René Descartes and John Locke thought within this lineage. The logical attribute of human rationality constituted the guide to understand, and therefore to interact in and with, the universe. Immanuel Kant (1848) became the personification of this new epoch which he defined with the phrase: ‘humanity that grows in its maturity through the exercise of reason’.

Trust in man was accompanied by trust in reason and science. This period can be listed as a season of great scientific advance in all the fields of knowledge. One can cite Copernicus (1473-1543), Galileo (1564-1642), Leonardo da Vinci (1452-1519) and Isaac Newton (1642-1727), amongst others. Bold navigators and explorers ventured into mysterious and unknown oceans and discovered new continents (America, India), inventing new methods and instruments (the compass) to achieve safer and more organised navigation. Magellan (1480-1521), Vasco de Gama (1460-1524), Marco Polo (1254-1324), Christopher Columbus (1451-1506) and James Cook (1728-1779) were some of these figures. Daily life became more comfortable and appreciable thanks to discoveries and advances in the field of medicine. We may remember here the innovations of Ambroise Paré (1510-1590) and of Edward Jenner (1749-1823). In the field of agriculture new instruments and techniques were introduced which increased yields, with the creation and reproduction of animals for human consumption. Lastly, the industrial revolution began its journey. Trade on a vast scale brought to Europe the best products of other countries, creating an increasing interdependence of all the countries of the various continents of the world. There emerged during this epoch, albeit in embryonic form, what we call today the process of ‘globalisation’.

With the market, the circulation of money and the development of the arts increased. Culture was accompanied by material progress. Celebrated poets such as Joachim du Bellay (1522-1560) in France; William Shakespeare (1564-1616) and Francis Bacon (1561-1626) in England; Goethe (1749-1832) in Germany, and artists such as Michelangelo (1475-1564) and Raphael (1483-1520) in Italy, were at the top of a long list of geniuses of human invention. Academies were established to support and defend the interests of artists. Exhibitions were organised to accompany the spread of interest in art, above all else for the middle and upper classes of society. The Italian city of Florence was the cradle of all of this artistic and cultural revolution.

This optimism, accompanied by widespread progress in various areas of human activity, gave rise to 'utopias'. Thomas More was one of the most famous thinkers of this lineage. James Cook (1728-1779), Louis Antoine de Bougainville (1729-1811) and Christopher Columbus were discovering new parts of the world. Jean-Jacques Rousseau (1712-1778) and William Wordsworth (1770-1850) dreamed of idyllic communities where people could live in contact with nature, far from the crowds of the city, enjoying liberty without laws or repression. Immanuel Kant (1724-1804) spoke about a sort of universal peace, placing man on a pedestal, exalting his rational faculties and his potential for development. This humanist movement was also marked by a wish to free people from the yoke of various Churches and religion: the presence and the action of God in society began to shrink starting with this wave of secularisation. Nature was perceived as a replacement for divinity. This was the thought of Lord Shaftesbury (1801-1885), the spokesman of theology in England at that time. There took shape in this scenario of the growing secularisation of Christianity the first form of humanism, with the emerging currents of pantheism and atheism.

Despite this optimistic scenario which was widespread in the culture of the time, not everything that glittered was gold! This utopian optimism was not free from doubts given that not everyone 'worshipped reason' – the cornerstone of the whole edifice of humanist construction. David Hume (1711-1776) was the first thinker to subject the optimism of Descartes and Locke to criticism, arguing that reason could betray man, that there are as many 'reasons' as there are individuals and that the 'senses' could be a better guide. Kant confessed to be very sensitive to the scepticism of Hume given that the 'animal' component of man was in effect very strong or even stronger than the rational component. In this, he echoed the famous saying of Blaise Pascal (1623-1662): 'The heart has its reasons that reason does not know'. After Hume, instinct and sensations became the key words of the new sentimental/Romantic tendency in English literature, in particular with Samuel Richardson (1689-1761) and Laurence Sterne (1713-1768). In France, we may cite Jean-Jacques Rousseau (1712-1778), amongst others.

Another problematic aspect was the evidence of the benefits and advances attributed to human nature but which were in fact the products of the culture, gifts and conquests of civilisation, respecting the rules and laws established by the

city (*polis*). Those who lived outside the rules established by the *polis*, returning to the state of nature, which is not always idyllic, would, it is said, live in a state of ongoing war, as was described by Thomas Hobbes (1651) in his *Leviathan*.

The debate between nature and culture, as a consequence, was at the centre of the Enlightenment and its vision of human life. Even at the apex of its glory, humanism was not without antagonistic currents of thought.

1.3 *Humanism today: some limits of the classic humanist heritage*

In the epoch of globalisation, after two world wars in less than a hundred years in the twentieth century, with the deaths of a hundred million people, optimistic and almost ingenuous trust in man has endured a hard blow and humanism has been subjected to a rigid re-examination as regards its assumptions and its message of optimism.

The humanism described above was linked to the specificity of its historical context. It was a philosophy that was the expression of a sophisticated and educated elite. Normal and ordinary people, with their daily problems connected with survival, were ignored, as they had been neglected in Athens or Rome, the cradle of the first humanism. The French Revolution (1789) highlighted the most humble classes of society and proclaimed that all human beings were equal. It spoke about freedom, equality and fraternity, striking a mortal blow at this understanding of humanism.

In addition, humanism up to that moment had been a movement that was purely Eurocentric and thus did not incorporate other elements of the civilised world. The Renaissance and the Enlightenment turned to classical antiquity as a source of inspiration. They ignored ancient cultures which already existed in other parts of the world, such as Confucianism in China or Arab civilisation with its Muslim culture. For this reason, humanism was criticised as being an instrument of European colonialism. While the European powers competed with each other to expand their areas of influence throughout the world – in Asia, in Africa and in America – this civilisation was transplanted and offered as a model to be followed in these undeveloped countries. At this point in history, the birth of imperialism took place, with social nuances and political, cultural, religious and economic interests whose values were steadily imposed on these newly discovered or conquered countries. This also demonstrates once again that the classic vision of humanism was no longer suited to the twentieth century.

The twentieth century was seen as one of the epochs of greatest progress in terms of scientific knowledge but, unfortunately, it was also one of the bloodiest in history. The optimistic dream was rapidly transformed into a nightmare. The destructive power of science and technology obtained greater visibility and importance compared to the benefits obtained by their implementation. Amongst the other factors that contributed to this new pessimistic scenario, we may remember the creation of the atomic bomb and its use on Hiroshima and Nagasaki in

1945. Another unsolved problem was provided by the inability to manage nuclear waste in an adequate way. Accidents such as those that took place in Fukushima in Japan (2012) or before that at Chernobyl in the Ukraine (1986), with many deaths and terrible consequences for human health, raised many questions about the use of nuclear energy. In addition, the global warming that is now underway, with the consequent ecological crisis, the use of pesticides in agriculture, which threaten health, and the unforeseen consequences of eugenics, as a result of the new discoveries in genetics, without taking into consideration the ethical values involved in these challenges, are all elements that have generated disquiet and fear about the future itself of humanity upon the planet. We could even simply disappear in a future that is not so far off! People are becoming aware that if we do not change this state of things and this lifestyle, we could realistically imperil the very existence of future generations.

Illiteracy has still not been eradicated in the world. According to the data provided by UNESCO, at the present time there are about 773.5 million illiterate adults of whom about two-thirds are women. About 200 million young people between the ages of 15 and 24 did not complete their basic schooling even though instruction was one of the fundamental human rights upheld in 1948 in the famous Declaration of Human Rights. Instruction is also the key to moving out of this state of ignorance and poverty which has, amongst its more distant causes, specifically the problem of illiteracy. The distance between those who have and those who do not have is increasing rather than diminishing.

Scandalous wealth is accumulated by a small number of powerful people in the world, while famines and epidemics affect immense numbers, compromising the possibility of a healthy and dignified life and a professional future for thousands of people throughout the world. Now, ironically enough, we are going through a deep economic crisis that not only threatens the lives of poor people but also the real development of industrialised countries. Globalisation runs the risk of making the poor poorer and the rich richer. As a consequence, we are witnessing not the globalisation of solidarity but the globalisation of exclusion and indifference, as Pope Francis has repeatedly and emphatically highlighted, in the face of the situation of migrants and refugees in Europe.

The new communications technology allows the exchange of information and interaction that are almost instantaneous with all the parts of the world. Today we are living in an authentic *global village*, as Marshall McLuhan (1911-1980) was already positing in 1960. The new forms of communication are without doubt a valuable instrument of freedom, one of the great benefits produced by technological advance. However, these technologies are also used as an instrument to control and spy on near and distant enemies. The frequent scandals of corruption that involve public figures throughout the world are famous. During our epoch of universal communication, how many solitary people sit down in isolation in front of the monitors of their computers looking for a contact with a distant and unknown person in order to counter their loneliness? So-termed diseases of the

soul have emerged during the twenty-first century: loneliness, depression and a consequent increase in suicides. Today, every forty seconds one person commits suicide in the world, producing 800,000 suicides every year.

Violence is one of the most evident consequences of all these frustrations. Aggressiveness within society, intolerance, social conflicts and the use of children as soldiers or kamikaze combatants in various regional conflicts in the world are on the increase. Schools are no longer a ‘sanctuary’ where peace is experienced and taught – they, too, unfortunately, reflect the conflicts and the social inequalities of the societies in which they operate.

Politicians are even more worrying: they seem no longer to be able to control or solve these difficulties. The international organisations created to keep the peace amongst nations (the UN, UNESCO, FAO) have become powerless in the face of devastating waves of violence and terrorism perpetrated by fundamentalist organisations with a religious background or otherwise.

The victims of desperation, some people have turned to religion, looking for support, but with the paradoxical risk of nourishing new and old forms of fundamentalism – extremist forms of religions that exist in all faiths. Even though such a situation cannot be generalised, there are also some positive signals that indicate – as an urgent challenge – that there is a need to reinvent humanism. Whatever the case, all of this state of things demonstrates to us how much we are still distant from the dream of universal peace cultivated by the humanists of the Enlightenment!

2. The Emergence of Contemporary Transhumanism

2.1 Some notes on the origins and characteristics of post-humanism

The terms ‘transhumanism’ and ‘post-humanism’ have been coined recently, even if the ideas that underlie them are older than this. The philosophical ideas that form the basis of this movement of thought have their origins in the century of the Enlightenment thinkers and have imbibed a dose of post-modern relativism. From the Enlightenment comes a completely reductive approach to the characteristics of human life, starting with the movement of materialist empiricism. In his book *L’Homme Machine* of 1748, the French physician and philosopher Julien Offray de La Mettrie (1709-1751) wrote that men ‘fundamentally are animals and machines’ (1912, p. 143). The Marquis de Condorcet (1743-1794), another French philosopher of the Enlightenment, wrote that ‘there are no pre-established limits to the improvement of the faculties... the perfection of man is without limits’ (Condorcet, 1795).

These insights of the eighteenth century were updated by the transhumanist Bart Kosko in his work *The Fuzzy Future* (1999) in which he proclaimed that ‘biology is not fate, it is only a first hurried and clumsy attempt by nature to cre-



ate computers made of flesh. Integrated circuits, instead, are fate' (Kosko 1999). One should also consider the declaration of Kevin Warwick (2000): 'I was born a human but this was an accident of fate, a condition connected only to time and space. I believe that this is something that we have the power to change'. This post-humanist vision is the consequence of Enlightenment ideas animated by a ferocious libertarianism and supported by a post-modern moral scepticism according to which every person is the final arbiter of what is right and appropriate for his life or his body. Many scholars in this field have seen seeds of post-humanist ideas in the thought of the nineteenth-century German philosopher Friedrich Nietzsche, as expressed in his book *Thus Spoke Zarathustra*, in which, when presenting his superman, he states that 'man is something that must be overcome' (Nietzsche 1995).

Richard Jastrow in his book *The Enchanted Loom* (1981), when speculating upon this future, describes a new human scenario: 'At least a human brain inserted into a computer has been freed from the weakness of its physical-biological nature. It now has full control over its destiny...A guest in an indestructible prosthesis of silicon, it is no longer limited to a few years of life; this life could be for ever' (Jastrow 1981, pp. 166-167).

Transhumanism has been defined as 'The intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities' (Humanity+, 2013).

Dr. José Alberto Mainetti, an Argentinian medical doctor and bioethicist – one of the pioneers of bioethics in the Latin American context – defines transhumanism or post-humanism as a 'techno-futuristic movement between the utopian and the ideological which postulates the self-transformation of the human species, because the perfecting of humans constitutes a new objective of medicine, beyond the traditional treatment of illness and health care' (Mainetti, 2014, p. 33).

The *World Transhumanist Association* was founded in 1998 by Nick Bostrom and David Pearce (a British utilitarian thinker) to provide a general organisational

basis for all transhumanist groups. Today it has more than three thousand members in over a hundred countries. It has published since 2004 the *Journal of Evolution and Technology* which at the outset was entitled the *Journal of Transhumanism*. In 2008 this association renamed the publication and gave it the name *Humanity+*. One of its explanatory documents, in which some of the fundamental and shared principles of transhumanism are declared, is the *Declaration of Transhumanism* which I will now reproduce in its entirety:

1. 'Humanity will be radically changed by technology in the future. We foresee the feasibility of redesigning the human condition, including such parameters as the inevitability of ageing, limitations on human and artificial intellects, unchosen psychology, suffering, and our confinement to the planet earth.
2. Systematic research should be put into understanding these coming developments and their long-term consequences.
3. Transhumanists think that by being generally open and embracing of new technology we have a better chance of turning it to our advantage than if we try to ban or prohibit it.
4. Transhumanists advocate the moral right for those who so wish to use technology to extend their mental and physical capacities and to improve their control over their own lives. We seek personal growth beyond our current biological limitations.
5. In planning for the future, it is mandatory to take into account the prospect of dramatic technological progress. It would be tragic if the potential benefits failed to materialize because of ill-motivated technophobia and unnecessary prohibitions. On the other hand, it would also be tragic if intelligent life went extinct because of some disaster or war involving advanced technologies.
6. We need to create forums where people can rationally debate what needs to be done, and a social order where responsible decisions can be implemented.
7. Transhumanism advocates the well-being of all sentience (whether in artificial intellects, humans, non-human animals, or possible extraterrestrial species) and encompasses many principles of modern secular humanism. Transhumanism does not support any particular party, politician or political platform' (Bostrom, 2005, p. 26).

Transhumanism is a form/style of thinking about the future based upon the assumption that the human species in its current form does not represent the end of our development but is at a still very incipient stage of its evolution. The leading figures of this movement formally define it in the following way:

1. 'The intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.

2. The study of the ramifications, promises, and potential dangers of technologies that will enable us to overcome fundamental human limitations, and the related study of the ethical matters involved in developing and using such technologies' (Bostrum, 2005, p. 8).

In the view of its leading figures, post-humanism recognises certain principles and values of modern humanism. It seeks to promote rationality, freedom, tolerance, democracy and solidarity. At the centre of post-humanist values there is the autonomy of the person who is free to modify his own body. This right includes the fundamental freedom of procreation. However, the refusal of improvement is also a right. The human biological form must not be sacred. This means that it is not immutable and as such the value of, respect for, and dignity of, man is not limited to his biological dimension.

N. Katherine Hayles in her book *How we Became Post-human* (1999) describes four characteristics of post-humanism. 1. Models of information are more important or essential than the nature of being. Acquiring a biological sub-stratum is seen more as a historical accident than the acquisition of an inevitable destiny of life. 2. Consciousness is an epiphenomenon. An immaterial soul does not exist. 3. The body is simply a prosthesis, the first that a person learns to use and to manipulate. As a consequence, to replace or improve a human function with another prosthesis is only a natural extension of a human being in his relationship with the body that he has received. In this scenario a human being is organised and is connected like machines. In this new post-human reality there are no absolute differences or demarcations between corporal existence and computer simulations, a cybernetic mechanism and a biological organism, robotic teleology and human objectives (Hayles, 2014, p. 3098).

The instruments that post-humanists would use to achieve their objectives include genetic engineering, nanotechnology, cybernetics, pharmacological research and computer simulations. One of the most ambitious and controversial humanist approaches relates to the concept of 'mind uploading'. In the view of its supporters, the extraordinary advances in the context of computer science, calculation and neuro-technologies over the last few decades will enable people to read all the synaptic connections of the human brain, enabling us to create an exact replica of the brain that would begin to exist and function within a computer. This simulator could live in any form that is desired of a mechanical body (Kurzweil, 1999; 2005; 2012).

When one speaks about convergent technologies to improve human performance, we encounter four types of new technologies: nanotechnologies, biotechnologies, information technologies and the cognitive sciences (*nano-bio-info-cogno*), according to the North American approach. In addition to these four convergent technologies, the European project adopts the approach of broadening the circles of convergence, integrating the human and humanistic sciences, such as philosophy, etc. The shared goal is not the optimisation and the improvement

of the existence of human beings with the help of purely material, physical and biological technologies but, rather, the development of a knowledge society that respects certain ethical, social, philosophical and religious values.

The slogan that captures this European approach, compared to that of the United States of America, is ‘no to engineering of the mind and the body’, ‘yes to engineering for the mind and for the body’. Only this second approach respects our humanity.

The improvement of humans with the help of material technologies has to take into account certain values provided by the cultures and the histories of peoples. A reference to values such as dignity, integrity, freedom, equality and justice is of fundamental importance. These are universal values stewarded by the European cultural tradition.

We are entering the era of so-called ‘digital humanism’ which is understood as the result of a totally new convergence between the complex cultural heritage and technology, and which has become a new space for sociality that is without precedents in human history. This convergence is new because it allows us to redistribute concepts and objects as well as the practices associated with them in a virtual context.

Digital humanism is connected with discoveries that have opened up new fields of research and produced new technologies that are transforming consolidated socio-cultural categories. In addition to its technical and economic aspects, which require constant control and questioning, digital humanism is near to becoming a culture given that is helping to change our perception of objects, relationships and values, introducing new prospects in the field of human activity.

Cultural practices, such as writing, reading or communication, for example, have been modified by the widespread use of digital technologies that can also perform an important role in a radical change of the categories of space and time, facilitating encounter between cultures, breaking down geographical distances, making communication instantaneous and interactive, etc. (Skype, video conference).

The hybrid space of digital technology is a new way of living with myths, discoveries and utopias. It makes the global village a reality. Digital humanism is a way of thinking about this new reality.

2.2 The debate between transhumanists and bio-conservatives: some leading figures and their proposals

Since the beginning of the year 2000, the transhumanist movement has gained visibility and begun to provoke concerns in the fields of bioethics and bio-politics. In this new context, the leading figures of so-termed ‘bio-conservatism’ have come onto the stage, with ethical and philosophical positions that are seen as conservative, to defend the current state of human nature. We may list here Leon Kass, Michael Sandel, Francis Fukuyama and Jürgen Habermas, amongst others.

Francis Fukuyama, one of the members of the Commission for Bioethics of the President of the United States of America at the time of the presidency of J.W. Bush, and the author of the book *Our Posthuman Future: Consequences of the Biotechnology Revolution*, declared that ‘transhumanism is the worst idea in the world’ (Fukuyama, 2002). Leon Kass, who was chairman of the Council for Bioethics of President Bush, belongs to the same line of thought of three eminent thinkers who are seen as bio-conservatives: Paul Ramsey (a Protestant theologian), C.S. Lewis (a Christian apologist), and Hans Jonas, a pupil of Heidegger, the philosopher and theologian born in Germany.

The concern of L. Kass concentrates upon human dignity and the sophisticated attempts specific to technological intervention upon human nature that can dehumanise us, imperilling many traditional meanings, such as the life cycle, sexuality, alimentation, work and other important elements of human existence. This thinker is known for his defence of the *wisdom of repugnance* which is linked to the *heuristics of fear* of Hans Jonas. Although he affirms that a deep sense of disgust does not constitute a valid moral argument, he nonetheless emphasises the fact that this kind of feeling (*factor of repulsion, of disgust*) deserves attention and respect. He expresses himself as follows:

‘In crucial cases, however, disgust is an emotional expression of profound wisdom, beyond the power of reason to offer a complete explanation...we intuit and perceive, immediately and without discussing, the violation of things and values that we correctly hold to be important and meaningful...to pollution and perversion, [for example] the most adequate response can only be given by horror and disgust; and, in the same way, horror and disgust are the ‘prima facie’ evidence of stupidity and violence’ (Kass 1997, p. 20).

The bioethicists George Annas, Lori Andrews and Rosario Isasi have proposed legislation in which all the genetic changes produced in human beings must be considered on a par with a crime against humanity, like, for example, the practices of torture and genocide. The argument is similar to that made by Fukuyama:

‘The new or ‘post-human’ species very probably will look at the old ‘normal’ human beings and will see them as inferior, savage and suited to slavery or elimination. The normal, on the other hand, will be able to perceive post-humans as a threat and if they can they will engage in a battle to kill post-humans before they themselves are killed or reduced to slavery by them. It is this possibility of genocide that makes experiments for the alteration of the species potential weapons of mass destruction and makes genetic engineering a terrorist potential’ (Annas; Andrews, ISASI 2002, p. 162).

We may list amongst the neo-prophets of a post-human world the so-termed post-humanists or transhumanists Raymond Kurzweil (USA), Nick Bostrom (Sweden), Max More (United Kingdom), John Harris (England), Julian Savulescu (Australia), Eric Dextler (USA), Eliezer Yudkowsky (USA), amongst others.

Bio-conservatives and transhumanists have various elements in common. Both agree on the fact that we are faced at this specific historical moment with the con-

crete possibility that technology may be used to transform radically the human condition. They also agree on the fact that this technological fact requires and imposes an obligation on the current generation to think seriously about the practical and ethical implications of such a use. Both are worried about the health-care risks and the side effects,



but the bio-conservatives are more concerned about the success than the failure of such a technological potentiality. Both these outlooks agree that technology in general, and medicine in particular, have the legitimate task of research and development, even though the bio-conservatives tend to oppose a use of medicine that goes beyond improvement therapy. Both these parties condemn racism and forced eugenic programmes sponsored by States themselves.

‘Bio-conservatives pay great attention to the possibility that human values will be thrown away surreptitiously by technological advances and perhaps transhumanists should learn to be more sensitive to these concerns. On the other hand, transhumanists emphasise the enormous potential of an authentic improvement in human wellbeing that is obtained only through technological transformation; bio-conservatives could try to be more disposed to appreciating the possibility of achieving great values on the journey that ventures beyond hitherto recognised biological limits’ (Bostrum 2005, p. 25).

2.3 The ancient and eternal human desire to seek self-enhancement

Many people dream of flying and wish to fly without the help of technology; they dream of being able to have bodies and minds that transcend current biological limitations; and they wish not to have to go through the painful process of ageing or dying. In the meanwhile, they continue to live their lives, seeking to learn to coexist with the realities of finitude and mortality. Already today we have the means to help us to address the biological limitations of our existence in a significant way.

However, there will soon be technologies that will enable people to overcome these limitations. This is the post-humanist agenda that pulls with it a series of ethical questions about this scenario. For many people this is only a daydream. Post-humanists, on the other hand, believe in this possibility and strive to look for, and create, new technologies by which to prolong human longevity and to support some forms of physical immortality and the regeneration of the human body by expanding its functional capacities. Trans-humanism may be defined as a philosophical vision that responds positively to these questions while awaiting the day when *Homo sapiens* will be replaced by a biologically and technologically superior being. There are those who ask if this well planned post-human being

will still be human after being so profoundly changed. Would such a being still be a representative of the human species? (Hook, 2014).

The human desire to acquire new abilities and skills is as old as the human species itself. Transhumanists seek in ancient testimonies, in the great epic poems of classical antiquity, inspiration for their post-modern ideas. They turn to the Sumerian epopee of Gilgamesh (c. 1,700 BC), a king in search of immortality who discovers a plant that grows at the bottom of the sea. He successfully collects it but a serpent steals it from him before he can eat it. Since then, various explorers have looked for the font of youth; alchemists sought to produce an elixir of long life; and various schools of Taoist esotericism in China explored physical immortality and tried to dominate the forces of nature. The boundaries between mythology and science, magic and technology, were not defined in a clear way and almost all the means pursued for the preservation of life turned out to be a waste of time.

The attempts and the research to transcend our natural limits were perceived in an ambivalent way. On the one hand, there was attraction and, on the other, arrogance, that is to say excessive ambition (*hubris*), which meant that the discovery worked against humanity itself. The myths of ancient Greece demonstrate this ambivalence with clarity. Prometheus stole the fire of Zeus and gave it to men, improving the human condition in a permanent way. As a consequence, he was severely punished by Zeus. In the myth of Daedalus the gods are repeatedly challenged, and successfully, by the intelligent and creative planning of men who do not use magical means to extend their human capacities. However in the end tragedy occurs. Icarus, the son of Daedalus, ignoring the warnings of his father, flies too high to the sun, causing the wax of his wings to melt.

In the Middle Ages, as well, contrasting opinions existed about the research of alchemists and their attempts to transform substances, to create a homunculus in a test tube, and to invent panaceas. Some 'scholastic' scholars followed the teachings opposed to experimentation of Thomas Aquinas in the belief that alchemy was a dangerous activity connected with daemonic forces. Other theologians, such as Albertus Magnus, defended this practice (Newman, 2004).

With the end of the Renaissance, human beings and the natural world once again became a subject for study. Renaissance humanism encouraged people to trust their own observations and their own prejudices before entrusting this task to the religious authorities. This kind of humanism also sustained and cultivated the idea of a person who was highly developed at a scientific, moral, cultural and spiritual level.

The summit of this progression was the work of Giovanni Pico della Mirandola, *Oration on the Dignity of Man* (1486), in which he affirmed that man does not have any pre-established form and that he alone is responsible for perfecting himself:

'I have made you neither heavenly nor earthly, neither mortal nor immortal, so that a free and extraordinary shaper and sculptor of yourself, you will be able to forge yourself in the form that you prefer. You can degenerate yourself into

lower things that are ugly; you can regenerate yourself, according to your will, into higher things that are divine' (Pico della Mirandola, 1956).

Transhumanist ideas spread during the first part of the twentieth century. The term 'trans-humanism' was coined in 1927 by Julian Huxley, an eminent scientist, biologist and first Director General of UNESCO, as well as the brother of Aldous Huxley, the author of the famous work of science fiction, *Brave New World*. Julian Huxley declared the following in his work *Religion without Revelation* (1927):

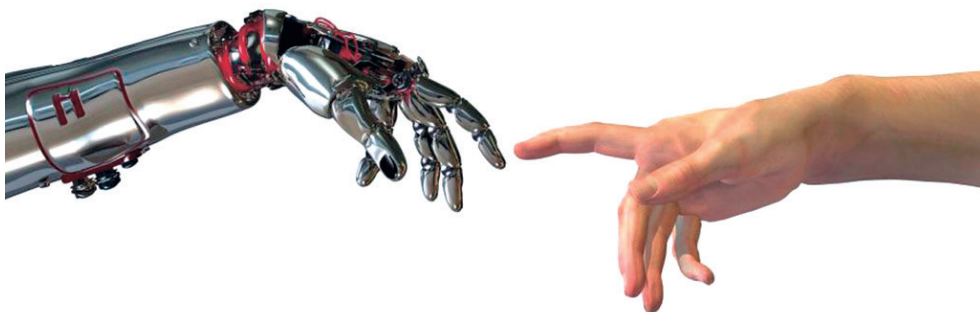
'The human species can, if it wants, transcend itself, and not only sporadically – an individual here in one way and an individual there in another – but in its totality, as humanity. We need a name for this new creed. Perhaps the term 'transhumanism' will be useful: man continues to be man but transcends himself, in order to discover new possibilities for his human nature' (Huxley, 1927).

In 1928 F.M. Esfandiary (known as FM-2030), in his work *Are you Transhuman?*, referred to a human being as a being in a state of transition towards being a person for whom, in virtue of the intervention of technology, cultural values and lifestyle are only an evolutionary link with the future in an epoch of post-humanity.

2.4 Ethical discussions about contemporary humanism

Transhumanism has gained visibility in recent years following the publication of various American and European documents (papers). In the United States of America a report was published in 2002 on 'Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science'.

In Europe in 2004 the document 'Convergent Technologies for the European Knowledge Society' was published. With a different and contrasting timetable compared to developments in the United States, this European document emphasised the need to cultivate and broaden knowledge about these questions in order to improve the natural and artificial environment. Material technologies should be applied to material domains; the human body and brain do not belong to these categories. This document opposed the transhumanist programme and also referred to the alarm launched in the United States of America about transhumanist ambitions to 'improve human performances'.



In 2009 the European Parliament published its *Report on Human Enhancement* which offered many examples that referred to the improvement of human performances, from the most banal to the most speculative: the use of Viagra, doping in sport, gene therapy, anti-ageing treatment, man-machine hybrids, brain implants and cyborgs. This study describes in detail the transhumanist tendency, supports the valuing of humans and ends by affirming that transhumanism should be taken seriously: ‘The attempts to ignore or ridicule transhumanists as though it were an insignificant techno-cult...have failed. Even if many transhumanists have a heroic vision of science fiction, they have won space in the ethical and political debate about human enhancement and have obtained global attention in many academic and media circles’(2009).

Hottois, a Belgian bioethicist, has adopted a constructive approach to transhumanism. He thinks that ‘the movement deserves our attention and consideration because it provides the possibility of organising in a coherent way a vast gamut of subjects and ideas at an anthropological, epistemological, ethical, political and also ontological level to be broadly found in the context of bioethical debates’(Hottois, 2014, pp. 212-213).

The overwhelming majority of transhumanists are agnostics or atheists and secular and free thinkers. Their declared values and intentions are very near to modern secular humanism. Transhumanism is an optimistic faith that is proactive and rationalistic about the future, supported by a notable creativity and human responsibility. A transhumanist rejects fanaticism, intolerance superstition and dogmatism. He steers away from traditional and modern humanism, relativising the value recognised exclusively as belonging to a human being, an individual member of a biological species. He condemns human speciesism. In his view, the biological human form is not sacred, it is not immutable and it does not have a monopoly of dignity. Transhumanists prefer the concept of ‘person’ because of the presence of certain attributes such as awareness, sensibility and the capacity to reason and to choose. The emphasis placed on the concept of ‘person’ also allows a denunciation of the impact of sentences and discrimination associated with differences relating to race or ethnic group, sex or gender. One of the criticisms that modern humanists receive relates to accentuating the category of *white, western and male*. Transhumanism proposes to eliminate these prejudices of classic and modern humanism.

At the centre of transhumanist values is placed the autonomy of the person who is free to change his body and his particular and contingent morphology. This fundamental right is connected with the autonomy of parents and their freedom in procreative choices. Transhumanism, therefore, emerges as a form of humanism without any *a priori* limits.

The twentieth century has been seen as the moment of the collapse of the great narrations (materialist Marxism, socialism, unbridled capitalism and now also the great narration of globalisation) which have given meaning to history. Transhumanism proposes a new narration, one that is more open, to be written

with a rich speculative imagination and the capacity to integrate the advances of scientific technology. A history without religious or secular eschatology, a history whose final cannot be foreseen and which brings with it unlimited expectations that are full of hope.

The great post-humanist narrative begins by looking at the past, to cosmic and biological evolution, and continues by observing human evolution from the point of view of technology. It concentrates on the idea of enhancement, breaking the grip of the therapeutic paradigm that is typical of biomedical innovation and action. Modern and traditional humanism usually remains a prisoner of the therapeutic paradigm and the prejudices correlated with it, amongst which the idea of the immutability of human nature, fundamentally privileging the Western, white and male individual (male power). The focal lens of transhumanism shows that the previous forms of humanism were reductionist and somewhat overly exclusive. Significant portions of humanity were simply insignificant even though they existed (Asians, blacks, women, etc.).

Evolutionism will not cease to be a *potentially dangerous* paradigm given that it can be interpreted and applied in a simplistic and superficial, or brutal, way, and open the way to an inhuman world of barbarity. Transhumanism involves notable risks as regards equality, justice and solidarity, in a society of performances dominated by the logic of the market.

Before engaging in a critical assessment of this movement, it is important to analyse the concept of human nature that underlies every scientific and ethical discussion of the transhumanist movement.

3. Two Fundamental Concepts: Human Nature and Human Enhancement

3.1 *How should we understand the concept of human nature?*

What do we mean by ‘human nature’? We should make three distinctions in relation to this concept: 1. *Human nature ‘strictu sensu’* (human biology); 2. *human essence*; 3. *human condition* (Mainetti, 2014).

The first concept of ‘natural’ exists in opposition to the category of ‘artificial’. To respect human nature is said to involve a set of intrinsic characteristics that we possess, without any intervention on our part, differently to what takes place with cultural products which, instead, are the result of human activity. In this approach, human nature means the *human biological body*.

Another way of comprehending human nature is to understand it as *human essence*. In the history of philosophy we have numerous definitions of what a human being is based upon: his properties and exclusive prerogatives which distinguish him as a creature that is unique among all other living creatures. Thus we have the classic idea of man as a *rational animal*. This idea can be extended to two other important categories of Western culture: man *imago Dei* and *Homo sapiens*,

with his anthropic characteristics and capacities, such as language, knowledge, passions, feelings, moral behaviour and other unique attributes. The set of these qualities, amongst which somatic qualities only just appear, David Hume called 'human nature' in his *Treatise of Human Nature* (1738).

This is another concept of human nature which, in order to avoid conceptual confusion, we may call, following in the footsteps of Kurt Bayertz, 'human essence'. This *novum hominis*, in his nature which we can describe as reason, intelligence or spirit, converts a highly defective biological animal into a cultural animal that can be enhanced, a creator and creature of culture, a being that is artificial by its nature. Starting with modernity, when the idea of the cosmos was abandoned, that is to say the picture of the world as an ordered and hierarchical organisation in which all beings, including man, have their place, there was an accentuation of awareness of the plasticity and freedom of man. The new cosmology was projected as a new anthropology of human dignity founded upon the individual self-creation of a *new human being*. This was the anthropological manifesto of Pico della Mirandola, to which I referred above, before the birth of classic humanism. For Rousseau, what defined humanity was its capacity for improvement/enhancement, its ability to be free from natural limitations ('the nature of man is no longer natural'). Kant introduced autonomy as the foundation of ethics. Nietzsche saw the human being as an animal that is not pre-determined/static but, rather, in evolution towards being a superman. Sartre radicalised this with his existentialist humanism and his statement that 'existence precedes essence; human nature does not exist given that there is no God by which it can be understood'.

Lastly, the third concept relating to human nature can be explained by understanding the *human condition*. This is said to be a radical experience of life, understood in fundamental terms in the finitude which takes place between birth and death: the embodied human condition. The human condition is neither biological nature nor essence because it changes its characteristics on the basis of its natural and cultural becoming: in this way, as well, man ceases to be man. The human condition is an empirical and transcendental category and at the same time encounters difficulties in remaining an *a priori*. Birth and death are not only limitations – they constitute the very identity of the human being who is understood as a mortal and finite being. Although he is aware of his finitude, his thoughts and his actions aspire to the infinite and to immortality because this is a part of man that denies his very condition as a man by transcending it. He contributes to the denial of his essence even when it is affirmed that man is nothing else but 'what he makes himself', as existentialist philosophy postulates.

Bioethics was born as an epistemological epiphenomenon when the technological-scientific revolution intervened upon cosmic nature (the ecological crisis). The anthro-plastic revolution found its Pygmalion, the new Prometheus, who began the era of *bios* and addressed the technological transformation of the human body. We are here face to face with a new reality as regards new forms of birth, procreation and death – these would become fundamental questions of

bioethics, defining the *bioethical complex* of Pygmalion, Narcissus and Knock in post-modern culture, characterised, respectively, as ‘anthro-plastic’, ‘auto-scop-ic’ and ‘auto-phagic’ (Mainetti, 2014).

In our days, the initial scenario of control over nature was dramatically renewed when the technological possibilities of modifying life seemed to fulfil the eternal dream – flight from the human condition itself. In its most radical form, post-humanism postulates a techno-futurism with a cyber-culture that liberates man from his embodied condition, reaffirming the anthropological dualism of gnostic relation in our culture – every human body, understood as form, does not have imperfections but, understood as matter, is a disaster. Flesh is not matter but a malediction, says the leading character of the novel by Max Frisch, *Homo Faber*. It is a burdensome and cruel deception: nature grasps a wonderful creation, the human brain, and imprisons it in a structure that has a short, weak, inefficient and frail life – the human body. Our bodies can be beautiful but they can also be unsustainably ephemeral.



The post-humanist condition is the pole of attraction of convergent NBIC (nano-bio-info-cogno) technologies that seek to value and concretise the demi-god or re-creational condition of man. Bioethics has to react to this unusual chapter of denial of human nature and ask itself about its *moral status* and the extent of its *normativity*, in the same way as the ecological crisis has led to a reconsideration of the inherent value of cosmic nature that was abandoned by modernity. Nature has ended up by being excluded as a source of *moral status*. In this context, the ‘limit’ situations of life, such as suffering, ageing and death, cease to be mysteries to be unveiled and become mere technical problems to be overcome.

The appeal to human nature in the current context of anthro-plastic techno-science pre-supposes a fixed and immutable essence in man, from which come immutable universal values. The greater the normative strength of human nature, the greater the limitations imposed on human self-determination, creativity and freedom.

Bioethics must find a balanced position of thought in this complex and intricate debate about humanism and post-humanism, treatment and human enhancement. We went through five technical and scientific revolutions during the twentieth century: atomic physics, the space race, bio-technologies, cybernetics, and now the nanotechnologies, which, indeed, have been undergoing a full development (Mainetti, 2014).

A moral revolution is absent. In this sense, the emergence of bioethics can be understood as a sign of hope on the horizon of the search for meaning, critical thought and moral discernment, amidst very many innovations that promise a complete transformation of human beings and the offering of a *new human being*.

3.2 An itinerary open to the reality of the moral enhancing of human beings?

Post-humanists, who are the supporters of human enhancement, cultivate a vision of the world in which people will be more intelligent and beautiful and will live longer. The opponents of this project raise questions that point to the emergence of moral inequalities caused by these interventions upon human potential.

Reference is also made to moral enhancement, a concept that has in itself a certain appeal but which cannot be seen as a panacea. Those who are passionately committed to this approach argue that moral improvement would allow future generations to overcome the problems of the evolutionary process of our species. Our limited rationality and empathy, diffidence and selfishness, in this context should be seen as weak points.

If our morality had a biological basis, and if we had the techniques or technological means to achieve enhancement, an initial appeal to moral improvement would be obvious. This can generate – as a result – less selfish and less aggressive people, human beings who are more sensitive, more supportive and more interested in addressing the problems of global poverty and the effects of climate change. The idea that politicians, public figures, businessmen and judges can receive moral improvement is still a dream. If the interface between the brain and the computer, pills or genetic alterations, were available in order to assure that those who have public responsibilities had ethical conduct, impeding them from giving way to corruption, this would be an enormous advantage for the whole of humanity, without doubt, but this is not as simple as it initially appears.

The idea of being planned or pharmacologically manipulated to do what is right or wrong is unpleasant. The idea of assuring that the species as a whole is less aggressive and selfish is very seductive and attractive. However, at least

challenges or questions linked to moral enhancement emerge: a) there will be disagreements about who can have access or otherwise to moral enhancement. b) What reasons can be produced to induce people to opt for moral improvement? c) The practical difficulties, such as changes in the neurophysiological processes that are responsible for moral behaviour or the development of techniques that allow access to these manipulations according to safety procedures, or agreement on the moral ends that should be promoted or to convince people to such improvements, demonstrate that this project exists in the still very distant future and cannot become reality despite the great attraction that we feel for the idea of offering the possibility of having people who are really honest, supportive and cooperative, and active in the promotion of peace. Before it was religion that made – and still makes – the proposal of the conversion or the change and transformation of a human being through faith in a higher divinity. In this sense, moral improvement as proposed by some transhumanists, it is said, would be achieved by chemical, biological or genetic processes managed by biotechnologies whose consequences cannot even be imagined (ÖBrolch; Gordijn, 2014, p. 667).

Luc Ferry, an eminent philosopher and the former French Minister of Education, states in his recent book *La révolution transhumaniste: comment la technomédecine et l'uberisation du monde vont bouleverser nos vies* (2016) that our vision of medicine will change. Hitherto, medical action has aimed above all else at healing. Illness and the treatment provided by medical action have always existed. However, we are entering a new era of medicine that will attempt to improve human beings. We will try to increase intelligence and improve emotions, sensitivity, strength and longevity.

At the base of humanism there is a project to try to resolve the majority of global problems through fraternity. The concern here is to improve the human species: not only the health of human beings but also their intelligence and fraternity. Technology will change our lives over the next thirty years in a more radical way than has been done over the last 30,000 years.

Ferry speaks about the *ubérisation* of the world, referring here to the name of the 'Uber' company which provides private transport services to passengers through simple applications. In his view, one is dealing with the emergence of an economy of collaboration where everybody can offer what they have in terms of services and no longer through the obstructive and expensive bureaucracies of large commercial companies. This economy will arise thanks to the development of internet.

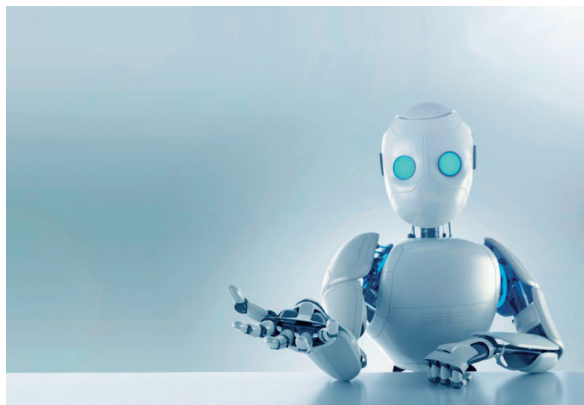
As a consequence, for this French thinker transhumanism and the 'uberisation' of society go hand in hand. They constitute the offer of new opportunities – with the decline of moral, technological and social barriers, the deregulation that will lead to a 'commercialisation' of the world in which everything, including private goods, will be seen as commodities. Given this scenario, what is the solution? Should we prohibit this or agree to it? In the view of Ferry, the solution is

provided by regulation, that is to say the institution of public policies in relation to regulation itself (Ferry, 2016).

4. The Search for Wise Science and the Urgent Need for Bioethics

Techno-science, a phrase coined by the Belgian philosopher Gilbert Hottois as a term for the knowledge of science and technology, exercises real power over the world and in particular over our biological being. The synergy between techno-science and humanism seeks a use of science for the good of humanity. We often forget that the use of science for the good of humanity is as ancient a project as science itself. However, the way in which today we use science provokes concerns and questions about its meaning, responsibility, and the human values that are involved. Some bioethicists, amongst whom is the Spaniard Diego Garcia, have for some time argued that the ethics of the twenty-first century will be the ethics of responsibility.

Let us examine here the case of transhumanism which concentrates on improvements of the individual side rather than the social side. It is directed towards the future and is based upon new technologies, as well as upon technologies described in works of science fiction. Its final goal is to overcome human biological limitations and achieve the immortality long aimed at through techno-science. Whereas the



origins of transhumanism can be located in the period following the Second World War (1945), with the emergence of cybernetics, nanotechnologies and genetic engineering its essence was connected with the old world of alchemy which sought to create the philosopher's stone with a view to achieving immortality. Transhumanism, from this point of view, is a movement or a school of thought that rejects acceptance of the traditional limitations of our human condition, such as illness, suffering and the brevity of existence.

Science and technology, without doubt, solve many human problems but in doing this at times they end up by creating others which are even more complex. Today, and this will be even more the case in the future, we need science and humanism, science and human values. Science and ethics are called to proceed hand in hand like two sides of the same coin. Humanity must learn some lessons from the errors committed by the scientism without ethics of the past in order to

prevent them being repeated. Not to commit errors with the possibilities provided by science offers us the ultimate meaning of things and life. Science cannot tell us what we should be, and even less what it means to be better beings, because this task does not belong to the domain of its objectives. To answer questions about the meaning and the purpose of life, the beginning and the end of life, like looking for a reason for why things exist, belongs to the tasks of the unending research of philosophy and ethics. Science will never stop being a human creation, taking on the meaning and the objectives that each generation attributes to it. Thus responsibility and ethical behaviour must be placed at the centre of the discussions and the decisions of the transhumanist movement which promises the salvation of the normal humanity of today through the ‘creation of a new human being, always young and immortal’ in order to illumine the ethical decisions that should be made (Meyer, 2011, p. 38).

4.1 *Bioethics comes onto the stage with a difficult mission*

In today’s world there are no longer isolated discoveries. We are witnessing an authentic *biological revolution*. In a few decades, scientists have been able to decode the chemical basis of inheritance, the genetic code shared by all living beings, and to establish the bases of molecular biology and new genetics. This new knowledge has opened up the prospect of the management and exchange of genes between members of a species or between different species. Humanity is now able to manipulate and modify genetic information and even to modify the biological nature of a particular species. This enormous potential generates fear, disquiet and amazement and points to the need to take up the pathway of ethics.

The advances of the life sciences interfere with the concept of the human being and raise questions of an ethical, social and juridical character that transcend science itself. Here bioethics has come onto the stage and bioethics has tried to establish a balance between progress in the life and health sciences and respect for human dignity and human life. Its principal mission is to recognise the benefits of scientific discoveries and achievements for humanity and at the same time to be constantly vigilant about the risks and the dangers that can emerge. Even if this progress can eliminate the incurable illnesses that have afflicted humanity for some time, and improve human health and the quality of life, questions also have to be posed about unwanted effects and unethical practices, amongst which are genetic manipulation and its various applications, with a return of eugenic ideas, give that it has available today sophisticated instruments or experiments on vulnerable populations.

The emergence of bioethics coincided with a global reaction against the horrors committed by Nazi doctors during the Second World War. This reaction culminated in the drawing up of the *Universal Declaration of Human Rights* (1948). The ultimate goal of bioethics is based upon this humanistic principle in order to uphold the primacy of the human person and support his dignity and

freedom – which are inherent in the human condition – in the face of the constant risk of becoming a guinea pig for sophisticated clinical studies which at times are a threat to the life itself of the subject.

The alliance between bioethics and human rights proclaims a new form of humanism that is in line with the expectations and the scientific and ethical challenges of our time. An example of this is the Universal Declaration on Bioethics and Human Rights adopted by UNESCO in 2005 (UNESCO, 2005). The new humanism recognises the biological and ethical data of human nature, whose dignity must be safeguarded, here and now. They involve the responsibility and the duty to protect life in all of its expressions, assuring the survival of the species (Bergel, 2011).

4.2 Some ethical questions raised by post-humanism

An initial question places us at the heart of the ethical question: should human beings, including future generations, enhance themselves? This is not a simple question to answer but we can observe that human beings during the course of history, even if slowly during certain periods, have continued to enhance themselves. This is the goal of all the technical instruments invented by man, like instruction itself. However, there are some implicit limitations that make the proposals involving transhumanist change a real challenge.

One may consider the example of correcting lenses for sight. The correction of a sight deficit is therapeutic action that seeks to eliminate or attenuate an optic deficiency, achieving a better restoration of sight. We have here a curative and therapeutic action that is not an improvement/enhancement. The objective of a lens is to recover sight and not to improve it beyond the normal. This distinction between a therapeutic action to treat an illness and/or disability and an action aimed at improvement/enhancement is an important one.

The same may be said about organ prostheses that replace organs that have been malformed since birth or organs that have been damaged by trauma. In the field of cardiology there exists, for example, the pacemaker, which replaces the electrical rhythm of irregular heart contractions or ones compromised by old age, accidents or illness. In this context, new instruments to restore sight to the blind, hearing to the deaf and normal movement or functionality to the lame and/or paralysed are spectacular advances that honour the traditional goals of medicine: healing, reconstructing, offering relief, and preventing illnesses and accidents.

However, it is not always easy to distinguish between therapeutic actions of healing and actions aimed at improvement through biological engineering. The difficulty lies in attempting to define a clear line of demarcation between a state of illness and a state that is classified as normal. To what extent can a variation in ideal body weight be considered normal and when does this variation become pathological? Anorexia and obesity are already clearly pathological given that they impede the possibility of survival and, in addition, alter aspects of health

care: a significant number of people who are on the boundary between the normal and the pathological do not seem to see themselves in a clear and univocal way.

Another ethical concern arises when the improvement potentially goes beyond a function that is normally exercised by man. For example, we accept without any ethical doubt or fear some technologies of improvement, such as the telescope or microscope, which are used for specific purposes, such as the exploration of space, the cosmos and the ‘micro’ world of cells and genes, as long as such instruments do not become a permanent attribute of a human being. They remain instruments at the service of human beings and not human attributes. In the same way, we consider normal, desirable and acceptable the use of a computer or a smart-phone, given that they are simple instruments. However, re-planning the human brain with cybernetic connections, electronic microchip implants and other ICT equipment seems to represent a limit that should not be gone beyond or violated.

The criticisms made of these permanent modifications highlight that such inputs are not natural and are the expression of activities that should be the exclusive work of God. We are playing at ‘being God’ in the view of the bio-conservatives. The transhumanist approach, in its turn, rejects the idea of ‘non-natural’ because a large part of human successes, with any kind of technology, is not natural, if by natural is meant purely and simply the biological body. Human creativity is a part of human nature and the achievements of man should be seen as useful for humanity and not threats. It seems that the overwhelming majority of transhumanists are agnostic or atheists and thus for them the myth of Prometheus, who stole fire from the gods, has no meaning. There are no limits that cannot be exceeded and, as a result, no transgression is being committed.

One of the defects of transhumanism and every other utopian project is not understanding the fears and the unpredictability of each human being. The tragic lessons of the twentieth century, with the horrible experience of eugenics sponsored by certain States (Fascism, Nazism, Communism) should make men more aware of the consequences of utopian dreams: the risk of reducing man to being a slave, of destroying and causing suffering, rather than offering justice, with the promise of increasing freedom and a renewed flourishing of human beings. In our time, this *Faustian pact* signed with technology has already been defined as the *opium of intellectuals*.

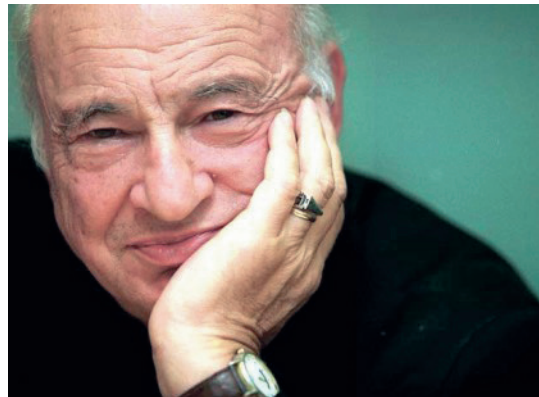
‘Technology is not an evil in itself and it has been the source of much good (and injury) for humanity. It is an instrument, a utensil, and like every instrument it must be carefully examined and accurately used. Transforming ourselves into an instrument in the hope of achieving immortality is still an illusion. The decline of human functions cannot be blocked indefinitely. We can lengthen the duration of our lives, but at what cost? How will people with longer lasting lives live and what will they do? What will be the impact on the structures of the economy, market, work and human procreation? To these problems transhumanists have not yet given an adequate answer. Achieving a consensus on the use of human enhancement technologies is still today very complicated. Unfortunately, the current trend is

still towards extreme polarisation, rather than engagement in a dialogue seeking a minimum provisional consensus. Humanity must be involved in a serious critical ethical dialogue about the creation and use of these new technologies, studying their implications and consequences for living beings and in particular for human life, the environment and future generations as well' (Hook, 2014, p. 3101).

5. Projecting for the Future: the Search for a New Humanism for the Twenty-First Century

5.1 *The task of education in the face of the complexity of human nature*

We must urgently reinvent humanism, inverting the dehumanising trends that are underway in contemporary society and opposing the growing forces of alienation that tend to put individuals and nations against each other. We need a new vision of human beings that is not only an abstract concept for the exclusive use of thinkers and philosophers: we have to cultivate a vision that allows us to engage in, and put into practice, the daily realities of human life. From this point of view, we need a new educational approach in order to educate children and adults, adopting these anthropological values as parameters.



Edgar Morin, pseudonym of Edgar Nahoum: French philosopher and sociologist

The French thinker and educator Edgar Morin (2000) has offered an innovative contribution to a new vision of human beings, laying emphasis on the *complexity* of human nature. Our classic inheritance drew up a concept of man as a rational creature/being, emphasising the value of sensitivity in human behaviour, to which – starting with Freud (1923) – were added the role and the dynamics of the unconscious. The ‘animal’ dimension should not be eclipsed in favour of the rational part. A long time before this, Taoism (Chinese culture), for example, laid emphasis on the balancing of the opposites in man as a source of dynamism and progress. A human being is also a gregarious social animal, always in contact with his fellows.

Modern science falls into contradictions and errors in the search for truth. Thus, a new humanism should not be limited to the sphere of reason – it should also include the human being in his fullness, in his complexity, at the same time integrating contradictory aspects: *Homo sapiens* and also *Homo demens*. Once this

integration has been achieved, a further step forward must be taken, considering all human beings, men and women, in their diversity. The battle for the recognition of the rights of women, for example, is still far from being won. Cultural diversity has been an important concept since 1980, but after three decades it is evident that excessive culturalism has led to cultural relativism and to a clash between cultures that are in tension with each other. This fragmentation is a dangerous trend on a par with that generated by exaggerated cultural homogenisation. Thus, the humanistic turning point that is taking place today seeks to overcome the simple awareness of cultural differences and to look at what is common to all human beings, independently of their specificities and differences. Are we not faced with violence and suffering because of the destruction of our environment and exposure to injustices? There is no doubt that there are many similarities between individuals and cultures, and for this reason, rather than talking about pluri-culturalism we should seek to construct an inter-cultural society on the basis of shared values, yet without ignoring local differences. These values include respect for the environment and responsibility for its conversion.

Edgar Morin (2000) speaks about a necessary interconnection between human beings and then between human beings and the planet and the entire ecosystem that they have in common. We are faced with the phenomenon of global warming, the destruction of forests, and droughts that cause famines and epidemics. A new vision of what a human being is should revolve around three fundamental concepts: *complexity, diversity and responsibility*. Once this new humanism has been established, we need to move from theory to practice. In this process, education plays a key role.

Education plays a fundamental role in the construction of a new humanism. Edgar Morin, after emphasising the subject of human complexity (*complexus* in the sense of ‘kept together’), reaches the conclusion that education should avoid all forms of reductive specialisation so as to be open as much as possible to the inclusive dimension. Specialisation is important and productive for scientists and in fact makes progress possible in various fields of knowledge, but it also means a fragmentation of knowledge itself.

Planning an ideal curriculum for the future is certainly not an easy task. Science is a necessity simply because it teaches us that error exists and that an immutable truth does not exist: the scientific spirit is opposed to every form of dogmatism. The social sciences are needed to analyse and solve the grave problems of modern societies, such as, for example, injustices and violence. History offers us lessons starting with our past. Human beings know where they come from even before they decide where they want to go. Geography is a large book of cultural diversity and anthropology should contextualise



Edgar Morin, *Teaching to live. Manifesto to change education* (1998)

this diversity in time and space. A space in the curriculum should be allocated to ethics that teaches us respect for ourselves and for other people, mental openness, solidarity and generosity towards others. These are all values that are in decline. Jacques Derrida, when inviting his readers to be hospitable toward foreigners, reminded them of the Biblical passage where the Israelites open their doors to foreigners because they themselves had previously been foreigners in Egypt.

Another important element of this new curriculum in the search for a new humanism is *languages*. Every 'language is an open window onto the world' (George Steiner) and has the characteristic of being the vehicle of a culture. Cultural diversity is inseparable from linguistic diversity. In our globalised world, with the exponential growth of internet, it is of vital importance to conserve the diversity of cultures and languages in order to avoid the dictatorship of cultural uniformity, that is to say cultural homogenisation.

When reflecting on humanistic education for the future, we must concentrate on the role of educators who are the columns of this process. Which one of us does not remember their teacher who left a lasting mark and in some decisions decided their future as well? Today there is a profound crisis in this area. This crisis will only be overcome by a reassessment of this professional figure through the introduction of better salaries, better conditions of work, better training and a better development of skills.

When thinking anew about the importance of organising human formation in a good way for the whole of the twenty-first century, we may remember the report drawn up by UNESCO for Jacques Delors (1998). It identified four fundamental tasks for education: a) *teaching to be* – teaching to become aware of one's own nature in its complexity in order to take on and fulfil all one's potentialities; b) *teaching to do* – providing good qualifications and skills, allowing a student to find a job and his place in society; c) *teaching to learn* – teaching to develop critical thought, a capacity for self-assessment, in order to become responsible citizens always able to adapt in a world that is in constant and rapid evolution; d) *teaching to live together* – teaching to accept and respect other people in their diversity of values in order to promote a culture of peace (Delors 1998, p. 89-102).

The work that Edgar Morin was commissioned to do by UNESCO on the occasion of the arrival of the third millennium made history. *The seven forms of knowledge needed for the education of the future*: a) knowledge able to criticise knowledge itself. The failure of every form of knowledge is the work of error and illusion; b) the principles to achieve pertinent knowledge; c) teaching about the human condition; d) teaching about human identity; e) knowing how to address uncertainties; f) the teaching of understanding; g) the ethics of mankind (Morin, 2000).

I here quote some passages from the 'complex thought' of Edgar Morin: 'An embrace is a thought that works. It extends the ethics of solidarity. Our education has taught us to separate and isolate things. We separate objects from their contexts, we separate reality into disciplines that are compartmentalised. But because

reality is made up of links and interactions, our knowledge is not able to perceive the *complexus* – the fabric that unites the whole’ (Morin, 2006, p. 11).

‘The history of the world and of Western thought has been guided by a paradigm of disjunction, of separation. Spirit has been separated from matter, the philosophy of science; specific knowledge of literature and music is separated from the specific knowledge of scientific research... Thus we live in a world in which it is increasingly difficult to establish ties... This requires, obviously, a change/fracture in teaching that unites and at the same time separates. Complex knowledge leads to a complex way of thinking, and this complex way of thinking has ethical and existential, and also, at times, political, extensions’ (Morin, 2006, p. 22).

In this context, the role of UNESCO, the agency that deals with culture and instruction throughout the world, is important. Its purpose declared in the preamble to its Constitution, which was adopted in 1945, is to construct a culture of peace in the minds of men ‘since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed’. The promotion of peace is based specifically on the ‘dimension of the intellectual and moral solidarity of mankind’. UNESCO, because of its statutory function, because of its integrity, and because it is a global organisation that is present in every corner of the world, is not confined to the Eurocentrism of classic humanism – it enjoys a unique position for the promotion of a new humanism in the twenty-first century.

Human rights are still a mere intellectual and theoretical discourse given that the dignity of the human person continues to be violated in most of humanity almost seventy years after its proclamation. Today, with the techno-scientific knowledge and instruments that are available to us, a movement (ideology or hope?) is emerging that in using instrumental and technical reason seeks to completely redesign the biological nature of man, promising *the death of death* and the search for immortality already in this world, presenting, at the end of this process, *a new human being*.

5.2 The urgent and pressing challenge to invent a new humanism in the twenty-first century

When humanism flourished during the Renaissance (fifteenth century) and in the period of the Enlightenment (seventeenth century), Europe was emerging from the darkness of the Middle Ages, bringing with it a message of hope. In exalting man as a rational creature, the intention was to liberate him from the totalising pressure of the Church and the State. Eminent scientists promised constant advances; writers and artists celebrated the cult of beauty in an attempt to emulate the brilliant civilisations of antiquity, in particular Athens and Rome. The utopians already beheld in front of themselves a shining future of happiness and universal peace, but this approach was confined, unfortunately, to the Western world alone.

Mankind reached the nineteenth century during which we witnessed the phenomena of industrialisation, nationalism and imperialism which transformed the

dreams and the utopias of the Renaissance into nightmares. Subsequently, during the twentieth century, the atrocities of two world wars and all the conflicts that still today destabilise many areas of the world, as well as forms of terroristic fundamentalism that are growing alarmingly, demonstrate that man can also be *a wolf towards other men*. Economic liberalism and globalisation are increasing the gap between the rich and the poor. Poverty and frustration spread desperation and violence in the world. All countries find that they have to address the same difficulties. To complete this scenario, our planet is threatened by destruction, imperilling the existence of life in the future because of an incoherent and indiscriminate use of its resources and wealth.

This is the right moment – and this is our responsibility – to establish a new humanism for the twenty-first century. For this reason, we must redefine our vision of man, taking into account the totality of the human being in all of his complexity, of all human beings in their cultural diversity. Education is certainly the best way of constructing this new world that we desperately need; a formation that helps us to respond to the challenges of our globalised world. A message of hope arises from being able to construct the foundations of human dignity in our daily lives, and this work is not a utopian search. This humanism is a commitment that all of us must honour.

A new humanism begins with a search for the survival and wellbeing of humanity. We should not be surprised if in the early 1970s, with the origins of bioethics, Van Rensselaer Potter, one of the principal creators of this discipline, initially defined bioethics as a science for human survival and for the creation of a bridge towards the future. We have to redefine the relationship of man with the environment and with his fellows in order to achieve sustainable development (United Nations, 2015). A change in our lifestyles is needed. We need to use new sources and new forms of energy, reducing the danger of climate change, of global warming, and the factors that threaten the future of life on the planet.

Art has always been a vehicle for the expression of human passions, dreams and aspirations. If we look at classical antiquity, tragedy was a privileged way by which to exorcise the passions that exist in our deepest *self* and to retrieve the original purity within us. At that time, ethics and aesthetics were in synergy. The utilitarians of the nineteenth and twentieth centuries preferred to enslave art to the needs of progress and science which they publicly proclaimed to be the promoters of happiness for humanity. This was the critical undertaking of Pablo Picasso when he painted *Guernica*: it was his cry of peace, launched through the terror and the horrors of war and violence painted with colours.

If we look at the three great revealed religions, also known as the religions of the *Book* – Judaism, Christianity and Islam, in the Ten Commandments we find a code of fundamental values for humanism: respect for others in their diversity, tolerance, peace, solidarity with vulnerable people and towards each other. Praiseworthy, along these lines, was the work of Hans Küng, the Swiss Catho-

lic theologian, who proposed his project for global/international ethics (Kung, Schmidt, 1998).

We realise that science, economic, education, philosophy, art, religion and politics have something to say to contribute to reinventing the humanism of the twenty-first century. By uniting the forces that we have and the values in which we believe, we will be able to achieve this objective in the face of an arduous responsibility. As the proverb says: ‘where there is a will, there is a way’.

‘The twentieth century experienced the failure of the great religious or philosophical narrations. One of these is ‘the great narration of modernity’, an expression of the knowledge of a secular progressive humanism. Amongst the causes of this decisive fracture with traditions should be listed the technical and scientific revolutions, in particular evolutionism...the evolutionary paradigm of transhumanism is materialist. It is not a metaphysical approach, substance and energy, living and spontaneous, reflexive and aware...It is a dangerous paradigm, given that one can interpret it and apply it simplistically, in a brutal, blind, insensitive way and it could lead us into a post-human world, into a barbaric inhumanity. Transhumanism has an experimental and exploratory dimension that is indissolubly linked to it and is based on freedom and empiricism’ (Hottois, 2013, p. 191-192).

All of this revolves around the capacity to conserve an orientation towards good and the best. Transhumanist *generosity* is expressed by tolerance, by respect for diversity and pluralism, and by respect for the person in a broader sense than that defined by *Homo sapiens*. It is good will that goes beyond the species and attributes to every being the capacity to feel, suffer, and reject oppression and suffering. Transhumanism cannot be reduced to evolutionism. It has to absorb at least certain values that constitute the inheritance of our religious, secular, philosophical and humanistic traditions.

In this scenario created by new technologies in the field of the life and health sciences, cultivating dreams hopes, utopias and concerns, there is the ethical emergency of a synergic relationship between the materialist techno-scientific evolutionary paradigm and the concern dictated by respect for the values and ethical, political and social inheritance of the historical traditions of the European context.

Gilbert Hottois perceives a certain optimism in these scientific advances: ‘The risks do not justify a rejection of improvement and the transhumanist idea that is in line with the great technological and scientific revolutions (...) Transhumanism well understood is a progressive humanism that is able to integrate the technological and scientific, theoretical and pragmatic, revolutions, giving a sense of hope to a post-modernity that is wandering or nostalgic for the post-modern past’ (Hottois, 2013, p. 192).

To end I will launch an appeal in line with ethical sensitivity. Bioethics can be the contributor of an approach of serenity and discernment towards the *novum*. Neither an attitude of pessimistic and imprudent malediction nor an attitude of ingenuous blessing towards this transhumanist project of techno-science is advisable. In addition to scientific knowledge, common sense and wisdom should also

enter this scenario, in which fears and disquiet, like utopian and dramatic hope, are also projected: this is the time of bioethics. Welcome! This is a crucial and dramatic moment to demonstrate its efficacy and for it to be presented, taking on the responsibility of being a guide in human values: a guide and direction in the inventiveness and creativity specific to the field of techno-science which pervades every area of the life of living beings and in the life of humanity in particular.

Conclusion

The Urgent Need and the Time for the New Paradigm of *Sensitive and Cordial Reason*

The Brazilian thinker and theologian Leonardo Boff over recent years has addressed in an in-depth way the question of the necessary overcoming of the dictatorship of the powerful and almighty instrumental technological science of modernity in favour of a *sensitive and cordial reason*. In modern times we have almost reached the dictatorship of reason, as though it were the only category that should be taken account in the human condition. Moreover, sensitivity has been repressed because it seemed to obstruct the cold gaze of reason (Boff, 2016).

Boff (2016) observes that it is no longer sufficient to see and think in a different way. We must also act in a different way. We cannot change the world but we can always begin to change this part of the world that each one of us is. If the majority of people involved themselves in this process, we would engage in the leap that is needed for a new paradigm of coexistence in the common home in which we live.

The Earth Charter, an important document issued by UNESCO, in whose drafting Boff took part, in its final part summarises this thinking: ‘As never before in history, common destiny beckons us to seek a new beginning... This requires a change of mind and heart. It requires a new sense of global interdependence and universal responsibility’. This text ends: ‘We must imaginatively develop and apply the vision of a sustainable way of life locally, nationally, regionally, and globally’ (UNESCO, 2000).

One should note that this document talks about a new beginning and not only of a new façade or a simple change. It is indispensable that this change takes place at two levels: in minds and hearts. A change in minds requires a new systemic vision that involves the earth and humanity in one entity. This would also include the whole universe in a cosmogonic process, within which we move and have been generated. Then there is a change in hearts. This is one of the key knots of the ecological problem that has to be untied if we want to engage in a great crossing towards the new paradigm. This is the redemption of the rights/reasons of the heart. In a scientific and philosophical language, with rational and instrumental intelligence, we have to incorporate cordial and/or sensitive intelligence.

Our modern culture has exacerbated rational intelligence to the point of making it unreasonable, with the creation of instruments for our self-destruction and

devastation of the system earth. This exacerbation has denigrated and repressed sensitive intelligence with the pretext that it has obstructed the objective role/task of reason. Today we know from new epistemology and above all from quantum physics that all knowledge, however objective it might be, is always rich in emotions and interests.

We have to enrich intellectual and instrumental intelligence and we cannot do without it if we want to explain human problems. However, in isolation this process runs the risk of introducing the fundamentalism of reason which is capable of creating the Islamic State, that attacks every other different reality, or the Shoah, namely the ‘final solution’ applied to the Jews. Rationality can offer an important contribution when it is well amalgamated with sensitivity of the heart.

Without a synergy of reason and the heart, no man can really love Mother Earth and recognise the intrinsic value of every being, respecting that being, and work to save our civilisation. Our contemporary world is turning out to be cynical: it has lost the capacity to feel the pain of other people. Nobody is any longer capable of weeping when faced with the tragedy of thousands of refugees.

The central category of this new vision is *care as ethics and as a humanistic culture*. If we do not take care of life, of the earth and of ourselves, the ‘system’ will fall ill and will end up by not assuring the sustainability or development of what E. Wilson calls ‘*biophilia*’, that is to say love for life. We love everything that we take care of. We take care of everything that we love.

‘We need to introduce a new ‘mind/reason’ (new vision of the world) and a new heart (reanimate sensitive and cordial reason in order to balance intellectual reason which has gone mad). If we fail in relation to this alliance between the head and the heart, we will not have reasons to love and to take care of the nature of every being that lives with us. The day that human beings learn to respect every individual living or inert being, they will no longer need someone to teach them to respect other human beings and their rights. The ethics of respect, of care and of collective responsibility can save us.

We do not need to invent anything. We need only engage in a Socratic exercise, unveil reasonable reason and make it an aware civilising value. To understand things as they really are, we are made of passion, emotions, sympathies and antipathies. Psychoanalysts have convinced us of this reality empirically. This cordial reason must be promoted in schools, in human relationships, in public policy, in every word and action of people. This applies to all sectors. We are humans immersed in reality where we hear the heartbeat of other people, nature, the earth and the infinite.

We cynics are insensitive and unable to weep when faced with the misfortunes of others. This situation is typical of the time of the barbarities of generalised dehumanisation. We must reinvent the human being in order to learn to live on the planet with all those beings who form the community of life with him’ (Boff, 2014a).

If the opposite happens, we will run the risk of not existing in the future. We are trying to construct an ‘immortal superman’ and thus it is that if we return to

being the new slaves of NBIC (nano-bio-info-cogno) convergent technologies and if we do not adopt ethical and bioethical values as a guide for our journey, our future horizon itself will appear rather dark.

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CHAPTER III

I Bioethics, Frankenstein I

‘It is not science that creates good or evil. Science creates knowledge. Whoever it may be that creates good or evil, everything depends on the choices that are made’.

Marcelo Gleiser – Brazilian scientist

‘With an anxiety that almost amounted to agony, I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet. It was already one in the morning; the rain pattered dismally against the panes, and my candle was nearly burnt out, when, by the glimmer of the half-extinguished light, I saw the dull yellow eye of the creature open; it breathed hard, and a convulsive motion agitated its limbs’.

Dr. Frankenstein describes the monster as it comes to life

Introduction

We will begin with three classic publications that have become a point of reference for humanity and in addition they are works that motivated the writing of this text. This year is the five hundredth anniversary of *Utopia* by Thomas More (1516-2016); the two hundredth anniversary of *Frankenstein* by Mary Shelley (1818-2018); and the fiftieth anniversary of the encyclical *Populorum progressio* (1967-2017) of Paul VI.

In 2017 we commemorated the fiftieth anniversary of the publication of the encyclical *Populorum progressio* (1967). The words of Paul VI, when he states that ‘development is the new name of peace’, continue to echo in a prophetic way when we look forward to the construction of a new civilisation – ‘the civilization of love’. An integral (‘of all men and all peoples’) and solidarity-inspired development is a development that does not forget the most vulnerable members of humanity, that aims at the good of everyone and the achievement of world justice, that assures planetary peace, and that makes a ‘planetary humanism’ possible. This is the central message of *Populorum progression* and it is a message that has never lost its relevance. On the contrary: with the growth of exclusion due to

globalisation, integral development today has become much more necessary and urgent (Paul VI, 1967).

We have before us a vision of a future marked by hope. Today, Pope Francis is practically the only world leader who speaks with courage about hope and the need for peace. He often emphasises that in war there are never victors and vanquished – we are all losers! He also warns us that we have to protect ourselves against the so-called ‘prophets of doom’ who are everywhere and sow fear and terror amongst people. Unfortunately, today we live with many situations that obstruct this project of hope.

From this point of view, it would be advisable to listen to Zygmunt Bauman (1925-2017), a philosopher of Polish origins who taught sociology at the University of Leeds in England and died at the age of 91 in the early months of 2017. Bauman, a thinker endowed with a distinctly penetrating intelligence, became famous at an international level through a vast literary output about our so-termed modern and post-modern times which he defined as ‘liquid’.

Poets are people who intuit new things; things that people in general cannot see or even imagine. Carlos Drummond de Andrade, in his poem *Nosso tempo*, argues that today we live in an epoch or, to put it better, in a time, inhabited by ‘destroyed men’. ‘This is a moment of change, a time of people who are excluded. Hands that travel without arms, obscene and empty gestures... And we go on. It is a time of crutches. It is a time of dead words, old paralytics, nostalgic balls, but it is still a time to live and to count. Some histories have not been lost’.

We look for answers and we imagine ways by which we can collect together pieces and fragments of this difficult period (like the creature of Frankenstein). At times, the world appears to be pure fiction: it satisfies the imagination, on the one hand, and requires action, on the other.

Bioethics is lucidity and wisdom in the face of techno-scientific development; it is a cry in favour of the most vulnerable in society during this epoch of globalisation which does not work with solidarity but with indifference and exclusion (Pessini, Bertachini, Barchifontaine, Hossne, 2015).

1. Bioethics during the Age of *Bio* and *Post-Truth*

Every historical epoch of humanity is marked by certain ‘key words’ that are fundamental in understanding that specific historical, cultural, socio-economic and political time. Historians, anthropologists and archaeologists divide so-termed human pre-history into three consecutive periods, basing themselves upon particular biological and geological events, such as the production of tools, the use of weapons, and the measurement of time. The so-termed stone or Neolithic age (6,000 BC to 2,500 BC); the bronze age (the Middle East, 2,300 BC) with the development of a metal alloy created from a combination of copper (discovered roundabout 6,500 BC) and tin; and lastly the iron age (1,200 BC to 550 BC) which

was characterised by the use of iron metallurgy, even if the first indications of the use of iron go back to 3,200 AD.

When we cast our eyes quickly over the colonial and imperial history of Brazil, we notice the existence of different ‘economic cycles’: 1) the wood cycle (100-1,530 AD), the moment of the discovery of the country; 2) followed by the cycle of sugar cane, with the use of slave manual labour of African blacks; 3) the gold cycle at the beginning of the seventeenth century which reached its peak in the eighteenth century, principally in the region of Minas Gerais; 4) the cycle of cotton, also called ‘white gold’, from the middle of the eighteenth century to the beginning of the nineteenth century (when the industrial revolution was underway in England and there was a consequent increase in demand for raw materials); the cycle of coffee, also called ‘black gold’: the first coffee plantations arose in the country towards the middle of the seventeenth century and reached a peak at the level of trade in this product during the nineteenth century; and 6) the rubber cycle in the North of Brazil with the planting of rubber trees and the extraction of lattice for the production of rubber that was then exported abroad (1890-1920).

We now live in the so-called ‘bio’ age which began with the discovery of the double helix of DNA (Watson and Crick in 1953), a development that also inaugurated the study of the ‘genome’, an interesting new reality that brought with it the promise of a ‘miraculous revolution’ and the manipulation of the very identity of human beings. Economists say that ‘biotechnology’ will be the outstanding feature of the economy of the twenty-first century. And the headings of new dictionaries that begin with the word ‘bio’ are increasingly rapidly: biology, bio-engineering, bio-genomics, bio-terrorism, bio-power, bio-statistics, bio-fuels, bio-diesel, biodegradables (products), bio-gerontology, biodiversity, bio-sciences, bio-energy, bio-equivalence, bio-physics, bio-nanotechnology, bio-informatics and many others. In our contemporary world, which is characterised as the kingdom of the ‘bio’, the mentality of the ‘post-everything’ ideology also emerges. Because we are living through a moment of change in time more than a time of change, we speak about post-modernity, post-humanism, post-Christianity, post-genomics, and now, surprisingly, something that is a little more sophisticated and subtle – the era of *post-truth*! What might that be? In what way does it influence our lives? And the questions here continue to multiply...

1.1 And now we speak about so-called ‘post-truth’

The term ‘post-truth’ was chosen as the word of the year 2016 by the dictionary of the prestigious University of Oxford which every year identifies a new term of the English language (BBC News, 2016).

In 2015 the word chosen was *emoji* which refers to those yellow little faces that cry or laugh. In reality it is not a word but an image of Japanese origins. The name comes from *e* (image) and *moji* (letter) and is considered a pictogram, that is to say an image that transmits the idea of a word or a complete phrase. The

emoji at the present time are very popular on the social networks, in particular on Facebook and rapid message systems such as WhatsApp. We remember the popular saying: ‘a picture is worth more than a thousand words’. But let us return to the neologism ‘post-truth’.

The Oxford dictionary, in addition to choosing the term, defines ‘post-truth’ as ‘an adjective that refers to or denotes circumstances in which objective facts are less influential in shaping public opinion than appealing to emotion and personal belief’. According to this dictionary, the term ‘post-truth’ was used for the first time in 1992 by the Serbian-American playwright Steve Tesich in an article for the review *The Nation*. In 2004, the American writer Ralph Keyes used it for the title of his book *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*. But the force that most helped to spread this adjective in the world was the review *The Economist* which in September 2016 published the article ‘The Art of Lying’ (*The Economist*, 2016).

In the view of this journal, the world had entered the ‘the political era of post-truth’, especially after the warnings ignored by the British when it came to Brexit (when they decided at a referendum to leave the European Union) or by the Americans when they ignored the serious risks of an eventual victory at the presidential elections of the United States of America of Donald Trump. The thesis of the review *The Economist* is based on the fact that post-truth is channelled through the internet and social networks. ‘The fragmentation of sources and news has created an atomised world in which lies and gossip manage to spread at an alarming speed’, observed the article, ‘lies shared online and gossip through the Net, whose members trust each other more than any other organ of the traditional press, rapidly acquire the appearance of being real’.

We cannot forget a phrase uttered by the head of Nazi propaganda, Joseph Goebbels: ‘A lie that is repeated a thousand times becomes real’. For us Brazilians, the writer Millôr Fernandes observed that ‘the danger of a half truth is that you say exactly the half that is a lie’ (cf. *La Bibbia del caos*). The neologism ‘post-truth’ has been used with a certain constancy for about a decade but recently there has been an incredible acceleration in the use of this phrase which grew by 2,000% in the year 2016: Google indicates over 20.2 million citations in English, 11 million in Spanish and 9 million in Portuguese, to have just one idea of its success.

‘Post-truth’ is no longer a fringe term; it is used in the global political context and has become central. ‘Since the use of the term post-truth has not shown any sign of slowing down, I would not be surprised if ‘post-truth’ became one of the key words of our time’, declared Casper Grathwohl, the director of the Oxford dictionary in an interview given to the American daily *The Washington Post* (Wang, 2016).

This neologism is not exactly the cult of lies: it is said to demonstrate indifference to the truth of facts. The facts may or may not exist, may or may not occur, but it is the way in which they are disseminated that affects people, inasmuch as their personal judgements and consolidated preferences are not influenced.

Amidst this collection of neologisms that are connected to the root ‘bio’ and the prefix ‘post’, which gives a name to new processes of research and new products, discoveries and historical epochs, an innovation has emerged. In a timid way, this innovation has gradually acquired greater visibility and is seen as a necessity in all areas of life, from the personal to the universal. I am referring to the emergence of the neologism ‘bioethics’. In the view of one of its pioneers, an American biochemist and a researcher in the field of molecular biology, V.R. Potter (1911-2001), bioethics is the ‘bridge towards the future’ and also ‘the science of survival’ or the ‘morality of human survival’ (Potter, 1971). We undoubtedly have before us a wave of hope for humanity in terms of the humanisation of scientific and technological progress, the protection of the environment (ecology), and the analysis of ‘life and ethics’ or ‘ethics of life’, also called ‘human wisdom’, that is to say awareness of how to use knowledge for the protection of the dignity of human beings and the promotion of the social good and cosmic-ecological life.

2. A Bioethical Look at the Work *Frankenstein or The Modern Prometheus* by Mary Shelley Two Centuries after its Publication (1818-2018)

Two hundred years have passed since the publication of the work *Frankenstein or the Modern Prometheus* by the English writer Mary Shelley. First published in 1818, this book is considered a classic example of English Gothic and Romantic literature as well as one of the pioneering works of science fiction, a work that over the next two centuries would inspire numerous films and publications.

What is the secret of its longevity? It obtained an extraordinary popularity and continues to be of incredible contemporary relevance thanks to the ethical questions and issues that make up the central core of this work – that is to say the creation of life.

According to the scholar and translator of this work Márcia Xavier de Brito, ‘The subject chosen by Shelley, however, has a broader relevance – the dangers of science and unhindered research in learning about the mystery of life today, as well, have an important meaning because the discoveries of modern life that



Poster of the film ‘Frankenstein’, with Colin Clive and Boris Karloff (1931)

prolong, modify or create life evoke the same questions: what is life? What is a human being? (Brito, 2017, p. 21).

The Brazilian scientist Marcelo Gleiser observed: 'This novel examines the question of the ethical limits of science: can scientists have total freedom in their activity? Or are there some taboo subjects that should be blocked and limited in the research of scientists? If there are, what are these limits? Who decides them? It is not science that creates good or evil. Science creates knowledge. It is we who create good or evil, starting with the choices that we make' (Gleiser, 2013, p. 2016).

These are the central questions of the relationship between ethics and science. There are numerous complications: 'How should we define which subjects should not be subject to research? For example, should old age be treated as an illness? If this is the case, if we could obtain a 'cure', at least a substantial extension of longevity, who would have the right to have such a cure? If this 'cure' were expensive, only a small part of society would have access to it. If such were the case, would we create an artificial division between those who could live longer and those who would have to face loss? If some people were to live longer than others, the first would see their friends and their families die. Is this an improvement in our quality of life? Perhaps, but only if this is distributed equally amongst the population and not only to a part of it' (Gleiser, 2013).

The power of human beings and scientific-technical knowledge begins with peering into the secrets of nature and beyond, trying to unveil the 'mysteries of nature', so as to then adopt the mission of 'recreating life'. Hence Victor Frankenstein, whose name was given to this classic of English literature: he was a young doctor who took on the challenge of recreating life and embodied this mission; the sub-title of the work, 'Modern Prometheus', refers to one of the titans of the mythical culture of ancient Greece.

It is important to note at the outset that over the last two centuries, when it comes to the characters of this novel, the young scientist Frankenstein, the *creator*, who is often confused with his creature, the monster, has not become famous. The creature, on the other hand, does not obtain any name but does acquire innumerable adjectives that express a negative moral judgement, those of a bad being, and thus he is called a 'monster and demon' repeatedly during the course of the narrative. The popular imagination confuses Frankenstein with the monster.

This misunderstanding at the level of interpretation, which is still present in the collective imagination, has provoked discussion about the authorship of this work by Mary Shelley, her familial identity and the historical-cultural context in which she lived. How was the myth of Frankenstein born?

2.1 *An unforgettable meeting of distinguished poets and Romantic friends in Geneva*

The story of Frankenstein, created by Mary Shelley, began one rainy summer in 1816, during the night of 16 June, in Geneva, Switzerland, near a lake, in a luxurious residence, Villa Diodati. That night was characterised by a great storm and a great deal of rain and a group of young friends gathered around the hearth to tell each other horror stories.

They spent their time in conversing about various things: gothic stories and ghost stories, the processes of galvanisation, theories about the origin of life, and the myth of Prometheus. The protagonists of this meeting were Mary Shelley, Percy B. Shelley, who at that time was her companion, the irreverent Lord Byron, and his personal physician John W. Polidori.

The host of this meeting was the famous Lord Byron who at the age of 28 was considered the greatest English poet of the time. He was in Switzerland to flee from a series of scandals that had befallen him and which English society had not forgiven him for, amongst which his incestuous relationship with his half-sister whom he had been forced to abandon.

The other poet of the group was Percy B. Shelley who at that time was travelling in Europe with two teenagers. One of them was Mary Shelley, who at the time was sixteen and had fled the home of her parents with Percy who had left an expectant wife and a two-year-old daughter behind him in England. The last member of this group was the beautiful and seductive half-sister of Mary, Claire Clairmont, who for long had concealed her relationship with Byron and the pregnancy that came of it.

His biographers tell us that Lord Byron loved to terrorise people. On that dark 16 June he chose to entertain his guests with a volume of German horror stories entitled *Fantasmagoriana*, a term that refers to a succession of optical illusions that strongly strike the senses and the imagination and which were famous at the beginning of that century. The stories that were chosen were read out in a strong and emotional voice, exploiting all the effects of shadows and thunder to increase the emotional reactions of those who were present. 'Each one of us will write a ghost story', said Byron, after he had finished reading his tales.

In 1831 Mary Shelley wrote the introduction to *Frankenstein*, remembering that famous night when she began to 'find a



Mary Shelley in a portrait of 1831

story of the same level as those that had led us to this undertaking. A story that would bear witness to the mysterious terrors of our soul, that would shake us with shudders of horror. A story that would make the reader afraid to look behind him, that would freeze the blood in his veins and that would make his heart leap into his throat. If I have not managed to achieve all of this, my ghost story would not be worthy of such a name’.

It is interesting to observe that what had been a joyful meeting, a banal game amongst friends, gave rise to two of the greatest myths of the horror genre. In addition to Mary Shelley’s monster, there was born on the same night the vampire Lord Ruthven, the leading character of *The Vampyre* (1819), written by Dr. Polidori, an unfinished novel. The subject of vampires had been the subject of various conversations of this group at previous meetings and was present in the culture of the time as a metaphor for people who were extremely egocentric and ‘fed’ on other people, for example poets. Byron himself was identified by his friends as an aristocratic vampire who lived off human blood!

2.2 Can this great work by Mary Shelley be seen as an autobiography?

There is a debate about this question: there are those who agree and those who do not agree. Cathy Bernheim, a scholar of the life of Mary Shelley, argues that there is a deep interaction between her life and the novel: ‘as with any writer, the works of Mary Shelley are autobiographical. And as in the case of many writers she puts her family on the stage: her father, Shelley, children who died, her mother – all disguised to a certain degree, in the pages, disguised by a necessary transposition into a literary form’ (Bernheim, 2014).

Let us now learn about her family. Mary was the daughter of two famous figures of the literature of the English culture of that time who were also known for their progressive ideas. Her father, William Godwin, was a philosopher of anarchism, and her mother, Mary Wollstonecraft, was a revolutionary feminist. Both of them wrote works containing their thoughts and their ideals about life.

It is very difficult not to think that some tragic events in the life of Mary Shelley – her obsession with questions connected to immortality and the creation of artificial life when she was still a teenager and was only sixteen years old – influenced her writing of the novel *Frankenstein*. Let us now consider the essential facts that give tragic colour to the life of Mary Shelley (Wiener, 2011). Her mother died ten days after her birth because of infections and complications following childbirth. From her relationship and marriage with Percy Shelley she had four children, three of whom died at a very early age between 1817 and 1819. The oldest was only three and a half when he died. Only the fourth child managed to survive and reach adulthood.

Let us look at these painful losses in detail. On 22 February 1815 Mary Shelley gave birth to a son who only lived for a few days without ever receiving a name (the monster created at the hands of Frankenstein does not have a name).

On 24 January 1816 another child was born who would be called after Mary's father – William. The work *Frankenstein* is dedicated to her father: 'To William Godwin, author *Political Justice*, *Caleb Williams*, etc., this work is respectfully dedicated'.

Mary began to conceive of her novel *Frankenstein* on 16 June 1816 (during the famous meeting with her friends on the banks of the lake in Geneva). She would complete the work in Mary 1817. The first edition was published on 11 March 1818.

But at the end of 1816 the most tragic event in the life of Mary and Percy took place – the suicides of Fanny, Mary's half-sister, and of Harriet, Percy's first wife. After Harriet's death, Mary and Percy married – the date was 30 December 1816. In 1817 Mary gave birth to her third daughter, Clara Shelley, who died the next year (1818). The couple then moved to Italy in 1818 and for years they had to face up to serious money problems. In the year 1819 another death befell the couple with the death of their young child William Shelley. In the same year Percy Florence was born. Percy B. Shelley died in July 1822 at the age of 29. He was drowned at sea because his boat was sunk by a storm. After becoming a widow at the age of 25, Mary Shelley did not marry again and dedicated the rest of her life to making the name of her husband immortal through the publication of his works. Mary died in 1851 at the age of 53.

2.3 The origins, publication and dissemination of the novel 'Frankenstein'

From a philosophical point of view, this work by Mary Shelley was very much influenced by the social and political philosophy of her father, in particular by his work *Political Justice* (1793), and by the concept of anarchy. In addition to him we have the presence in its pages of Jean-Jacques Rousseau and John Locke.

Mary entered into contact with the scientific and philosophical knowledge of her own home, listening carefully to the conversations between Byron and Shelly. Reference was also made to the new discovery of Benjamin Franklin, the author of one of the most important scientific new discoveries of the epoch – the electric current.

In her home the theory of Erasmus Darwin, the grandfather of Charles Darwin, the great theorist of evolution, was also discussed, as was Francis Galton and his views on populations and eugenics. Many attributed to Erasmus the discovery about the animation of matter, clues to which were provided by the Italian scientist Galvani. Galvani discovered the movement created by an electric stimulation of the muscles of dissected animals. In 1800 another Italian, Alessandro Volta, argued in favour of the existence of electric conduction in an inanimate environment and invented what was called the volt cell which carried an electric current but did not have the capacity to generate life.

The idea of the possibility of discovering the mystery of the generation of life by science was powerfully present in people's imaginations at the beginning

of the nineteenth century. The spirit of this curiosity was strongly marked by scientism. Mary Shelly followed all of these speculations and reached a high level, imagining the possibility of giving life to a creature made up of human body parts taken from corpses.

Mary described in the preface to the 1831 edition of her work the mental picture that she had not managed to rid herself of after the night-time discussion of that famous 16 June 1816: 'I saw the hideous phantasm of man stretched out, and then, on the working of some powerful engine, show signs of life and stir with an uneasy, half-vital motion. Frightful it must be, for supremely frightful would be the effect of any human endeavour to mock the stupendous mechanism of the Creator of the world. His success would terrify the artist; he would rush away from his odious handiwork, horror-stricken. He would hope that, left to himself, the slight spark of life which he had communicated would fade, that this thing which had received such imperfect animation would subside into dead matter, and he might sleep in the belief that the silence of the grave would quench forever the transient existence of the hideous corpse which he had looked upon as the cradle of life' (Shelley, 2017, p. 28). Such were the origins of Frankenstein!

The narrative when it describes the creature acquiring life is as follows: 'It was on a dreary night of November that I beheld the accomplishment of my toils. With an anxiety that almost amounted to agony, I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet. It was already one in the morning; the rain pattered dismally against the panes, and my candle was nearly burnt out, when, by the glimmer of the half-extinguished light, I saw the dull yellow eye of the creature open; it breathed hard, and a convulsive motion agitated its limbs...I had worked hard for nearly two years, for the sole purpose of infusing life into an inanimate body. For this I had deprived myself of rest and health. I had desired it with an ardour that far exceeded moderation; but now that I had finished, the beauty of the dream vanished, and breathless horror and disgust filled my heart' (Shelley, 2017, p.75).

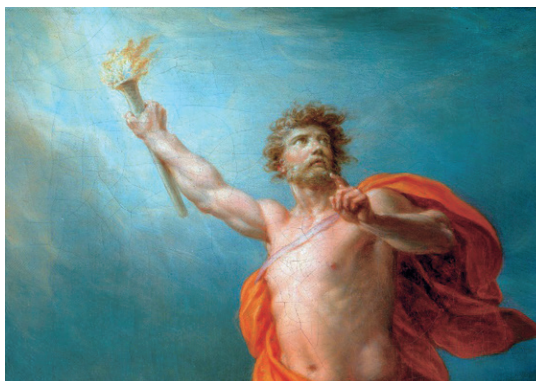
Frankenstein, a horrible creature, is an abortion and an anomaly, and although his mind was like first impressions, and he was affectionate and full of moral sensibility, the circumstances of his existence were so monstrous and unusual that when such circumstances were expressed in action, the original kindness was gradually transformed into misanthropy and inextinguishable vengeance (cf. Shelley, 2017, p. 232).

As regards the publication of this classic work of English Romanticism of the nineteenth century which was a pioneer of the genre of science fiction, we know that the first edition was published in London on 1 January 1818 without the name of the author on the cover in the same way as the preface was anonymous. Later, in the introduction to the edition of 1818, the author attributed the work to Percy B. Shelley. It was only in 1823 that a correct version of the work was published. Mary Shelley's father, William Godwin, printed a new edition in two volumes with some changes to the text.

In 1831 a new edition came out in a revised and corrected volume which incorporated the changes introduced in 1823, amongst which was an additional chapter. The general plot of the novel was the same, however with some minor variations. For example, in the version of 1831 the emphasis on the obsession with natural philosophy which emerges in the conversations between Victor and Professor Waldman was not to be found in the previous edition of 1818. In the later version the author also emphasises the relationship between the young scientist Victor Frankenstein and the monster, as well as his relationships with other figures, in order to describe the internal conflicts of the scientist in a better way. Another interesting fact is connected with the feeling of guilt that pervades the life of the young physician and which reflects a socio-cultural atmosphere that is no longer to be found in the later edition. In its place the concept of destiny, of control over nature, is introduced. The most popular version, that of the year 1831, has been translated into various languages of the world.

2.4 Concerning the myth of Prometheus: the sub-title of this work by Mary Shelley

According to ancient Greek mythology, Prometheus was a titan who stole fire from the gods. Because of this act, Zeus, the god of Olympus, punished him with a cruel punishment and chained him up on the summit of a mountain in the Caucasus where every day an eagle came to eat his liver, a process that went on for thirty thousand years. Given that Prometheus was immortal, this organ of his regenerated constantly every night, and the destructive cycle then began again every day. This lasted until the hero Hercules freed him, replacing him in his prison by the centaur Quiroz who had been wounded by an arrow, a wound that could not be cured. The centaur was condemned to go through endless pain. In replacing Prometheus, Zeus allowed him to become mortal and to perish in peace. This tragedy narrated by the Greek poet Aeschylus (of the fifth century BC) was called 'Prometheus in Chains' (Ferry, 2008).



Prometheus brings fire to mankind – detail from a work by Friedrich Heinrich Füger, 1817 (Neue Galerie, Kassel, Germany)

Another version of the myth of Prometheus is to be found in Ovid's 'Metamorphosis'. In this version, Prometheus created a man of clay with animal parts and gave him life with a spark of heavenly fire that he had stolen from the chariot of the sun. This version was the one that Mary Shelley preferred during her childhood, given that her father had educated her with the reading of the classic myths.

Prometheus is a symbolic figure of English Romanticism, a symbol of rebellion against the established order. However, the interpretations of the myth were different in Percy Shelley, in Lord Byron and in Mary Shelley. In Mary Shelley's version, the Greek titan rebelled against the punishment of Zeus and would be greeted as the saviour of humanity. For Percy Shelley and Byron, Prometheus was not a myth but a reality, an illustration of the prophecy that they were about to proclaim. They believed that through disorder and rebellion they would have communicated the 'sublime and metaphysical' of reality. We have a new and different Prometheus, free from all subordination, whether natural or supernatural; the bearer of a new fire.

Mary Shelley uses this image of a promise to contrast the arrogance of Prometheus (Greek arrogance) with the sacred humility of nature. She uses the myth as an analogy to express a fundamental truth about the dangerous consequences of research and the acquisition of knowledge. In this way, Frankenstein becomes a modern fable about the risks of pride and excessive intellectual arrogance (Joseph, 2011).

2.5 *Who is the real monster, Frankenstein, his creator, or the creature?*

On the one hand, we have before us a creature with a disgusting appearance who is without a name. According to Chris Baldick, the word 'monster' is used 17 times, the word 'devil' appears 25 times, and the terms 'demon', 'man' or 'goblin' are used 15 times (Hitchcock, 2010, p. 17). On the other hand, we have the creator, Victor Frankenstein, with his pride and egoism, his obsession with 'deciphering the mysteries of nature, challenging nature, and usurping the task of creating life, thereby destroying all the beings that he loves'.

In the view of one scholar of this work, Márcia Xavier de Brito, Mary Shelley 'challenges the reader to judge the character of her characters and makes us attentive to the grotesque elements of self-justice, arrogance and self-sufficiency that we carry within us' (Brito, p. 20). A careful analysis of this novel strengthens the idea and the view that *Frankenstein* is a 'moral story'. Marcia X. de Brito observes: 'disordered ambition, an unchecked wish for knowledge at any cost, a being following his destiny, and the danger of isolating himself from love and friendship, threaten to transform any man into monster'.

When reading this work we encounter a masterly exposition of the wickedness of the hero, the young scientist Victor Frankenstein, and the humanity of the bad figure, the monstrous creature. The appeal to the limits of knowledge is evident, as well as the emphasis on the importance of, and the need for, brotherhood and friendship: it points to the virtues of prudence and responsibility which must be cultivated in every human undertaking.

The creature of Shelley's novel is very eloquent and cultured. He is very different from the popular Frankenstein monster created by the first films which portrayed the creature with an almost irrational ugliness. The creature recognises

that he is monstrous and feels painfully his absolute isolation from others; he is forced to remain on his own. He feels the need to love and to be loved like any other human being. He knows that his hideous and unnatural form is an almost insurmountable obstacle to his being accepted by the community.

The disgust that his appearance provokes in them inhibits people from wanting to speak to him, except, as the novel relates, the old man in Lacey: this is simply because he is blind.

This monstrous humanity strengthens, completes and counters the scientific rationalism of the young scientist Victor who does not feel the least affection or sympathy for his creation. The creator is not able to experience any nearness to his creature. Seeing him as a thing and not treating him as another, a fellow human, he does not even have to worry about giving him a name! Curiously, in the popular imagination, by likeness, he has taken on the name of his creator. A punishment? As a 'creator', the young scientist Victor did not make the qualitative leap of being a 'guardian': he fled from this responsibility.

Knowledge and ethical wisdom must walk hand in hand, otherwise science and all of its technological instruments can turn against humanity itself. This is the case of the discovery and the use of atomic energy with the building of atomic bombs which, indeed, have already taken many people's lives. Robineau-Weber, when commenting on the figure of the young medical scientist in this novel by Mary Shelley, reminds us that 'he is a scientist who for a moment found himself on a par with a god, but he was not able to take responsibility for his actions. He himself created the instrument of his own punishment. If Frankenstein is a decidedly modern version of the myth of Prometheus, this is, perhaps, because it has, after a certain fashion, been secularised' (Robineau-Weber, 1999, p. 229).

One of the lessons that we can draw from a reading and analysis of this work by Mary Shelley is that when a human being enters the process of denying himself and does not take responsibility for the other, we have before us a process of mutual destruction and radical dehumanisation, of both the creator and the creature. As a consequence, overwhelmed by the wish for vengeance, Victor becomes as insensitive and as monstrous as his own creature.

A recurrent theme of this work by Mary Shelley is the theme of death: in this novel everybody dies. Naturally, the author had been tested during her life by innumerable losses: her three children when they were still infants, her mother who died during childbirth, the suicide of her half-sister and also the suicide of the first wife of her companion Percy Shelley, and the death of her husband who drowned at sea leaving her a widow at the age of 25. In *Frankenstein* nobody stays alive. Mary Shelley remained terrified of so-called 'unnatural deaths', of violent and monstrous deaths. The monster himself is a Lucifer because he found himself alone and abandoned but this was no fault of his and he did not deserve it – this all took place because he had been abandoned by his own creator. He imposed terrible sufferings on his creator and took the lives of people that Victor Frankenstein loved, exactly those who were closest to him: his younger brother,

William; his best friend Clerval; and his wife Elizabeth. In addition, the monster indirectly provokes victims, given that he is able to incriminate Justine Morits, William's lover, for the murder of the child, a figure who is found guilty and executed. There is also the case of the father of Victor, Alphonse Frankenstein, who died devastated, in mind and body, following the murder of Elizabeth.

Naturally, there is a profound parallelism between this dramatic story of pain and suffering caused by the loss of people loved by the author with what this would produce in intellectual terms. We should not be surprised if Mary Shelley's works, starting with *Frankenstein*, are novels that address the subject of the 'perpetuation of life', the creation of artificial life, and the reanimation of dead (or sleeping) tissue. The various stories that she wrote during this period are basically tales based upon the 'winning of immortality' and of cases of dead people brought back to life. We have the tale entitled 'Valerio', a reanimated Roman (1819), and the case of the British gentleman named Roger Dodsworth (1826) who was found frozen under an avalanche of snow and who came back to life after a number of years. The story of cryogenics, the conservation of this English knight, turned out to be a farce but not for Mary Shelley, a Romantic, who wrote her own version of the event. In 1833 she published *The Deadly Immortal* in which she told the story of Winzy, the assistant of an alchemist aged twenty who suffers because of a disappointment in love and acquires eternal life after inadvertently drinking an elixir of immortality, believing that it was a potion to cure his emotional suffering.

In short, the personal history of Mary Shelley, the fact that she went through a series of tragedies connected with the loss of members of her family, certainly influenced her writing, almost as though this were an obsession, a compulsion to explore and write about subjects such as immortality, the artificial creation of life, and the discovery of the elixir of long life. Her principal characters are always looking for a life that never finishes, or, if it has finished, they always try to find a way to revitalise it (Primati, 2017, pp. 239-240).

This novel of Mary Shelley raises another question that surrounds the socio-cultural controversy *contro natura* which is very frequent in discussions about upbringing. Are we what we are for biological, genetic, natural and hereditary reasons or are we the result of our interaction with the environment in which we live and it is in this interaction that we are and/or what we become? In this novel on various occasions the creature tries to explain (which is different to justifying) that he has become bad and vindictive ('Adam became Lucifer') because he has been led to be so by the circumstances in which he has been compelled to live. The creature sees himself as naturally good but it was the disastrous encounter with society (centre) that made him go from being Adam to being Satan (the fallen angel). It seems that in the monster there still exists, even when he recognises his wickedness, the possibility of some redemption and remission if he is given a female companion (something, however, that he is denied by his creator). Then, no longer alone but with her, he would have withdrawn to the far corners of the world far from the whole of humanity and there with his female companion he

would have awaited the end of his days. From this point of view, the concept of the noble savage of Rousseau is made more optimistic about the natural ‘good’ nature of man (every man is intrinsically good) when he is not corrupted by the influence of society, and the vision of John Locke is also upheld: this thinker described the human spirit as a *tabula rasa* on which we can write what we want.

2.6 Some ethical observations about this classic work of science fiction

Frankenstein or the modern Prometheus became one of the classics of the world literature of ‘science fiction’. As in the past, today, as well, it provokes great curiosity and discussion and is cited every time that we are faced with a new science. A great deal has already been written about this novel, a work that is seen as an important point of reference of English literature and culture, a flower of the



English Gothic Romanticism of the end of the eighteenth century and the beginning of the nineteenth century. We have a great deal of literary criticism on the subject, as well as innumerable films that seek to capture this human research for the elixir of life, the removal of death, the search for immortality, and, lastly, the possibility of unveiling the ‘mysteries of nature’ and thereby recreating life.

The myth of Frankenstein can be the subject of various kinds of readings, from those that start from literary criticism and lead on to the political, passing by way of historical, philosophical, ethical, sociological, feminist, mythological, psychoanalytical, and scientific analyses. I privilege an ethical reading of a revolutionary proposal typical of scientific knowledge that seeks the recreation of life. It is in this sense that I have engaged in an ethical reading, placing the work in the context of its time, pointing to the theme of dialogue between ethics and science and the need for ethics in research in order to safeguard and protect the dignity of human beings (Davies, 2011)¹. An ethical and bioethical vision invites

¹ In the view of David Resnik, a North American bioethicist, there are five factors that bring out the importance of ethical standards in research: 1) promoting knowledge, truth and the prevention of errors; 2) a commitment to effective cooperation and coordination of the different people, disciplines and institutions that are involved, and promoting the fundamental values of working together and team work such as trust, responsibility, mutual respect and justice; 3) contributing to assuring that researchers can be held responsible before the public (transparency); 4) helping to construct a (public) style of community as regards research. For this reason, it is important for the integrity of researchers and research to be transparent; and 5) promoting the ethical values of social responsibility, human rights, the wellbeing of animal, health, and public security.

us humbly to construct ‘science with a conscience’ (cf. Edgard Morin) and ‘science with wisdom’, to use the phrase of the Brazilian intellectual Ruben Alves.

Mary Shelley makes clear that an obsession with knowledge, ‘the fervid desire to penetrate the secrets of nature’, made Frankenstein blind to the other realities and values of life. We can reflect upon the review of his life that Frankenstein engages in at the end of his life – an authentic confession in which there emerges an important recommendation for his friend Walton: ‘In a fit of enthusiastic madness I created a rational creature, and was bound towards him, to assure...his happiness and well-being. This was my duty; but there was another still paramount to that. My duties towards the beings of my own species had greater claims to my attention, because they included a greater proportion of happiness or misery. Urged by this view, I refused, and I did right in refusing, to create a companion for the first creature. He showed unparalleled malignity and selfishness, in evil: he destroyed my friends; he devoted to destruction beings who possessed exquisite sensations, happiness and wisdom; nor do I know where this thirst for revenge may end. Miserable myself, that he may render no other wretched, he ought to die. The task of his destruction was mine, but I have failed...That he should live to be an instrument of mischief disturbs me in other respects...Farewell Walton! Seek happiness in tranquillity, and avoid ambition, even it be only the apparently innocent one of distinguishing yourself in science and discoveries. Yet why do I say this? I have myself been blasted in these hopes, yet another may succeed’ (Shelley, 2017, pp. 221-222).

Luc Ferry in his work *The God-Man* affirms that we are today living in an epoch that Mary Shelley predicted in her writings. These questions raised by this English writer at the beginning of the nineteenth century today have acquired a new point of view, obviously because scientific knowledge has notably increased – we may remember here only the questions of genomic and genetics. ‘*In vitro* fertilisation, the abortifacient pill, artificial insemination, the experiences of cloning with human embryos, that is to say the invisible powers of man over man’, are unleashing a debate about ethical values as was the case with *Frankenstein*. ‘Contemporary science is thus analysing anew the myths of Frankenstein and the sorcerer’s apprentice: creatures that human beings are able to generate can escape from them in an irremediable way’ (Ferry, 2012, p. 146).

Faced with this scenario, how can we not remember Hans Jonas who spoke to us about the need for ethics of responsibility for mankind in this epoch of rapid development when technology is attempting to colonise all the fields of human life? Jones in his work *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*, affirms that ‘The distinctive mark of a human being, of being the only one capable of responsibility, also means that he must have it for his fellows, they themselves are potential objects of responsibility, in one way or another: the faculty for this is a sufficient condition for its efficacy. To be really responsible for someone or something in specific circumstances... is inseparable from the existence of man like the fact that he is generally capable

of irresponsibility in the same way in which his speaking nature is inalienable, which is a fundamental characteristic of his definition' (Jonas, 2006, p. 175-176).

'The novel of Shelly has been used many times since its publication to express fears about new technologies and the risk of scientific excesses, fears that subsequently turned out to be unfounded. Frankenstein was invoked for organ transplants in the middle of the twentieth century, for *in vitro* fertilisation in the 1970s, and for genetically modified foods (franken-foods) and animal cloning in the 1990s. Today the technique of genetic manipulation, CRISPR, raises worries about the alteration of the human genome' (Jurecic and Marchalik, p. 2465).

In 1818 Mary Shelley realised that new technology in itself did not constitute a threat but in her novels she did lay stress on the ethical problems that would arise when human beings used technology to enrich themselves, looking for status or pure ambition without thinking in a serious way about the possible dangers of their work. If we become indifferent to their consequences and we do not take responsibility for our actions, we, like Dr. Frankenstein, run the risk of becoming monsters.

In the view of Isaac Asimov, *Frankenstein* can be considered the first novel of modern 'science fiction'. This is the same author who coined the phrase 'Frankenstein complex' to refer to the instinctive fear that many people have about technological innovations, especially those that seem to violate the prerogatives of God. Victor Frankenstein is the archetype of the man who dared to *create* life. But this *complex* can already be seen a long time before – in the 'myth of Prometheus'.

Originally the term 'Frankenstein complex' was used to refer to high gamma technology such as robots, computers and suchlike, and is usually addressed in the literature of science fiction through creatures that rebel against their own creators (Asimov, 1984, p. 219). We are said to find ourselves faced with a sort of 'ethical anxiety' that is not the mere rejection of scientific and technological knowledge (technophobia) but also the concern that the abuse of it may provoke irreparable damage to humanity itself. The great fear is said to be – as is the case in the work by Mary Shelley – that the creatures developed by these initiatives may rebel against their own creators.

Lastly, the myth of Frankenstein created by Mary Shelley in 1816, by a teenager who was aged only sixteen, became a universal symbol of the dangers that technology brings when human beings transgress certain limits that are considered to be insuperable. This myth represents, in a very effective way, the danger that a creation of technology will acquire autonomy in relation to human beings and end up by rebelling against them. This arouses our curiosity and makes us uncomfortable because today, as well, we pose the same questions about what science can and cannot do, about what we want and what we do not want.

I will end my analysis with an interesting observation made by Maurice Hindle when he observed that one of the most notable aspects of this narrative is that Victor Frankenstein and his monster have become more famous than their author. Many of those who have heard the name 'Frankenstein' know perfectly well who the creator

and the creature are but they do not know that the author of this work was a young English teenager. In the popular imagination there is also a certain confusion about the characters: Frankenstein is often taken to be the monster and not identified, as he should be, with the young physician and scientist (Hindle, 2003, p. 8). How ironic!

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CHAPTER IV

I Building a Future of Hope I

'We need utopias. For communities, they are what dreams are for individuals. A utopia is a refuge for an unrealistic ideal when the real appears to be unbearable. It is an aspiration to the impossible. Yes, every community, every age, every generation, needs utopias'.

Francis Wolff, a French philosopher

'Utopia is there on the horizon. I draw near by two steps and it draws away by two steps. I walk for ten steps and the horizon moves away ten steps. However much I walk, I will never arrive. What, therefore, is the purpose of a utopia? It helps me to stop walking'.

Eduardo Galeano, a Uruguayan writer

1. The Concept of Utopia and the Progress of Humanity

Innumerable national and international events commemorated the five hundredth anniversary of the publication of the classic work by Thomas More, *Utopia*. A cycle of lectures was proposed within the context of the project named 'Changes of a Singular Value', coordinated by the philosopher Adauto Novaes, which was followed by the publication *Il nuovo spirito utopico* ('The New Utopian spirit') which is of great relevance to this area of human knowledge (Novaes, 2017)¹.

¹ This is the cycle for the year 2014 – 'The New Utopian Spirit'. This was made up of 22 lectures (from 12 August to 7 October) that involved Brazilian and French thinkers. This event was inspired by the book *Utopia* by Thomas More whose five hundredth anniversary took place in 2016. This cycle sought to reflect upon the prospects created by the technical-scientific and biotechnological revolution, with the aim of analysing the two worlds of utopia – humanism and post-humanism. For Adauto Novaes, who had the idea of this project, for half a millennium this word, which means 'no place' but which can be translated as *Eu-topia* – a place of happiness, has had a long voyage full of enigmas. A promise, a hope, a prior simulation, and a horizon of our desires, utopias have a common destiny: the 'severe and lucid criticism of reality'. With these premises, 22 authors offered lectures on change and utopia, and referred to future thought, thought that is called the advent of the post-human: the year 2030 should be the date of the great surprise, the triumph of artificial intelligence over biological intelligence, with



Thomas More. Portrait by Hans Holbein the Younger (1527)



Utopia. Thomas More 1516

Let us rapidly address the meaning of the three concepts that always return to our discussions when we are speaking about progress and human development: *utopia*, *dystopia* and *retrotopia*. In the view of the economist, philosopher and writer Eduardo Giannetti, ‘utopia is today what it has always been: the expansion of the horizon of our imagination and the generous and shared dream of a better life. A weapon with which to expose a mistaken, unjust and oppressive world. Eradicating debilitating poverty and ending the nightmare of climate change are the challenges of a planetary utopia. Utopia cannot be reduced to the idea of avoiding evil: it dares to project a vision of good. Every culture incarnates a dream of happiness’ (Giannetti, 2016).

The word ‘utopia’ became current in various languages because of St. Thomas More (1478-1735), a knight and high-ranking figure at the court of King Henry VIII. A saint of the Catholic Church and declared the patron saint of politicians in the year 2000 by Pope John Paul II, More proposed the concept of ‘utopia’ to refer to an island that was not on the map of the world. This work, which was written in 1516 half a millennium ago, was discovered in Amsterdam and tells the story of a Portuguese navigator who discovered an island called ‘Utopia’, whose name was not to be found on any geographical map.

Thomas More invented the neologism ‘ou-topia’, ‘non-place’ by employing the Greek words ‘ò, ‘non’ and ‘*topos*’ – place. In the English language this term is made up of a homophony of *ou-topia* (‘non-place’) and *eu-topia* (land of happiness) and this has generated an ambiguity during

the course of history. In its first etymological meaning it refers to a *non-place*, even though it appears in the work of More as the name of an island (More, 2017).

Utopia, being the child of the driving forces of the Renaissance, virtually establishes a society that is so perfect at the level of its foundations that it impedes,

millions of nano-robots circulating throughout the human body, in the blood, in the blood, in the organs, and in the brain, able to correct the errors of DNA. Life could be infinite and ‘the death of death’ would be proclaimed.

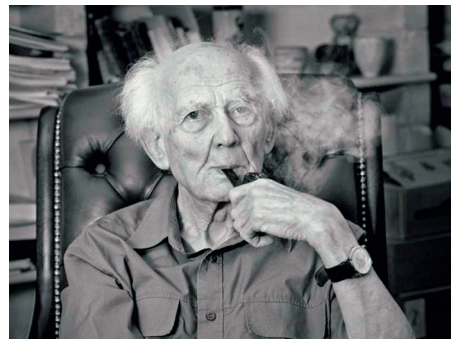
paradoxically, any form of its own development. Connected to the historical context in which a utopia is born, the collective desires and hopes of its time always correspond to it. Starting from real elements, it constructs historical possibilities, all the scenarios that history has not yet produced. A utopia does not start from a point outside a historical subject (God, for example) but from the subject itself. This means that every utopia, even when speaking about a fictitious future, speaks in reality about the problems of the period in which it was written. A utopia is the story of intellectual non-conformity prior to the forms of the established world.

More's *Utopia* was born under a promising star: it represented, together with Nicolò Machiavelli's *The Prince*, a point of arrival for the humanism of the Renaissance and perhaps also its limits – the idea that man could take into his own hands his own personal and collective destiny. Man as the author of himself. From the outset, the genius of the genre of the utopia drew near to travels and their discoveries: imagining unknown islands, a remote country in which an ideal city prospers, and the news of different people who asked for the expansion of humanity. More's *Utopia* was born as a reflection of the historical importance of the discoveries of the New World, of the creation of the colonies, and of the affirmation of absolute monarchies. What is expressed at an underlying level in the utopian writings of the time is transfigured European life: the *Utopia* of More, indeed, is inverted England.

A *dystopia* is the same as a utopia but with a different characteristic – where a utopia is an impossible dream, a dystopia is a 'nightmare that has come true'. In a dystopia, reality is portrayed as it is and its developed and enlarged destructive practices and tendencies reveal the cruelty of a grotesque world that could appear to be the norm. Without dystopias (*Brave New World*, 1984; *The Animals Revolution*, 1984; *Blade Runner*), we would be disarmed in understanding today's world. A dystopia can be seen as the self-criticism of a utopia (Berriel, 2016).

2. For Zygmunt Bauman (1927-2017) we are entering the era of 'retrotopia'

Bauman, a Polish philosopher and thinker, was born in England where for many years he held the chair of sociology at the University of Leeds. He died at the beginning of the year 2017 at the age of 91. Bauman became a celebrity as a result of a vast literary output that included over forty books. These were translated into various languages and focused on the so-called modern and post-modern epochs. Amongst others, some of the most successful of his



Zygmunt Bauman (1925-2017): Polish sociologist, philosopher and academic of a Jewish background

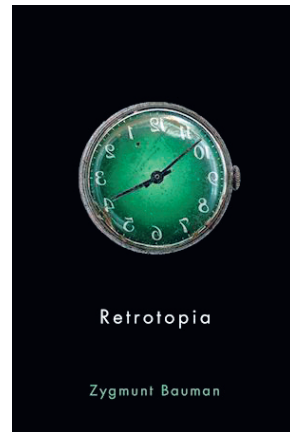
works were *The Bad Being of Postmodernity* (1992), *Postmodern Ethics* (1993), *Globalisation: the Human Consequences* (1998), *Liquid Modernity* (2000), *Liquid Love* (2003), *Essays on the Concept of Culture* (2012) and many others.

His thesis is that all the great truths, narratives and values of humanity have become 'liquid' and vaporous. They have lost their coherence and we have entered a reality in which the concepts of good/evil, right/wrong, true/false and just/unjust, the ethical concepts which guide us in the daily facts of our lives, are no longer reliable points of reference. We live in a 'Babel of values'! To the question as to why he wrote books, Bauman answered: 'Why do I write books? Why do I think? Why should I be impassioned? Because things could be different, they should be better'.

His last work, entitled 'Retrotopia', was published in English after his death and we should soon have it available in Portuguese (Editore Zahar) as well. Before dying Bauman gave an in-depth interview about Brexit, that is to say on the exit of the United Kingdom from the European Union, but the conversation went beyond this question and ended up by being a dialogue about the future of humanity and the destiny of the project of the Enlightenment. He left behind him a strong warning: 'we are evolving from a foolish belief about the future to a childish form of mystification of the past'.

Indeed, in the introduction to this work he suggests to us the existence of 'the time of nostalgia' in the time of retrotopia. 'It is true that the original version, like its first denial (of the attempt to do this) did not lead to this union'. Bauman refers to Svetlana Boym, a lecturer at the University of Harvard and a scholar of Slav literature, and invokes her to define what is meant by nostalgia. For Boym, nostalgia is a feeling of loss and disorientation but it is also a love story with its fantasies. Whereas in the nineteenth century nostalgia was seen as a curable illness which Swiss doctors, for example, treated with opium, leeches and a trip to the mountains, 'since the twenty-first century this illness has been transformed into the incurable illness of modern civilisation. The twentieth century began with a futuristic utopia and ended up with nostalgia. Boym ends her analysis of this global epidemic of nostalgia by seeing it as a deep desire to live in a community with a collective memory, a desire for continuity in a fragmented world, and proposes a vision according to which this epidemic of nostalgia is a defence mechanism against the accelerated rhythms of life and (cyclical) historical returns' (*ibidem*).

This defence mechanism 'consists essentially of the promise to reconstitute the ideal home that is at the centre of many of today's powerful ideologies which lead us to abandon critical thought in favour of emotional experience. Nostalgia tends to confuse the real home with the imaginary home. Lastly, it offers a clue



Zygmunt Bauman, *Retrotopia* (2017)

in which we find some of these dangers of today: in the regenerating variety of nostalgia, which is one of the characteristics of the rebirth of nationalisms throughout the world. We remain seduced by the anti-modern myth that tries to make history a means by which to return to nationalist symbols and myths, and at times to conspiracy theories’.

We have stopped believing for some time that human beings can reach human happiness in a future ideal state – a state that Thomas More (the English humanist, 1477-1535), when writing five centuries ago, saw as a ‘summit’, a fixed place, a land, an island, a sovereign state, governed by a wise and benevolent governor. Such was his famous work *Utopia* which by now is over five hundred years old (1516-2016). Whereas we have lost faith in utopias in all their shadings, the human aspiration that constructed this vision, which is so attractive, remains alive; it has not died. On the contrary: today it reappears as a vision that is no longer centred on the future – it is centred on the past; no longer on a future that has to be created but on a past that has been abandoned and is half dead, which we could call *retrotopia*.

The emergence of *retrotopia* is bound up with the increasing separation of power from politics which is one of the distinctive characteristics of our contemporary liquid world: the abyss between the capacity to do things and to decide how things must be done, a capacity that at times the sovereign state has done in a capillary way. This separation has made nation-states incapable of maintaining their promises, thereby giving rise to a widespread disenchantment about the idea that the future will improve the human condition and to a total distrust in the capacity of nation-states to make this happen. Faithful to the utopia spirit, *retrotopia* derives its stimulus from the urgent need to correct the defects of the precarious and chaotic human condition of the present by making the myths of the past arise again. The imaginary aspects of the past serve today as milestones on the road-map for the construction of a better world. So, we ask ourselves: is our future therefore in the past?

We are now faced with a wave where many people try to retrieve the past. After losing all trust in the idea of constructing an alternative society of the future, many people resort to great ideas of the past which are buried but not yet completely dead. Such is *retrotopia* which Zygmunt Bauman analyses with great mastery in his posthumous work.

3. Do advances today bring a series of worries and timid hopes?

For Zygmunt Bauman we still believe in ‘progress’ but we now see it as both a blessing and a malediction, with this latter aspect growing rapidly and the prospect of a blessing diminishing. Past generations still believed that the future would be the most promising place in which to invest their hopes. We, today, tend to project our fears, anxieties and apprehensions into the future: a future of a lack of jobs, a

fall in income and thus also a decline in life opportunities, the increasing fragility of our social positions and the temporary nature of our lives. It is thought we are relegated to the status of pedestrians on the fringes of a game of chess played by strangers. We are indifferent to our needs and our dreams, when, that is, we are not hostile or cruel and completely ready to sacrifice ourselves to achieve our objectives.

Thought about the future tends to lead to the growing threat that we will be discovered and labelled as not up to the task, with our value and our dignity denied, marginalised, excluded and banned. Many people today have become non-believers as regards the future understood as a place in which to invest their hopes. This is the perspective that Bauman presents in the last publication of his life – *Retrotopia*. In the introduction to this work, Bauman refers to Walter Benjamin (1892-1940), a German Jewish philosopher, and to his theses of philosophy of history as transmitted by the Swiss painter Paul Klee (1879-1940) in his work *Angelus Novus* (re-baptised as ‘Angel of History’) which was painted in 1920 and is now to be found in the Museum of Jerusalem. This work of art during the course of the twentieth century became a source of inspiration for musicians, philosophers and writers who expressed a large number of concerns about the multiple meanings that this work of art involved.



Paul Klee, *Angelus Novus* (1920)

Walter Benjamin found in this work by the artist Paul Klee the most faithful expression of the desperation of modernity in the face of history. The anxious and obsessed look of the angel who is powerless in the face of the catastrophe of progress clashes brutally with the historical optimism of the positivists. These are the words with which Benjamin described this picture: ‘There is a painting by Klee which is called ‘*Angelus Novus*’. It portrays an angel who seems to be about to distance himself from something that he is staring at. His eyes are wide open, his mouth is open, and his wings are stretched outwards. The angel of history has to have this appearance. His face is turned towards the past. Whereas in front of us there appears a chain of events, he sees a single catastrophe which unceasingly piles up ruins on ruins and lays them at his feet. He would like to remain to reawaken the dead and reconnect the fragments. But a storm is blowing from heaven and it has got caught in his wings, and it is so strong that the angel can no longer close his wings. This storm pushes him without halting into the future, to which he has turned his back, while the pile of ruins in front of him grows towards heaven. What we call progress is this storm (cf. Benjamin, 1994).

Bauman wrote the following comment on the interpretation of Walter Benjamin: ‘Someone had looked closely at the painting by Klee, almost a century

after Benjamin had produced his unfathomably and incomparably deep insight, and could once again capture the *Angel of History* in full flight. What can most influence him is the changing direction of the angel: the Angel of History taken at the moment of a 180 degree change. His face is passing from the past to the future, his wings are pulled backwards by the storm, hitting that imagined future time; he is in a hurry and awaited in the heaven of the past (it is imagined in a retrospective way, having been lost and reduced to ruins). And the wings are now pressed, as they have been pressed in the past, with equally powerful violence, so that now, like then, the angel can no longer close them’.

The past and the future, one can conclude, are near to exchanging their respective vices and virtues which were connected – as Benjamin suggested – by Klee a hundred years ago. Now the future is marked by debt, condemned initially by its unreliability and by being uncontrollable, with more vices than virtues, while the return to the past, with more virtues than vices, is marked in the credit column, as a place of choice that is still free; it is the unhoped-for investment in the future.

4. The danger of a backward retrocession: a fatality or a choice of fear?

A retrotopia, like a utopia, refers to a foreign land: an unknown territory which is not visited and, even less, tested. This is precisely the reason why retrotopias and utopias are used intermittently every time that an alternative to the present is sought. Both are, for this reason, seen selectively, passively, and are obediently susceptible to manipulation. In both cases, the arc lights of attention are focused on some aspects of the dense darkness. This allows both of them to be ideal (imagined) territories where the ideal (imagined) state of things can be located, or at least a correct version of the current state of things.

Hitherto, utopias and retrotopias have not differed from one another. What really separates the two is the change in position between trust and distrust: trust is moved from the future to the past and distrust is moved in the opposite direction.

Thinking of the future as ‘something that is suspicious, even fearing the future’ is not in the least new in human history. Indeed, it goes back to pre-Socratic times and more specifically to the eighth century BC, to the works and days of Hesiod, in particular his ‘Ages of Man’ in ‘Work and Days’². This is a story of continual deterioration and corruption, of deterioration since the height of the ‘years of gold’ towards the low point of the ‘years of iron’ in which Hesiod locates

² A Greek writer who lived approximately in the seventh century BC, in Boeotia, a central region of Greece. He was also the author of the myth of ‘Prometheus unchained’, a subject already analysed in this work with reference to the myth of Frankenstein. Aeschylus – a Greek poet and playwright, the creator of Greek tragedy, was born roundabout 520 BC – and Plato – the Greek philosopher who was born in Athens in about 427 BC and died in 347 BC – would be two other thinkers who offered a different interpretation of the myth of Prometheus to that of the account of Hesiod.

himself together with his contemporaries. His description of the conditions and the dynamics of the inhabitants of the years of iron reminds us in a surprising way of the characteristics that our contemporaries attribute to the conditions of our twenty-first century, when we have already undertaken the journey of retrotopia, that is to say an atrocious, hideous and repugnant epoch.

Bauman ended his interview by saying that the future was once a safe bet for the investment of hopes; now it has increasingly the flavour of indescribable dangers and hidden traps. A mournful hope without a future seeks refuge in a past that was once ridiculed and condemned but which is now respected. With the options that are available from offers that have been discredited for some time, each one with its quota of horror, the phenomenon emerges of the 'tiredness of the imagination' and the exhaustion of options emerges.

It is in this predictable and thus not unexpected context that the apocalyptic idea emerges of the end of the world! How can we move out of this dystopia of the present, where the future ceases to be the hope of a better moment to nurture nightmares; ceasing to wish for it, we begin to fear it.

We need utopias, says the Brazilian philosopher Francis Wolff. For the community they are dreams of individual people. A utopia is always a refuge for an unrealistic ideal when the real appears to be unbearable. Every age, community or generation needs a utopia. We are helped to live as human beings and to fight against the darkness of the socio-political and economic reality that wounds us very much: in the end a real dystopia.

Perhaps a utopia is neither today nor a place, nor a realisable future, but, rather, a permanent critical request and a form of creative imagination that frees us from passivity and indifference to a state of things that is marked by uncertainties, injustices, wars, and fears about the future. From a wounded sensibility is born ethical indignation that leads us to be protagonists of the new, of our micro-universe of life.

For half a millennium *Utopia* (the work by Thomas More published in 1516) has meant 'non-place' but we could also translate '*eu-topia*' as 'place of happiness'. Whether it is a promise, a hope, a foreshadowing of the future, a dream with an open outlook, a simple daydream or a horizon of our desires, a utopia always aims at a lucid and profound criticism of reality and its foundations and is an unceasing prospect of a constant generation towards the new!

5. The industrial revolutions that transformed the face of humanity

The Swiss locality of Davos, a place appreciated by skiers, since 1971 has hosted the famous World Economic Forum (WEF), or simply the Davos Forum, which offers itself as a laboratory for *brainstorming* to discuss the principal questions of relevance to the world. On this occasion, this town, which has about 11,000 inhabitants, received (as it does every year) high-level official delegations



World Economic Forum (WEF) – Davos, 2018

from about eighty countries, as well as 2,000 or 3,000 leading figures of civil society, the representatives of religious confessions, of the youth world, and of the arts.

At its forty-sixth edition which was held at the beginning of 2016, this forum addressed the subject of the ‘fourth industrial revolution’. This event took place at a time of fear about the threat of terrorism; about the refugee crisis

in Europe which was not meeting with an effective response by the European States; and about the difficulties that the world economy was experiencing in returning to growth and also the strong crisis (deceleration) of emergent countries such as Brazil.

The various editions of this economic forum have become a favourable international context for informal meetings and dialogues between heads of state who are seen as ‘enemies’ that have on certain occasions helped to reduce tensions between countries, moving them towards subsequent agreements.

The edition of the Davos Forum of 2016 looked forward to what the most passionate scholars have defined as the ‘revolution 4.0’: nanotechnologies, neuro-technology, robots, artificial intelligence, biotechnology, systems for stockpiling energy, drones and 3D printers, amongst other artefacts and innovations. Klaus Schwab, one of the founders of the Forum, in his latest book ‘The Fourth Industrial Revolution’, which was published in Brazil (Edipro, 2017), says: ‘We have embarked on a technological revolution that will radically transform our way of living and working. In all its range and complexity, this transformation will be different from everything that human beings have experienced before’. Industrialisation will radically change the universe of work. The ‘new powers’ of this transformation will come from genetic engineering and neuro-technology, two areas that seem mysterious and distant, above all for ordinary people (Schwab, 2017).

6. A historical summary of the four industrial revolutions

In the vision of Klaus Schwab, when we speak about revolution we speak about a ‘brusque and radical change. In our history, revolutions have taken place when new technologies and new ways of perceiving the world have unleashed a profound change in social structures and economic systems’ (Schwab, 2017, p.15).

The first revolution to take place in the history of humanity was the agricultural revolution. This was a profound change that took place in the way in which humanity lived – the move from foraging (the search for food) to the cultivation of food (agriculture) – and occurred about 10,000 years ago thanks to the domestication of animals. This revolution united the strength of animals and man, to the advantage of production, transport and communication. With the improvement in the production of food, the growth of the population was stimulated as well as the emergence of increasingly large human settlements. This led to the emergence of the organisation and the birth of cities.

The so-termed industrial revolutions began in the second half of the eighteenth century. The characteristic of these revolutions was a transition from muscle power to mechanical energy which developed until the current fourth industrial revolution, a time when human production has increased in an exponential way.

The first industrial revolution took place between 1760 and 1840, with the invention of the steam engine and the building of railways and the beginning of mechanical production.

The second industrial revolution began towards the end of the nineteenth century and went on until the beginning of the twentieth century, with the arrival of electricity and chain production which allowed mass production (Fordism). This revolution still has to be experienced by 17% of the world's population given that almost 1.3 billion people still do not have access to electricity.

The third industrial revolution began in the 1960s. It is also called the 'digital revolution' because it was activated by the development of semi-conductors, mainframe computers (the 1970s), personal computers (the 1970s and 1980s) and the development of internet (the 1990s). More than a half of the world's population, four billion people, live in poor countries where there is access to internet. A historical curiosity should be observed as regards the spinning jenny which marked the first industrial revolution: this machine took 120 years to spread outside Europe. In contrary fashion, internet spread throughout the world in less than a decade.

The fourth industrial revolution began at the end of the last century and is based upon the digital revolution: the presence of a more mobile internet, small and more powerful sensors that became more economic, and artificial intelligence. Reference is made to 'industry 4.0' (a term coined at the Hanover fair) which creates a world in which physical and virtual systems of production cooperate globally and in a flexible way. This revolution is not only a matter of systems and intelligent and connected machines.

Indeed, we are face to face with simultaneous discoveries in areas that range from genetic sequencing to nanotechnology and from renewal energy to quantum ICT. In the view of Schwab, 'what makes the fourth industrial revolution different from the previous ones is the fusion of these technologies and the interaction between physical, digital and biological domains' (Schwab, 2017, p. 16). We have before us the so-termed 'convergent technologies': nanotechnology, biotechnol-

ogy, information technology, and the cognitive sciences. We may highlight the following of the mega trends of these physical, digital and biological domains:

- a. *In the field of physics.* We will have autonomous vehicles, 3D printing, advanced robotics, and new materials (which will be lighter, more resistant, recyclable and adaptable). Amongst nano-materials we have *graphene* which is about 200 times stronger than steel, millions of times thinner than human hair, and, in addition, an efficient conductor of heat and electricity.
- b. *In the digital world.* We have internet: the relationship between things and people is made possible thanks to various connecting technologies such as small sensors which are more economic and installed in homes, clothing, and accessories, in transport networks and in energy. Today we employ thousands of instruments such as smartphones, tablets and computers connected to internet.
- c. *In biology.* The innovations in the field of biology, in particular genetics, are frightening. Synthetic biology is taking the first steps to develop the capacity to create personalised organisms by rewriting their DNA. We are at the beginning of so-termed biological or genetic ‘writing’ with the invention of ‘molecular scissors called *CRISPR/Cas9*’. These interventions can replace the genetic genes that are the cause of incurable diseases.

We can also observe the surprising advance of knowledge about the human brain, with the birth of the so-termed neurosciences and neuro-technologies. Schwab states that in this area of molecular biology and genetics ‘we will have to address new questions about the meaning of being ‘human beings’, about which data and information about the health of our fellows can or must be shared with other, and about the rights and responsibilities that we have when it is a matter of changing the genetic code of future generations’(Schwab, 2017, p. 31).

This industrial revolution will generate enormous benefits, but also great challenges. One of the most important challenges will be inequalities and growing concerns about injustices, with the concentration of power and knowledge in the hands of particular power groups. But in this scenario we must accept ‘our responsibility in order to assure that a set of common values that guide politics choices make the fourth industrial revolution an opportunity for everyone’ (Schwab, 2017, p. 22).

Schwab observes that ‘the extraordinary innovations introduced by the fourth industrial revolution, by biotechnologies and by artificial intelligence are redefining what it means to be human beings. They are extending the current limits of life expectancy, of health, of knowledge and of skills in a way that at one time belonged only to the world of science fiction’(Schwab, 2017, p. 100). And he stresses the need for an ethical discussion. ‘With the advance of knowledge and discoveries in these fields, it is fundamental that our attention and our commitment be focused on the ethical and moral discussions that are underway. Since we are human beings and social animals, we have to think individually and collectively

in order to respond adequately to problems such as the extension of life, ‘designer’ babies, memory extraction and yet others’ (Schwab, 2017, p. 100). The fourth industrial revolution is not defined by a set of emerging technologies on their own but by the ‘transition towards new systems that are built on the infrastructure of the (previous) digital revolution’. ‘There are three reasons why the current transformations do not constitute an extension of the third industrial revolution but, rather, the arrival of a different era: their speed, range and impact on systems. The speed of current advances does not have precedents in history and interferes with almost every sector in every country’, declared Schwab at the Davos Forum.

The so-termed ‘revolution 4.0’ developed after three processes of historical transformation. The first marked the shift from manual production to mechanised production (1760-1830). The second historical process brought electricity and allowed mass production. (1850). The third brought the arrival of electronics, information technology and telecommunications (the middle of the twentieth century).

Now the fourth industrial evolution is bringing with it a trend towards the total automation of factories – its name comes in reality from a project involving a high-tech strategy of the German government that has been active since 2013 and aims at achieving production that is fully independent of human work. Automation takes place through cyber-physical systems made possible by internet and cloud computing. The cyber-physical systems, which combine machines with digital processes, are able to take decentralised decisions and to interact – with each other and with man – through internet. But all of this provokes not only enthusiasm for these incredible innovations: questions are also raised and ethical concerns emerge in relation to this journey of ours towards the technological future.

7. Promises, concerns and ethical challenges in this new industrial scenario

This revolution is already underway and is the result of a convergence of robotics, nanotechnology, ICT, artificial intelligence and other forces. According to the report of the Forum, by the year 2020 five million jobs will have been eliminated, including the new jobs created for the same reasons.

In addition to the loss of five million jobs over the next five years throughout the world, the fourth industrial revolution will cause ‘grave alteration not only in the model of business but also in the labour market over the next five years’, according to a study of the World Economic Forum (WEF) which organises the Davos meeting. After the first industrial revolution (with the appearance of the steam engine), the second industrial revolution (electricity and chain production), and the third industrial revolution (electricity, robotics), we are in the presence of the fourth industrial revolution which will bring together numerous factors such as internet or ‘big data’ to transform the economy. ‘Without an

urgent and targeted action to manage this transition in the medium term and to create a labour force with skills for the future, governments will have to face up to constant unemployment and growing inequalities’, warned the president and founder of the World Economic Forum. According to another study commissioned by the WEF, ‘the burden of the loss of jobs, as a consequence of automation, will have a quite even impact on men and women, because 52% of the 5.1 million jobs lost over the next five years will be those of men and 48% of them will be those of women. Since women today constitute a less important part of the labour market compared to men, the gap between men and women could continue to increase’.

This is only one of the effects of this revolution. Amongst the most performing technologies, we will have the engineering of metabolic systems in order to produce industrial substances, such as synthetic biology to replace fuels, plastics, perfumes, etc.; internet; nano-sensors inserted inside living beings, including the human body, to capture and receive stimuli for the administration of drugs and medicines; ecosystems managed by artificial intelligence; and many other innovations such as new materials for the stockpiling of energy, nano-materials, automatic vehicles (drones of all types) and the production of human organs with electronic microchips, only to cite some of the most important innovations, and the list is certainly a long one. We do not have before us only enthusiasm about these innovations – there is also the very old nightmare that accompanies humanity, that is to say economic injustice and inequality in the world.

A study carried out by the British non-governmental organisation Oxfam invited the leaders who had come together at the Davos World Economic Forum to discuss and act against inequality. The wealth accumulated by the richest 1% of the world’s population is now for the first time equal to the wealth of the other 99%. The Oxfam report says that the sixty-two richest people in the world have the same wealth as the poorest half of the world’s population.



Oxfam also observed that the fact that the sixty-two richest people in the world have accumulated the equivalent of the wealth of the poorest 50% of the world’s population reveals an astonishing concentration of wealth, which becomes even more astonishing if we consider that in the year 2010 the equivalent of the wealth of the poorest half of the world’s population was in the hands of 388 individuals. Oxfam observed: ‘Rather than an economy that functions for the prosperity of everyone, for future generations and for the planet, what we have is an economy (that functions) for the 1% (the richest people)’.

The phrase that more than a time of profound transformations and innovations in all the fields of human life we are living through a change of time already sounds rather colloquial to us and is well known to us. At the end of the seventeenth century there was the steam engine. This time robots integrated into cybernetic systems will be responsible for a radical transformation. And economists have already given a name to this – the fourth industrial revolution, which is marked by the convergence of digital, physical and biological technologies. All of this will have profound consequences on what we are and how we relate to each other as far as the far ends of the planet. This revolution will influence the labour market, the future of work and income disparities. Its consequences will have an impact on geopolitical security and on what is considered ethical.

There are dangers in this scenario and not everyone looks to the future with optimism: ‘the real risk exists that the technocratic elite will interpret all the changes that arrive as a justification for their own values and in the *game* of technological development there will always be losers, and one of the forms of inequality that most worries me is values’ (Elizabeth Garbee, researcher at the Arizona State University School, USA).

‘This kind of ideology enormously limits the perspectives that are brought into play when (political) decisions are taken, which in their turn increase the inequalities that we see in today’s world’, Garbee says. ‘Considering that the maintenance of the status quo is not an option, we need a fundamental debate on the form and the objectives of this new economy’, observes David Ritter who believes that there must be a ‘democratic debate’ about technological change.

The most pragmatic observers perceive that the fourth industrial revolution will only increase inequality in income distribution and will bring with it all kinds of dilemmas as regards geopolitical security. The World Economic Forum itself recognised that ‘the benefits of openness are at stake’ because of protectionist measures, in particular tariff barriers in world trade which were exacerbated by the financial crisis of 2007: a challenge that the fourth industrial revolution has to address if it wants to offer what it promises. ‘The enthusiasm is not unfounded, these technologies represent incredible advances. But the enthusiasm is not an excuse for ingenuousness: history is full of examples of how technology has gone beyond the social, ethical and political limits that we need to use them well’, observes the researcher Elizabeth Garbee.

In the field of physics, as well, there are already available automated vehicles, 3D printers, advanced robotics and new materials. Automated vehicles are cars, lorries, aeroplanes, boats and drones which, without a driver, will be able to carry out a great variety of tasks. In advanced robotics, we will have sensors that allow robots to understand their environments better and engage in various activities. In the field of new materials we will have lighter, more resistant, recyclable and adaptable materials: nano-materials such as grapheme, which is two hundred times more resistant than steel, a million times thinner than a human hair and an excellent conductor of warmth and electricity.

In the field of molecular biology, in particular in genetics. Schwab emphasises that the genome project needed ten years to be completed with a cost of 2.7 billion dollars but today a sequencing of a genome is carried out in a few hours and costs less than 1,000 dollars. The next step will be synthetic biology which will be able to modify organisms that already exist through a modification of their genetic codes and the creation of personalised organisms. It is hoped that it will be possible to create microbes that are able to combat cancer and other illnesses that are incurable at the present time. In the field of genetic engineering, we will be able to interfere with, and modify, living beings, animals and plants, and adapt them to adverse conditions. The possibility is also being opened up of xenotransplantations and the recreation of organs.

As regards international security, the author speaks about the possibility of an ICT war: flying robots (drones); automated weapons that attack targets according to pre-established criteria; and the militarisation of space – a new generation of hypersonic weapons. The advances in nanotechnology will allow lighter and more mobile and intelligent weapons and will increase the risk of biological weapons: lethal weapons that can spread in the air like biochemical weapons.

The fourth industrial revolution is not only changing what we do (the world of work, the economy) through techno-science, but also ‘who we are’, forcing us to redefine ourselves in terms of what it means to be human beings. Are we facing the concrete possibility of not having children who will be in a dictatorship? Are we getting rid of illnesses? Will we live longer? Can we stop the biological clock and remain always young? Will we be more intelligent? All of this is to be welcomed!

Schwab ends his work in a tone that appeals to ethical wisdom to address the very many challenges that at times appear to be rather frightening. ‘We need to work together to transform these challenges into new opportunities, to construct a future in which innovation and technology are *focused on humanity* (the italics are mine) and the need to serve the public interest with more sustainable development’. Schwab ends his analysis with tones of optimistic faith in the ‘new technological era which, being created in an agile and responsible way, could inaugurate a new cultural renaissance that will allow us to be part of something greater than ourselves: a true global civilisation’.

8. Is there a Way out of this Distressing Lethargic Present? We Need Wisdom (‘Intelligence’) to Transform Challenges into New Opportunities!

The Davos event placed emphasis on the need to cultivate four types of intelligence, that is to say intelligence of the mind, of the heart, of the soul, and of the body. Potter, at the beginning of the history of bioethics (the early 1970s) also cultivated one of the first insights of the mission of bioethics when he said that

humanity needed wisdom in addition to knowledge – a wisdom defined as ‘knowledge about knowing how to use knowledge for the social good’ (Potter, 2016).

It is important to remember that today we are living in the so-termed human age of the anthropocene, that is to say the epoch when for the first time in the history of the world human activity is the principal force behind the transformation of all forms of life on the planet. Therefore, in other words, we humans have the task of addressing the challenges of the fourth industrial revolution by mobilising ‘the collective wisdom of our minds, our hearts and our souls’.

For this reason, dialogue is needed to understand the potential for possible fractures, without ever ceasing to place human beings at the centre of things and transforming troubling challenges into opportunities for everyone. According to Schwab, four kinds of intelligence are needed: 1) *contextual intelligence (the mind)* in the way in which we understand and apply our knowledge; 2) *emotional intelligence (the heart)* in elaborating and integrating our thoughts and feelings, as well as the way we relate to ourselves and to other people; 3) *spiritual intelligence (the soul)* in how we use individual feelings for a shared purpose, exercising trust and the other virtues to achieve change and act for the common good; and 4) *physical intelligence (the body)* in how we cultivate our health and personal wellbeing and the wellbeing of people whom we love, in order to have the energy that is needed for the transformation of individuals and the system. Let us now briefly see what each one of these kinds of intelligence involves.

1. *Contextual intelligence: the mind*³. The notion of ‘context’ is understood as the ‘capacity and wish to foresee emerging trends and to connect the various elements together. This has been one of the characteristics of the most effective forms of leadership in all generations and in the case of the fourth industrial revolution it is a pre-requisite for adaptation and survival’ (Schwab, 2017, p.107-108). We must be more connected and inclusive and encounter other people and work together in a cooperative way in order to obtain a holistic perspective on everything that is happening. We must break down barriers between sectors and professions so as to be able to create partnerships that are more effective by utilising the power of a network. Working in an increasingly complex and disruptive environment requires intellectual agility. In practical terms, this means that leaders must go beyond a rigid and fossilised mentality. The approach to problems and challenges must be holistic, flexible and adaptable in order to be able to integrate different interests and opinions continuously.
2. *Emotional intelligence: the heart*. This is an attribute that is increasingly necessary and essential in this new world. This dimension of our intelligence should not be seen in opposition to rational intelligence or as the triumph of the heart over the mind – it is only intersection between the two. Emotional

³ This concept of ‘contextual intelligence’ was coined by Nitin Nohria who was the dean of the Harvard Business School.

intelligence allows leaders to be more innovative and act more as agents of change and transformation. We can speak about an intelligence of the heart without falling into mere alienating Romantic sentimentalism: it is this intelligence that brings crucial abilities in terms of self-knowledge, self-regulation, motivation, empathy and social abilities, which, indeed, are so necessary in the fourth industrial revolution. These qualities should be continuously cultivated. Organisations and leaders with a high level of emotional intelligence will be more creative and much more trained to be agile and resistant when confronting a scenario characterised by fractures.

3. *Spiritual intelligence: the soul.* ‘Anima’ (‘soul’), according to Latin etymology means *to breathe*. This is an inspired (spiritual) intelligence that constantly seeks the meaning, the sense and the purpose of things, of mechanisms and of people. It seeks to raise humanity towards a new collective and moral consciousness that is based upon a shared sense of destiny. Faced with an exaggerated emphasis on the ‘self’, which leads to unhealthy egocentric individualism that closes up a person in himself or herself, it is necessary to counter this process of development by directing it towards the search for a sense of common purpose, towards team work and cooperation. At the heart of the fourth industrial revolution we speak about collaborative innovation. All the parties involved must assure, in a climate of shared trust, that the innovations that take place do not seek to meet the individual interests of the privileged few but are always centred around the common good and the interests of everyone.
4. *Physical intelligence: the body.* This intelligence consists, in its essence, of supporting and cultivating personal wellbeing and health. Epigenetics, a section of biology that has emerged over recent years, has demonstrated to us how the environment contributes to modifying the quality of our genes. This brings out the importance of sleep, of nutrition and of physical exercise in our lives. Regular physical exercise, for example, has a positive influence on the way in which we think and feel, in addition to directly influencing our performance at work. Maintaining our physical body in harmony with our mind, feelings and emotions, and with the things and the people with whom we live and interact professionally, is a simple task. During moments of greater tension, a leader can never lose his or her ‘temper under pressure’ and needs to have ‘nerves of steel’ to manage in an effective way the complex challenges and problems of reality.

9. How can we transform these challenges into new opportunities?

According to the man behind the *World Economic Forum* of Davos, Klaus Schwab, there are three steps that we should follow:

1. *Increasing the awareness* that we can no longer think in a compartmentalised way about the decision-making process. The challenges that we face will be

increasingly intertwined. Only an inclusive approach can generate the understanding that is needed to face up to the problems that present themselves. This requires cooperative and flexible structures.

2. *Developing positive narratives* that are shared and complete for the benefit of current and future generations. Although we do not know the exact contents of these narratives, we know the crucial characteristics that they have to narrate, that is to say they should embrace the values and ethical principles that our systems should embody. ‘It is necessary to assure that values and ethics should be at the centre of our individual and collective behaviour as well as of the systems that they nurture. These narratives must also evolve progressively in broader perspectives ranging from tolerance and respect to care and compassion’ (Schwab, 2017, pp. 112-113).
3. *Setting in motion the restructuring of our economic, social and political systems* to exploit to the full the opportunities, based on cooperation, that are presented. ‘We will not offer any answer to the needs of future generations without cooperation and a local, national and supranational dialogue that gives a voice to all the parties involved. We must concentrate on making the basic conditions (the primary basic conditions) right and not paying attention only to the technical aspects. As the principal architect of about four billion years of evolution, cooperation has been a locomotive force because it allows us to adapt ourselves to a growing complexity and further strengthen political, economic and social cohesion. Innovation and technology must be focused on the function of humanity, aiming at the public interest, moving towards sustainable development. In the end, everything will depend on people, culture and values. Together we should give shape to a future that functions for everyone, putting people first, making them responsible and constantly reminding ourselves that these new technologies are above all instruments created by people for people (Schwab, 2017, pp. 112-113).

10. Some final notes about ethical disquiet and hope

Klaus Schwab, when describing the fourth industrial revolution, categorically states that ‘one could end up by robotising humanity and therefore compromising our traditional sources of meaning: work, community, family and identity. Or we can use this industrial revolution to raise humanity to a new collective and moral consciousness based upon a shared sense of destiny. It is our task to assure that this last scenario takes place’ (Schwab, 2017, p. 114).

We still have the responsibility to lead the *ship* of humanity. But we are tired of the ‘prophets of woe’ who are very able in diagnosing human misery and also in not leading any window open to hope about the future. When we speak about economics today, only with difficulty at the end of our discussions are we optimistic. Always, in general, we are much more pessimistic. It is interesting to observe



Klaus Schwab

that we have identified an engineer and a scholar of economics with an incontrovertible and enviable competence at a moral level, Klaus Schwab, who talks to us about the future not from the perspective of an apocalyptic disaster but with a vision of hope and confidence about humanity itself that seems to have the means, the instruments, to overcome this reality and construct a future that is better for everyone.

This is the moment when we must work and unite our forces with the outlook that ‘another world is possible’, one that is more

just, fair, fraternal and supportive! Is this just a dream? An illusion? Fiction? No, I believe that this is a moment of great ‘appeal’, one when it is opportune to implement our hope about bioethics at the beginning of the twentieth century, during that time of our lives that is available to us, to achieve something different in this world and believe in a resolute way that it is possible to construct another world (Hossne, Pessini, Barchifontaine, 2017).

In his last work ‘Retrotopia’, Zygmunt Bauman makes clear that for contemporary man the successful dream is no longer about the future – it is about the past. He raised the alarm by stating that ‘we are evolving from an ingenuous belief in the future towards a childish mystification of the past’ and we are entering the *era of nostalgia*.

We still believe in ‘trust’ in ‘progress’ which is now both a blessing and a malediction, with the malediction side of it growing too rapidly compared to considering the blessing that progress can bring. We, today, tend to project our fears, anxieties and apprehensions into the future; a fall in income and therefore also in the possibilities of our lives, and an increase in difficulties as regards survival. This lack of trust in the future, understood as a place in which to invest our hopes, certainly creates serious concerns for us. This context leads us to ask ourselves whether it would not be better to ‘look backwards’, to the rearguard of (past) history: this has always been one of the reasons that makes every kind of fundamentalism grow and has caused an increasing number of people appear to be afraid about everything. As a consequence, we take refuge in the safety of the past and become fanatical conservatives, involving ourselves in a crusade that aims at a restoration.

In the epilogue to his posthumous work *Retrotopia*, Bauman ends his analysis by declaring ‘we need to embrace a rather long time marked/characterised more by questions than by answers and more by problems than by solutions, as

well as acting inevitably with few chances of success or defeat. But whatever the case...the final verdict is that *another alternative* does not exist'. More than on other occasions, we human beings who live on the earth will be forced to address this situation, trying to stay united, hand in hand, otherwise we will obtain only common graves'.

Living with hope in a better future has become for the whole of humanity an act of faith and at the same time we are faced with the need and the imperative to survive! The world is not going from bad to worse but it can also go towards good and what is better! Pope Francis has also reminded us that hope is a 'work manual'; it begins with each one of us! Yes, having the courage to risk putting a little light in the darkness...Undoubtedly, if these human and ethical values in the middle of this scientific-industrial revolution are not taken seriously and do not become the GPS of the voyage of humanity, the future of life on the planet runs the risk of becoming an apocalyptic nightmare. This is something that we do not want for anybody! Therefore, this seems to be the moment when *bioethical hope* must be nourished and expressed at the beginning of the twenty-first century.

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CHAPTER V

| Planetary health – persons and the planet our ethical responsibility! |

‘Planetary health is a great idea for this century’.

Judith Rodin, President of the Rockefeller Foundation (U.S.A.)

‘Climate change is the greatest threat to health in the twenty-first century’.

Margaret Chan, Director General of the
World Health Organisation

‘It remains a priority of the Church to keep herself dynamically in a state of ‘moving outwards’, to bear witness at a concrete level to divine mercy, making herself a ‘field hospital’ for marginalised people who live in every existential, socio-economic, health-care, environmental and geographical fringe of the world’.

Pope Francis

Introduction

‘Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition’. This statement on health is to be found in the Constitution of the World Health Organisation (WHO) and has been adopted by the United Nations for seventy years (1948-2018)¹. Health is a fundamental human right! This means that every person should have access to health-care services when, and where, they need

¹ Constitution of the World Health Organisation: ‘THE STATES Parties to this Constitution declare, in conformity with the Charter of the United Nations, that the following principles are basic to the happiness, harmonious relations and security of all peoples: Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition’: cf. <https://www.admin.ch/opc/it/classified-compilation/19460131/200906250000/0.810.1.pdf>

them, without suffering because of a lack of money. Nobody should fall sick or die because they are poor or because they do not have access to health-care services. Good health is clearly determined by other fundamental human rights. These include, amongst others: access to drinking water, to hygiene/health-care institutions, to food, to adequate housing, to instruction, and to healthy conditions at work. Humanity still has to work a great deal to achieve these fundamental goods so that everybody can enjoy a happy and healthy life!



Picture from 'Planetary Health'. Information graphic from the English scientific journal The Lancet

The inspiration with which I wish to begin my talk comes from the image of a man in space who beheld our common planet – the earth. On Christmas Eve 1968 the American astronaut Bill Anders, who was inside the first space ship to orbit around the earth with a crew inside it, looked out of the window and took the picture that made history – our planet rising above the rim of the moon. This was the first time that a human being had been so distant from our common home as a separate, complete and distinct entity. This was an extraordinary experience that Anders commented on subsequently in the following way: 'We travelled so much to explore the moon...and the most important thing that we discovered was the earth'².

The photograph of Anders and of the subsequent Apollo mission became important pictures for the environmental movement and to such an extent they were chosen for the first 'Earth Day' of 1970. This picture was transformed into a symbol of beauty, isolation, frailty and life! When Bill Anders took these photographs from space, humanity entered a new geological era called the anthropocene era. This was an epoch when human beings began to go back to being protagonists, making themselves increasingly responsible for the transformation of the biophysical conditions of the planet. This moment in the history of man has also been described as a period of 'great acceleration'³, given the intensification in an exponential way of the impact of human activity on the natural systems of the earth.

² President Barack Obama to those taking part in the 146th. Annual meeting of the National Academy of Sciences: *Proc. Nat. Acad. Sci. U.S.A.* 2009; 106:9539-43.

³ Steffen W., Broadgate W, Deutsch L, Gaffney O., and Ludwig C., 'The Trajectory of the Anthropocene: the Great Acceleration', *Anthropocene Rev.* 2015; 2: 81-98.

Scientists who study the earth and its environment, indeed, engaged in an early diagnosis of contemporary circumstances and observed that human beings were creating a new and dangerous stage in the history of the earth described with the appellation ‘anthropocene’. We have entered a new geological epoch where human beings have been transformed into protagonists because of their creation of new biophysical conditions for our planet. This neologism was coined in the 1980s by the biologist Eugene Stoermer and in the year 2000 it was officially suggested by *Stoermer* and by the *Nobel Prize* winner for chemistry *Paul Crutzen* in the book *Welcome to the Anthropocene*. The term ‘anthropocene’ refers to the impact of human activity on all the aspects of the physical system of the earth and on life on the planet. We our warming up our planet in a dangerous way, leaving behind us that climate in which our civilisation was born and developed. Because of this sudden climate change, we run the risk of enormous losses at the level of harvests, the return of infectious diseases, an increase in the temperature of the earth, floods, and a rise in the levels of the sea. These catastrophic events have an influence on the social and environmental determinants of health such as clean air, drinking water, food, and our safe havens⁴.

The biophysical changes that have been taking place on the planet caused by the irresponsible and nefarious intervention of man have six chief forms:

- a. Disharmony with the global climatic system.
- b. A general pollution of the air, water and soil.
- c. A rapid loss of biodiversity.
- d. A reconfiguration of the bio- and geochemical cycles, including that of carbon, nitrogen and phosphorus.
- e. A perverse use of the resources of the earth.
- f. Scarce resources, amongst which are drinking water and arable land for agriculture.

What is at stake is specifically the future of life on planet earth.

Important planetary organisations have shown concern about the future of life and human health on the planet, for example:

- a. The World Health Organisation (*WHO*) and its programme for pollution and health.
- b. *The Rockefeller Foundation and Lancet* (a prestigious English scientific publication) which created a specialised *ad hoc* commission on health and pollution.
- c. The *programme for the environment of the United Nations*, with the recent document entitled ‘Towards a Planet without Pollution’.
- d. The *Catholic Church* which is concerned about the health of man (rare and neglected diseases and inequalities in global health) and of the planet (envi-

⁴ The Rockefeller Foundation – the Lancet Commission on Planetary Health, ‘Safeguarding Human Health in the Anthropocene Epoch: Report of the Rockefeller Foundation – Lancet Commission on Planetary Health’: cf. [www. the lancet.com](http://www.the-lancet.com), vol. 386 November 14, 2015, 1973-2016.

ronmental and ecological questions, with the publication of the encyclical *Laudato si'* on care for our common home).

Starting with these initial guidelines, our itinerary of this analysis is arranged around ten moments. 1) We will begin by concentrating on how the Catholic Church entered the debate about the important international questions connected with health, ecology and climate change. 2) The problem of biological extinctions. 3) and 4) Rare and neglected diseases and possible ways of treating them. 5) Addressing global health inequalities. 6) Global public health. 7) The concept of individual health ('one health'). 8) The concept of environmental health. 9) The development of concepts of health until the concept of 'planetary health'. 10) The pathway towards the construction of a sustainable future. We will begin our analytical journey with certain concerns advanced by the Catholic Church.

1. The church and global macro-questions relating to health, ecology and climate change

The Catholic Church, through the voice and prophetic actions of Pope Francis but principally through the publication of the encyclical *Laudato si': Care for our Common Home* (2015)⁵, has reawakened people's attention, and has joined with the wider international scientific community, to discuss together as partners the ecological problem and the future of the life on the planet.



Video message of Pope Francis shown during the Ted conference of Vancouver (Canada)

Let us now look at some examples of this ecological dialogue, a dialogue made up of a number of voices. 'Health of People, Health of Planet: Our Responsibility. Climate Change, Air Pollution and Health' – this was the subject of the workshop organised by the Pontifical Academy of Social Sciences (on 2-4 November 2017)⁶, which witnessed the participation of scientists from all over

⁵ Pope Francis, encyclical letter *Laudato si': on Care for our Common Home*, 2015.

⁶ The Pontifical Academy of Sciences, *Declaration – Our Planet, Our Health, Our Responsibility*. This declaration is based upon the data and concepts presented during the workshop entitled 'Health of People, Health of Planet and Our Responsibility. Climate Change, Air Pollution and Health'. This workshop was organised by the Pontifical Academy of Sciences at the Casina Pio IV, Vatican City, on 2-4 November 2017.

the world belonging to the most diverse areas of human knowledge. Over the last three years, the Pontifical Academy of Science and the Pontifical Academy of Social Sciences have held a series of international conferences connected with the subject of the deterioration of the environment, climate change, biological extinction and sustainable development. The participants in these meetings have been scientists, politicians, theologians, outstanding personalities, activists for the cause of ecology, believers and non-believers, and some world political leaders. We can say that we have before us a happy situation because when one is dealing with caring for, protecting and promoting life, and above all human health, we are faced with one of those universal ethical values that concern the whole of humanity independently of colour, party, culture, ideology, religion or nationality!

In order to draw our attention to our responsibility to human health and to the planet, this event, which took place at the end of 2017, sought to implement some fundamental aspects of the encyclical of Pope Francis, *Laudato si'*. The text produced by that event sought to address and perhaps to overcome the ecological-environmental crisis that we are going through today – a crisis that holds up a cloudy future for all the living beings of the planet.

We read as follows: 'The economic activities that contribute to global warming are also wreaking other profound damages, including air and water pollution, deforestation, and massive land degradation, causing a rate of species extinction unprecedented for the past 65 million years, and a dire threat to human health through increases in heart disease, stroke, pulmonary disease, mental health, infections and cancer. Climate change threatens to exacerbate the current unprecedented flow of displacement of people and add to human misery by stoking violence and conflict. The poorest of the planet, who are still relying on 19th century technologies to meet basic needs such as cooking and heating, are bearing a heavy brunt of the damages caused by the economic activities of the rich. The rich too are bearing heavy costs of increased flooding, mega-storms, heat extremes, droughts and major forest fires. Climate change and air pollution strike down the rich and poor alike. Burning of fossil fuels and solid biomass release hazardous chemicals to the air. Climate change caused by fossil fuels and other human activities poses an existential threat to *Homo sapiens* and contributes to mass extinction of species. In addition, air pollution caused by the same activities is a major cause of premature death globally'.

The 'solutions proposed', which must be adopted with responsibility by everyone at a personal and governmental level, are the following:

1. Health must be central to policies that stabilize climate change below dangerous levels, drive zero-carbon as well as zero-air pollution and prevent ecosystem disruptions.
2. All nations should implement with urgency the global commitments made in Agenda 2030 (including the Sustainable Development Goals) and the Paris Climate Agreement.

3. Decarbonize the energy system as early as possible and no later than mid-century, shifting from coal, oil and gas to wind, solar, geothermal and other zero-carbon energy sources.
4. The rich not only expeditiously shift to safe energy and land use practices, but also provide financing to the poor for the costs of adapting to climate change.
5. Rapidly reduce hazardous air pollutants, including the short-lived climate pollutants methane, ozone, black carbon, and hydro fluorocarbons.
6. End deforestation and degradation and restore degraded lands to protect biodiversity, reduce carbon emissions and to absorb atmospheric carbon into natural sinks.
7. In order to accelerate decarbonisation there should be effective carbon pricing informed by estimates of the social cost of carbon, including the health effects of air pollution.
8. Promote research and development of technologies to remove carbon dioxide directly from the atmosphere for deployment if necessary.
9. Forge collaboration between health and climate sciences to create a powerful alliance for sustainability.
10. Promote behavioural changes beneficial for human health and protective of the environment such as increased consumption of plant-based diets.
11. Educate and empower the young to become the leaders of sustainable development.
12. Promote an alliance with society that brings together scientists, policy makers, healthcare providers, faith/spiritual leaders, communities and foundations to foster the societal transformation necessary to achieve our goals in the spirit of Pope Francis's encyclical *Laudato si'*.

To implement these 12 solutions, we call on health professionals to: engage, educate and advocate for climate mitigation and undertake preventive public health actions vis-à-vis air pollution and climate change; inform the public of the high health risks of air pollution and climate change. The health sector should assume its obligation in shaping a healthy future. We call for a substantial improvement in energy efficiency; and electrification of the global vehicle fleet and all other downstream uses of fossil fuels. Ensure clean energy benefits also protect society's most vulnerable communities. There are numerous living laboratories including tens of cities, many universities...who have embarked on a pathway to cut both air pollution and climate change. These thriving models have already created 8 million jobs in a low carbon economy, enhanced the wellbeing of their citizens and shown that such measures can both sustain economic growth and deliver tangible health benefits for their citizens⁷.

The factors behind the reduction of air pollution have led to important signs of improvement in human health. The participants in this meeting, in the final

⁷ *Ibidem*.

document of this event, observed that it was essential to make possible the integrated plan to reduce drastically climate change and air pollution. Pope Francis in his encyclical *Laudato si'* says: 'Today, however, we have to realize that a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear *both the cry of the earth and the cry of the poor*'⁸. Another challenge is the need to find a better project for the cities of the future, in which the overwhelming majority of the world's population will live and whose outskirts must have the same services and benefits of other urban centres. Lastly, we must look for new ways of working together to construct a stable society. If in the past humanity has experienced enormous dangers and threats at a local level, today the danger and the threats have been expanded to a global level. In order to address this common threat we must learn to respect ourselves and build bridges of communication and cooperation.

The Vatican, through two of its important pontifical academies, that for sciences and that for social sciences, on 28 April 2015 after a certain fashion foreshadowed and prepared the ground for the publication of the encyclical *Laudato si'* (which saw the light of day in the month of June, together with the programme of the United Nations (UN) on the environment) by holding a seminar entitled 'Protect the Earth, Dignify Humanity. The Moral Dimensions of Climate Change and Sustainable Humanity'. In the final document of this event entitled 'Climate Change and the Common Good. A Statement of the Problem and the Demand for Transformative Solutions', we encounter the following worrying diagnosis of contemporary humanity: 'This century is on course to witness unprecedented environmental changes. In particular, the projected climate changes or, more appropriately, climate disruptions, when coupled with ongoing massive species extinctions and the destruction of ecosystems, will doubtless leave their indelible marks on both humanity and nature. As early as 2100, there will be a non-negligible probability of irreversible and catastrophic climate impacts that may last over thousands of years, raising the existential question of whether civilization as we know it can be extended beyond this century. Only a radical change in our attitude towards Creation and towards our fellow humans, complemented by transformative technological innovations, could reverse the dangerous trends that have already been set into motion inadvertently'⁹.

The use of fossil fuels and solid biomass are the principal sources of air pollution and cause climate change. The scientific studies on their effects on public health and contamination of the air go back to the year 1950. Today there

⁸ Pope Francis, encyclical letter *Laudato si' on Care for our Common Home*, 2015, n. 49.

http://w2.vatican.va/content/francesco/pt/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html. Consulted 23 December 2017.

⁹ Cf. 'Climate Change and the Common Good. A Statement of the Problem and the Demand for Transformative Solutions', 29 April 2015, the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences: <http://www.pas.va/content/accademia/en/events/2015/protectearth.html>

is enormous proof on how air pollution causes damage to health. Atmospheric pollution causes seven million premature deaths every year, principally because of ischemic cardiopathy, heart attacks, lung cancer, and chronic diseases of the respiratory systems in adults and acute respiratory diseases in children. Globally, 88% of the world's population breathes air that does not meet the minimum quality requirements of the World Health Organisation (WHO). Climate change increases the spread of vectors of diseases, food insecurity, malnutrition, mental health and migration. Lastly, in a not very distant future an increase in the impact on the health of the world's population caused by climate change is envisaged, together with a growth in that population.

Climate change is taking place in concomitance with other environmental changes which are on a grand scale, such as the using up of fresh water, changes in soil use and soil deterioration. Our survival entirely depends on the biodiversity that forms the ecosystems in which we evolve and which make our lives possible. We obtain all of our food from plants but about 100 out of an estimated 460,000 species meet 90% of our needs, directly or indirectly. About a fifth of the species of organisms are endangered by extinction but if current trends continue a half of all species could become extinct over the next century. The acidification and de-oxygenation of the oceans caused by the use of fossil fuels has an important impact on the coral reefs and fish, which feed about four billion people in the world. The acidity of the oceans has increased by about 30% because of the increase in CO₂ in the atmosphere. This desolate scenario is inevitably leading us to fatal consequences such as the extinction of biological species.

2. Concerning the danger of biological extinction

How can we save the natural world on which we depend for our lives? 'The current rate of loss of species is approximately 1,000 times the historical rate, with perhaps a quarter of all species in danger of extinction now and as many as half of them may be gone by the end of the present century. Since we depend on living organisms for the functioning of our planet, our food, many of



our medicines and other materials, waste absorption and the mediation of our climate, and for much of the beauty of the earth, these losses will inflict incalculable damage on our common prospects unless we control them. We have discovered and described less than one fifth of the species that are estimated to exist, and so

we are throwing away unknown potential and threatening the basic functioning of our planet.

Besides threatening millions of species with extinction, this enormous increase in economic activity based on profit and on the use of fossil fuels is putting huge strains on the earth's capacity to function sustainably. The most obvious associated signs include global climate change and the concomitant damages to the earth's system that it brings in its wake, such as sea level rise as well as ocean acidification and anoxia, these feeding back on biological extinction directly.

The human population of earth is marked by vast economic inequality. Thus the richest 19% of the world's people use well over half of the world's resources as measured by their consumption. Per capita income of the richest 1.4 billion people averages \$41,000; in sharp contrast, the poorest 1 billion people, in Sub-Saharan Africa, have an average income of \$3,500. The wealthy are thus substantially responsible for the increase in global warming and, consequently, the decrease in biodiversity. The poorest people, who do not enjoy the benefits of fossil fuels, are indirectly responsible for deforestation and some destruction of biodiversity, because their actions take place within a world economic system dominated by demands made by the wealthy, who have much higher overall consumption levels without paying any externalities to conserve global biodiversity. *In brief, the wealthy destroy the global habitat for their profit and the poor destroy the local habitat for their survival*'.

How can we invert this terrible picture in terms of consequences for the future of the planet? Those taking part in this event categorically stated that 'we need positive human action for the sustainable preservation of biodiversity. An inescapable condition for attaining global sustainability is wealth redistribution, because high levels of consumption anywhere have worldwide impacts on degrading the functioning of earth systems and destroying biodiversity. Ending extreme poverty, which would cost about \$175 billion or less than 1% of the combined income of the richest countries in the world, is one major route to protecting our global environment and saving as much biodiversity as possible for the future. This can be accomplished in individual poor regions. In the sea, the establishment of large protected marine reserves is another important element in the preservation of overall biological productivity. To accomplish this, we must follow the conciliatory moral principles outlined so well in the Encyclical *Laudato si'* that formed the inspiration for our meeting'¹⁰.

Moving rapidly from a zero energy CO₂ system, replacing coal, oil and gas with wind, solar and geothermic energy and other sources of energy with zero impact, and drastically reducing the emissions of all other climate polluters and adopting sustainable soil practices and uses, humanity can prevent catastrophic

¹⁰ Cf. Pontifical Academy of Sciences. *A Workshop on Biological Extinction: How to Save the Natural World on Which We Depend*, Casina Pio IV, 27 February –1 March 2017, 'Final Message'.

climate change, thereby reducing the enormous burden of illness caused by air pollution and climate change.

3. Rare and neglected diseases

The Pontifical Council for Health Care Workers, which on 1 January 2017 became a part of the new Dicastery for Promoting Integral Human Development, organised its thirty-first international conference in the Vatican on 10-11 November 2016. The title of this international conference was ‘Towards a Culture of Health that is Welcoming and Supportive at the Service of People with Rare and Neglected Diseases. Inform in order to know; know in order to inform; act in order to treat; treat respecting life and the dignity of the sick person and the environment. With an outlook of hope on the future’¹¹.

But what do we mean by rare and neglected diseases? According to the World Health Organisation (2016), ‘a disease is considered rare when it affects one person in every two thousand’. Researchers calculate that about 7,000 rare diseases exist in the world and these afflict between 6% and 8% of the world’s population. 80% of these diseases have a genetic origin. They very often endanger the life of the patient and are the cause of a great deal of suffering for the people who are their victims as well as their families. So-termed rare diseases affect about thirteen million Brazilians and the great majority of these diseases have a genetic origin. They cannot be cured but they can be treated. The World Health Organisation calculates that there are about 400 million people in the world afflicted by these diseases.

So-termed neglected diseases are diseases that cause serious health problems above all in the poorest populations of the world, in particular in Africa and Latin America. According to the Director General of the WHO, Dr. Margaret Chan, ‘they cause great suffering and are often concealed’. The phrase ‘neglected diseases’ was coined in 1986 by the North American doctor Kenneth Warren, a specialist in tropical diseases. The great majority of these diseases are caused by infections and they are most frequent in geographical areas with a tropical climate where there is no drinking water, in the presence of a low level of hygiene, with inadequate housing conditions and a lack of basic hygiene services. The WHO calculates that in the world there are more than 1.4 billion people afflicted by these diseases and 500 million of them, that is to say over 35%, are children.

Neglected diseases are also neglected by the great pharmaceutical companies and the agencies that allow access to medical producers. The same is true of government functionaries, public health programmes and the mass media. Usually, private pharmaceutical companies do not invest in this sector because, following their priorities, they are not able to recoup the high costs of the development and

¹¹ http://www.vatican.va/roman_curia/pontifical_councils/hlthwork/index_po.htm

production of the medical products that are needed for the treatment of these diseases. In essential terms, neglected diseases are not seen as a priority when it comes to their prevention, eradication or treatment because they do not have a significant impact on the populations of developed or industrialised countries such as the USA, Europe, Australia, Japan and others. These are diseases of the invisible part of the world which affect the poorest populations and as a consequence the people afflicted by such pathologies do not have the resources to pay for treatment and thus they are once again forgotten about. These diseases constitute 12% of the overall global disease burden but only 1.3% of new medical products were created to combat them (so-called ‘orphan medical products’) in the period 1974-2004. In the year 2015, the overall expenditure on health-care research was 160 billion American dollars, of which only 3.2 billion were allocated to dealing with so-called ‘poverty diseases’. At the present time, for the World Health Organisation there are seventeen diseases that are defined as neglected tropical diseases: 1. Buruli ulcer; 2. Chagas disease; 3. cysticercosis; 4. Dengue and dengue hemorrhagic fever; 5. dracunculiasis (guinea worm disease); 6. echinococcosis; 7. fasciolosis; 8. African trypanosomiasis (sleeping sickness); 9. leishmaniasis; 10. leprosy; 11. lymphatic filariasis; 12. onchocerciasis; 13. rabies; 14. schistosomiasis; 15. helminthiasis transmitted from the soil; 16. trachoma; and 17. boubu.

The WHO calculates that 2.4 billion people still do not have basic sanitation services such as bathrooms and latrines and over 660 million people continue to drink water from contaminated sources¹². We must ask ourselves how we can still see the process of economic globalisation as progress when today it still allows 1.2 billion people to live with less than 1.25 dollars a day

4. Possible ways of overcoming rare and neglected diseases

How can this chaotic state of affairs be overcome? In his address to those taking part in the international conference on rare and neglected diseases organised by the Pontifical Council for Health Care Workers, Pope Francis recognised the immense complexity of the problem and observed that ‘The challenge, from an epidemiological, scientific, clinical/care, hygienic and economic point of view is, therefore, enormous because it involves responsibilities and commitments on a global scale: international and national health-care and political authorities, health-care workers, the biomedical industry, associations of citizens/patients, and lay and religious volunteers’. For this reason, ‘a multidisciplinary and joint approach is necessary; an effort that calls on all the human realities involved,

¹² http://www.who.int/neglected_diseases/global-partners-meeting/en. http://www.paho.org/bra/index.php?option=com_content&view=article&id=5401:relatorio-da-oms-informa-progressos-sem-precedentes-contra-doencas-tropicais-negligenciadas&Itemid=812

whether institutional or otherwise. Amongst them there is also the Catholic Church which has always found a motivation and impulse in her Lord, Jesus

Christ, who was crucified and rose again, the figure both of the patient (*'Christus patiens'*) and the physician (*'Christus medicus'*, the Good Samaritan)¹³.

Pope Francis argued that to solve this problem of global health, 'wisdom of the heart' was needed. Together with scientific and technical study, the testimony of those who set themselves to work in the existential and geographical fringes of the world is of fundamental importance. Another observation of the Pope was connected with the subject of justice in the sense of 'giving to each his due'



¹³ Pope Francis, message to the participants in the XXXI international conference in rare and neglected diseases organised by the Pontifical Council for Health Care Workers, the Vatican, 12 November 2016: cf. http://w2.vatican.va/content/francesco/pt/messages/pont-messages/2016/documents/papa-francesco-20161112_conferenza-operatori-sanitari.html

and avoiding forms of discrimination. At the same time, there must be access to effective treatment because of the needs of health, independently of socio-economic, geographical and cultural factors. Here three fundamental principles of the social doctrine of the Church were invoked. The first is the principle of sociality, according to which the good of the person reverberates through the community. Therefore, care for health is not only a personal responsibility but also an example of good social responsibility. The second principle is that of subsidiarity which, on the one hand, supports, promotes and develops socially the capacity of each person in attaining fulfilment and his or her legitimate and good aspirations, and, on the other, comes to the aid of a person where he or she is not able on his or her own to overcome possible obstacles, as is the case, for example, with illness. And, lastly, there is the principle of solidarity, by which health-care strategies should be directed towards the person and the common good.

The Pope ended his message by saying: ‘On these three cornerstones, which I believe can be shared by anybody who holds dear the eminent value of the human being, one can identify realistic, courageous, generous and supportive solutions to addressing even more effectively, and to solving, the health-care emergency of ‘rare’ and ‘neglected’ diseases’¹⁴. From rare and neglected diseases let us now move on to the question of global health inequalities.

5. Addressing global health inequalities

The new Dicastery of the Holy See for the Promotion of Integral Human Development, in cooperation with the International Confederation of Catholic Health-Care Institutions, on 16-18 November 2017 held the thirty-second international conference which was on ‘global health inequalities’¹⁵.

The objectives of this important event of the Catholic Church, which was open to all those who are interested in the ‘promotion of health’, were ‘Informing in order to know; knowing in order to act; acting in order to treat; treating in a way that respects life and the dignity of the sick and the environment, with the wished-for prospect of a global network response in order to address the international challenges of inequalities’.

The data of some international studies call our attention to factors that lie behind global health inequalities. Let us have a look at certain data: life expectancy increased by five years between 2000 and 2015. The greatest increase took place in the region of Africa (over 9.4 years) as a consequence of the increase in the survival of children, advances in the control of malaria, and increased access to anti-retrovirals for the treatment of HIV/AIDS. Life expectancy for children born in the year 2015 was 71.4 years (73.8 years for females and 69.1 years for

¹⁴ Pope Francis, *ibidem*.

¹⁵ Cf. www.vatican.va

males). However, these studies demonstrate that the gap between low- and high-income countries is continuing to grow. Indeed, children born in 29 countries – all high-income countries – have an average life expectancy of 80 years or more (the highest is 86.8 years for Japanese women), whereas neonates in 22 countries in sub-Saharan Africa have a life expectancy that is less than 60 years, with the lowest rate in Sierra Leone of 50.8 years for women and 49.3 years for men.

The challenge that humanity has to address to overcome this situation of illness and death is gigantic. Just to remind us of what happens every year: 300,000 women die because of complications linked to pregnancy or during childbirth; almost six million children die before the age of six; two million people have HIV/AIDS; there over 9.6 million new cases of tuberculosis and 214 million cases of malaria; 1.7 billion people need treatment for neglected tropical diseases; more than ten million people die before the age of 70 because of cardiovascular diseases and cancer; 800,000 people commit suicide; more than a million people die because of road accidents; 4.3 million die because of pathologies connected with pollution caused by fuels used for cooking; and three million people die because of air pollution.

The report *World Health Statistics 2016* of the World Health Organisation states that these challenges cannot be overcome without addressing the risk factors that contribute to the development of these pathological conditions: 1.1 billion people smoke tobacco; 156 million children under the age of five are stunted and 43 million children under the age of five are obese; 1.8 billion people drink contaminated water; 946 million people do not have sanitation services in their homes; and 3.1 billion people use polluting fuels to cook¹⁶.

6. World public health: the latest developments¹⁷

The final declaration of the fifteenth world congress on public health, which was entitled ‘Demand for Action – Melbourne 2017’, defines public health as ‘the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society. Health systems and public health functions can be treated as global public goods. It is the role of public health professionals and their organisations to contribute to: improving health outcomes for all; fighting inequity as the primary driver of poor health, with particular emphasis on women,

¹⁶ World Health Organization (WHO). *World Health Statistics 2016. Monitoring Health for the SDGs – Sustainable Development Goals*. Geneva, World Health Organization, 2016. See also: World health statistics 2017: monitoring health for the SDGs, Sustainable Development Goal., Geneva, World Health Organization 2017: cf. www.who.int

¹⁷ The fifteenth world congress on public health was organised in Melbourne in Australia on 3-7 April 2017 and its general subject was ‘Voices-Vision-Action’. In the final documents the fiftieth anniversary of the World Federation of Public Health Associations (1967-2017) was also commemorated. <http://wcp2017.com/media-release-13-demand-for-action.php>. Consulted on 15 December 2017.

children, indigenous peoples as well as poor and marginalized communities, demanding political, social, environmental and economic change across all sectors for better and more sustainable health'¹⁸.

The fourteenth world congress on public health was held in Kolkata in India in April 2015 and addressed the subject 'Healthy People – Healthy Environment', with the aim of taking 'urgent action to mitigate environmental conditions that are contributing to the deaths and diseases of millions of inhabitants of our small planet'. The delegates drew up a declaration entitled 'The Kolkata Call to Action' in which it was stated that '*the time for study and debate is past* for the vast majority of the social, environmental and economic killers that stalk human kind. *The time for action has arrived*' (my italics)¹⁹. I will now highlight some fundamental aspects of this 'Kolkata Call to Action', namely:

- a. *The social, economic and environmental determinants of disease* – We have before us an unfinished agenda as regards the millennium development goals (2000-2015) and we have begun another programme for the next fifteen years – the Agenda 2030 for sustainable development. Political, economic, social and environmental development is in itself a consequence of social equity. This means the promotion of the quality of life of citizens at all stages of life. Health is one of these concepts of political, economic, social and environmental equity. Health cannot be solely purchased by the rich, but is, rather, a fundamental human right of the whole of humanity, and especially of most vulnerable humanity which lives in situations of poverty and a lack of resources. Here there must be a priority in terms of assistance. Without this commitment, diseases will increase and everyone will be at risk. The epidemic of Ebola in West Africa illustrates the challenge. This disease spreads rapidly because of poverty. There is a lack of community infrastructures such as clean water and sanitation services, buildings, equipment and qualified health-care professionals. Without these facilities, this disease spreads rapidly.
- b. *Climate and health* – The threat to human health caused by global warming derived from climate change is one of the greatest challenges of this century. The responsibility for this is completely human as regards the warming caused by the use of energy generation through fossil fuels, and coal in particular. We are faced with the need to mitigate these effects, as well as air pollution, to protect the lives of thousands of people at risk. They are the poorest people of the world who live in the poorest countries of the planet and suffer. We need sustainable and renewable energy technologies. Health depends on the good functioning of the earth's ecosystems and the sustainability of its resources.

¹⁸ Demand for Action- Melbourne 2017. <http://wcph2017.com/media-release-13-demand-for-action.php>

¹⁹ The Kolkata Call to Action Healthy People – Healthy Environment. https://www.wfpha.org/images/declarations/150216_Kolkata_Call_to_Action_FINAL.pdf. Consulted 23 December 2017.

- c. *Non-communicable diseases (NCDs)* – Tobacco, alcohol and obesity. These are the so-called ‘diseases linked to lifestyle’. The constant increase in illnesses such as cancer, diabetes and cardiovascular disease associated with poor diets and the continued use of tobacco and alcohol illustrates the need for urgent measures. What is needed is a strengthening of community action to influence physical exercise and lifestyle and a greater control of tobacco, alcohol, obesity, bad oral health, exposure to chemical substances, and the occupational environment.
- d. *Universal health coverage* – The risks outlined above fall unevenly upon the poorest countries and people, as does the lack of adequate access to health care and a lack of awareness on the part of citizens, that is to say a lack of recognition that health care is a fundamental right of human beings. Those taking part in this congress re-affirmed the commitments made at the previous declarations of the previous congresses: in Istanbul, on the subject ‘Health, the First Human Right’ (2009)²⁰; in Rio de Janeiro, on the subject ‘Social Determinants of Health’ (2011)²¹; the Declaration of Bangkok on ‘Universal Health Coverage’ (2011); and the Declaration of Addis Ababa on ‘Equity in Global Health: Opportunities and Threats’ (2012)²².

We have to improve analyses and study but this is also the moment when we should ‘roll up our sleeves’, protect the health of the population and call everybody to action. Theory and science are absent in this field and it is urgently necessary to implement them in the practices of public health and spread a new concept which is not as yet popular: that of ‘One Health’. Such is the next subject of my analysis.

7. Information on the concept of one health, as something that is global²³

What do we mean by human health? In general, people remember the definition of the World Health Organisation (WHO) of 1948, according to which human health is ‘a state of complete physical, mental and social wellbeing and not only the absence of illness and infirmity’. The definition of health is a very important concept because it is on this that governments and the agencies that deal with civil society base themselves and organise themselves in terms of infrastructures and

²⁰ Declaration of Istanbul – *Health: the First Human Right*. *Cad. Saúde Pública* vol.25 no. 9 Rio de Janeiro Sept. 2009. *On-line version* ISSN 1678-4464. <http://dx.doi.org/10.1590/S0102-311X2009000900022>.

²¹ Rio Political Declaration on Social Determinants of Health. <http://www.who.int/sdhconference/declaration/en/>. Consulted on 23 December 2017.

²² The Addis Ababa Declaration on Global Health Equity: A Call to Action. https://www.wfpha.org/images/declarations/Addis_Declaration.pdf. Consulted on 23 December 2017.

²³ One Health Global Network, ‘What is one health? One Health: a concept that became an approach and then a movement’: cf. <http://www.onehealthglobal.net/what-is-one-health/>.

finance in order to meet this need. This definition of the World Health Organisation has been very much criticised by the academic world because it is a concept that is too idealistic, utopian, and practically unobtainable: after all, what is ‘complete wellbeing’ and is it possible to measure this? Such are the questions that

have been posed. Despite all the criticisms, this definition continues to be appreciated and demonstrates to us a horizon of meaning to be pursued: to say that we are healthy, it is not enough to say we are not sick²⁴.

Experts on public health are unanimous in declaring that human health cannot be seen separately from the broader context in which human beings live. Human health is bound up with social determinants and with the cosmic and ecological environments (animals, plants, etc.). In this context new insights about health and definitions of health are born. These constitute an overall and more correct scientific vision of what health is that protects humanity as a whole from epidemics and pandemics which, indeed, often push entire populations into a state of panic. There thus emerges the concept of ‘one health’.

The concept of ‘one health’ comes from the English language and its author is the American veterinary physician Dr. Calvin W. Schwabe (1927-2006) who in 1984 published his work ‘Veterinary Medicine and Human Health’ in which he discussed the importance of the connection and interdependence of human health, animal health and environmental health. In his book, Schwabe adopted the phrase ‘one medicine’ and continued to defend this new concept of his which shortly afterwards was re-baptised as ‘one health’. This new term gradually acquired greater visibility and importance in scientific discussion, in the field of epidemiology, and in the world of global public health, at meetings of planetary health-care agencies and at international congresses. The term ‘one health’, translated by ‘*Saúde Única*’ in Portuguese, refers to the integration of human health, the health of animals and the health of the environment, and the adoption of public policies that are effective in the prevention and control of illnesses and diseases. Human beings and animals will not be healthy if the environment in which they live is ‘sick’. This vision, which leads to the concept of ‘one health’, seeks to increase communication and cooperation between health-care professionals when it comes to humanity, the animal world, and the environment.

In 2007, during the international conference on pandemic bird flu that was held in India (New Delhi), governments were encouraged to apply the concept of ‘one health’ and create bridges between the human, animal and environmental systems. The next year, international organisations such as the World Organisation for Animal Health (OIE), the World Health Organisation (WHO), and the United Nations Organisation for Food and Agriculture (FAO), began to develop

²⁴ On the concept of health see: Moacyr Scliar, ‘História do Conceito de Saúde’, *PHYSIS: Revista de Saúde Coletiva*, Rio de Janeiro, 17 (1)29-41, 1007; Marco Segre and Flavio Carvalho Ferraz, ‘O conceito de saúde’, *Rev. Saúde Pública*, 31 (5):538-42, 1977; Naomar de Almeida Filho, *O que é saúde?*, (Rio de Janeiro, Fio Cruz Editora, 2013).

joint strategies based upon this new concept of health which seeks to reduce the risk of the outbreak and spread of infectious diseases derived from direct contact between animals, man, and ecosystems²⁵.

At the present time, of the 1,461 diseases known to afflict man, about 60% are related to animals and are caused by pathogens that have the capacity to circulate amongst different species. Over the last thirty years, 75% of the new infectious diseases that have afflicted man have been animal-related, that is to say diseases transmitted from animals to man (for example rabies). Today, we have before us a context in which various factors foster the emergence and spread of these animal-related diseases.

The term ‘one health’ is of recent use but the concepts that underlie it are much older. The German pathologist Rudolf Virchow (1821-1902) stated as early as the nineteenth century that there are no partitions between animals and human medicine and that there should not be. Virchow was responsible for coining the term



The falls at Iguazú (Brazil-Argentina)

‘zoonosis’. For the whole of the next century scientists connected with various specialisations found similarities between infectious processes caused by illnesses found in men and in animals. However, human medicine and veterinary medicine

²⁵ *One Health*: Food and Agricultural Organization of the United Nations Strategic Action Plan, FAO/United Nations, Rome, 2011. The approach of this agency of the UN is in line with the concept of ‘one health’.

followed their trajectories with practices that were totally independent of each other. Only in recent years have we witnessed a major effort to draw these two areas of knowledge closer together.

Some of the great discoveries of the history of medicine and public health took place thanks to the study of human and animal health. For example, the British physician Dr. Edward Jenner (1749-1823) found that milk products were immune to smallpox because they had what was termed cowpox. He applied this concept to practice and coined the term ‘vaccination’, which comes from the Latin word ‘*vacca*’, which means cow. About two centuries later, the vaccine of Dr. Jenner was used to eradicate smallpox from the world’s entire population.

The concept of zoonotic diseases is a very old one. During the history of humanity there have always been viruses and bacteria transmitted from animals to man. The difference is that today there are some factors which are highly favourable to the outbreak of these diseases. Closer contact between men and animals, and in particular wild animals, is one of these factors. The deterioration of the environment and the increase in the population have intensified contacts between different cultures, populations and animals in their habitat, and this has notably favoured the transmission of infectious agents. More rapid means of transport, and the facility and the speed with which people move on the planet, are a factor that is relevant in the spread of diseases. An interesting aspect, which is not directly correlated to the transmission of diseases but which has a strong impact on public opinion and which even leads to panic, is the fundamental role of the mass media in these situations.

Today we learn almost immediately if someone is sick in another part of the world. In a few days or weeks it is possible to have accurate information about health-care events in any part of the planet. It is a good thing to think of the importance of the spread and use of this information. On the other hand, it often generates disproportionate concerns for the population of the world. You will remember what happened with the news about the epidemic of Ebola in West Africa in 2015, bird flu caused by the H5N1 influenza, and SARS, which, indeed, provoked authentic panic in the population in the countries in which they broke out and amongst global travellers.

Medical experts affirm that discoveries in the field of veterinary medicine can be of advantage to human medicine and vice versa. As is the case with human beings, an increase in canine obesity has led to an increase in diabetes. Studying the similarities and the differences between the diseases of species can lead to important information about the advance, the treatment and the control of diseases.

There are many advantages when an attempt is made to implement policies of public health care that are aligned with this new concept of ‘one health’. These advantages include: a) an improvement in animal and human health throughout the world through cooperation between all the health sciences, and in particular between the professionals of human medicine and veterinary medicine, in order to address key questions. b) Meetings and discussions about how to address the

new global challenges through cooperation between a number of sectors: veterinary medicine, human medicine, environmental health, the health of wild fauna, and public health. c) The creation of centres of excellence for the education and training of professionals in specific sectors through greater cooperation between universities and schools of veterinary medicine, human medicine, and public health care. d) The use of the scientific knowledge of the various disciplines involved in addressing health-care challenges through the development of innovative programmes that contribute to improving the health of all – human beings, animals and mother earth.

Whatever the case, why should the concept of ‘one health’ be taken seriously? Here are some reasons that have been made clear by experts: a) about 75% of all the human infectious diseases that have emerged over the last three decades come from animals. b) Environmental health can influence human and animal health through contamination, pollution, and conditions of poverty that can create new infectious agents. c) It is envisaged that the world’s population will grow from the current 7.3 billion (2017) to 9 billion by 2050. d) As regards the provision of adequate care, food and water for the growing population of the world, the health-care professions and their related disciplines as institutions must work together. e) The man-animal nexus has a beneficial effect on human and animal health. After these observations about public health and individual health, we will now address what we mean by ‘environmental health’ and its importance for human health.

8. The concept of environmental health²⁶

According to the World Health Organisation (WHO), environmental health covers aspects of the human physical condition that include quality of life and are determined by physical, chemical, biological, social and psycho-social factors of the environment. Reference is also made to the practice of assessing, correcting, controlling and preventing those environmental factors that have a negative influence on the health of present and future generations.

Human health and wellbeing are strictly connected with the quality of the environment. This is important and well demonstrated by the consequences that have been described, for example 24% of life years lost because of disability and 23%

²⁶ The contents of this article on environmental health and an interview by Sucena Shkara Resk published on the blog ‘Citizens of the World’, 01-12-2017. The person interviewed was the medical doctor Telma de Cassia dos Santos Nery. Telma has a long experience in her career in the fields of social prevention, work and environmental health. A member of the executive committee of the Latin American and Caribbean section of the International Society for Environmental Epidemiology (ISEE), she also works as a university lecturer and medical doctor and is a member of the Paulista Forum which combats the effects of agrochemical and transgenic products (cf. <http://cidadaosdomundo.webnode.com/news/medica-sanitarista-telma-nerly-fala-sobre-o-universo-da-saude-ambiental-com-destaque-sobre-os-impactos-dos-agrotoxicos>).



National park of the Grand Canyon (Arizona)

of premature deaths throughout the world attributable to exposure to avoidable environmental and occupational risks. Pollution is one of the greatest existential challenges of our time given that climate change, the loss of biodiversity, the acidification of the oceans, desertification, the depletion of reserves of drinking water and pollution endanger the stability of the support systems of the earth and jeopardise the survival of human societies²⁷.

The report of the Environmental Agency of the United Nations published on 16 November 2017 offers figures that are quite simply alarming in terms of the loss of human lives. Pollution of nature is responsible for a quarter of all human deaths every year – 12.6 million. At the present time, air pollution kills 6.5 million people a year and in 80% of urban centres the quality of the air does not meet the health standards laid down by the United Nations. Even when a person does not live in one of these cities, it is likely that they are one of the 3.5 billion people who depend for food on polluted seas or belong to that part of the world's population that does not have access to adequate hygiene services – two billion people. The largest waste dumps of the planet endanger the lives of over 64 million people. Every year 600,000 children endure brain damage because of the presence of lead in paint. Over 80% of the world's waste water is put into the environment without being treated and pollutes the land used by agriculture

²⁷ The Lancet Commission on Pollution and Health, Executive summary, published online on 19 October 2017: cf. www.thelancet.com. [http://dx.doi.org/10.1016/S0140-6736\(17\)32345-0](http://dx.doi.org/10.1016/S0140-6736(17)32345-0).



Dam at Itaipú-
Iguazú (Brazil)

and lakes and rivers that supply 300 million people²⁸. In the classification of the World Health Organisation, respiratory infections caused by air pollution and passive smoking are the fatal factors that are most incisive, killing no less than 570,000 people every year. Diarrhoea, which can be easily reduced by policies to improve basic hygiene, claims at least 361,000 victims every year. Furthermore, more than 200,000 people die because of malaria, a disease that can be prevented with environmental measures.

According to a report of the WHO entitled ‘Inheriting a Sustainable World? Atlas on Children’s Health and the Environment’(2017), the principal causes of the deaths of children are the following:

- 570,000 children under the age of five die because of respiratory infections such as pneumonia attributed to domestic and external pollution and cigarette smoke.
- 361,000 children under the age of five die because of diarrhoea caused by bad access to treated water and to poor sanitation services.
- 270,000 children die during the first month of life because of complications such as prematurity which could be prevented through access to treated water, sanitation services and health-care units.

²⁸ United Nations Environment Assembly of the United Nations Environment Program, Towards a pollution-free planet, Report of the Executive Director, Third session. Nairobi, 4-6 December 2017: cf. <http://www.unep.org/assembly/backgroundreport>.

- 200,000 children under the age of five die because of malaria where this could be prevented through environmental initiatives such as the reduction of centres for the reproduction of mosquitoes and improvements in sources of drinking water.
- According to the World Health Organisation, 200,000 children under the age of five die because of non-intentional lesions attributed to the environment in which they live, such as poisoning, falls and drowning. In the year 2015, 5.9 million children under the age of five died in the world. Of these deaths, 26% were linked to environmental factors²⁹.

According to the commission on pollution and health of *The Lancet*, ‘Pollution is the largest environmental cause of disease and premature death in the world today. Diseases caused by pollution were responsible for an estimated 9 million premature deaths in 2015 – 16% of all deaths worldwide – three times more deaths combined than from AIDS, tuberculosis, and malaria and 15 times more than for all wars and other forms of violence: In the most seriously affected countries, pollution-related disease is responsible for more than one death in four’³⁰.

Environmental factors also have an impact: 25% to 30% of the burden of illness is linked to environmental factors (WHO), 23% of all deaths, 36% of illness of children between the age of 0 and 4 and 37% of deaths of children of the same age band, according to the PAHO. It is important for every citizen to have information about the risks caused by the impact of the environment on our lives and for the state, which has an obligation to protect public health, to adopt strategies for environmental health. To act in the field of environmental health directly means the reduction of the burden of preventable illnesses and premature deaths. Amongst the principal environmental factors there are illnesses caused by the consumption of, use of, and exposure to, chemical substances, in particular pesticides. Brazil was the greatest consumer in the world of these products in 2008-2009.

The principal challenges to improve the system of health-care surveillance, according to the medical doctor Telma de Cassia dos Santos Nery, ‘involve the use of the information that is available to achieve effective action. We already know the various and grave effects of pesticides on human health. We need these consequences to be notified; measures of public health should be activated; and pesticides that are known to cause cancer should be prohibited within nations because they have grave effects on human health. They should be banned’³¹.

²⁹ World Health Organisation, ‘Inheriting a Sustainable world? Atlas on Children’s Health and the Environment’, 2017: cf. source:

Saúde - iG @ <http://saude.ig.com.br/2017-03-06/oms.html>

³⁰ The Lancet Commission on Pollution and Health, Executive summary, published online on 19 October 2017: cf. www.thelancet.com. [http://dx.doi.org/10.1016/S0140-6736\(17\)32345-0](http://dx.doi.org/10.1016/S0140-6736(17)32345-0).

³¹ Cf. Telma de Cassia Dos Santos Nery, interview published in the Blog *Cidadãos do Mundo*, 1 December 2017.

Is there a way out of this situation? Ligia Noronha, one of the coordinators of the report, has emphasised that the production and sustainable consumption are of fundamental importance in reducing pollution: ‘the only answer to the question as to how we can all survive on this planet with our health and dignity intact is for us to change radically the way in which we produce, we consume and we live our lives’³².

9. The evolution of concepts of health: public health, international health, global health and lastly the new concept of ‘planetary health’

The field of global health as an emerging discipline has important precedents such as public health and international health. Public health directs attention to society as a whole, to an inter-disciplinary approach and to activity to promote, prevent and restore human health. The concept of international health, which was coined in 1913 by the Rockefeller Foundation (New York, USA), in fundamental terms is characterised

by actions developed to prevent and control contagious infectious diseases; the fight against malnutrition, against the death of mothers at childbirth and afterwards and the death of children; and activity involving technical assistance, in particular in less developed countries. Traditional international health, instead, was based upon medical and biological aspects and on positive relations between developed countries and poor countries.

During the last decades of the twentieth century, the (complex and polysemous) term of ‘global health’ became consolidated. Global thought and global action are of fundamental importance because the various contemporary problematic realities of health such as influenza, SARS, tuberculosis that is resistant to treatment by medical products, malaria, polio and dengue do not respect national boundaries.



The Rockefeller Foundation-Lancet Commission on Planetary Health (July 2015)

³² Cf. Ligia Noronha, *Poluição ambiental causa 12,6 milhões de mortes ao ano no mundo*: cf. www.onu.org.br

Their study requires us to engage in joint work and action and achieve the cooperation of all the nations on the planet³³.

Jeffrey P. Koplan defines global health ‘as an area of study, research and practice that gives priority to health and the achievement of fairness in health for all the inhabitants of the planet. Global health emphasises transnational health-care problems, their determinants and solutions, involves a number of disciplines within and beyond the health sciences, and promotes interdisciplinary collaboration. It is a synthesis of prevention based upon clinical assistance for the population at an individual level’³⁴.

In the view of Judith Rodin, the current president of the Rockefeller Foundation, the work of the Rockefeller and Lancet commission on planetary health has increasingly believed that public health as a discipline did not pay sufficient attention to climate change and its effects on our wellbeing: ‘We had the idea of integrating thought about the health of the planet with thought about human health’, Rodin explained, ‘In our global governance and also in our private sectors, we did not assess ecosystems as a global good. We treated it as a free good. In this way, we concentrated on problems of the air, the soil and water. Up to that moment nobody thought that they had control over them’³⁵.

In conjunction with this conversion, which explains the birth of the new concept of ‘planetary health’, Judith Rodin, a grant-receiver with a post-doctorate in psychology, introduced the term ‘resilience’ and became an enthusiastic proclaimer of the ‘gospel of resilience’. What is this? She defined it as ‘the capacity of people and organisations to deal with disasters, repair the damage, whether this is structural or social, learn from this experience and continue to prepare better for the next time’³⁶.

³³ Paulo Antonio de Carvalho Fortes when discussing the ethical value of public health, *Saúde Sociedade*, vol. 24 supl.1 São Paulo abr./jun.2015. This author who is a doctor in public health and a bioethicist, as well as the former president of the Brazilian Society of Bioethics, offers three ethical values that guide the field of public health: social justice, equity and solidarity. The objective of global health is to reduce inequalities and the social and health-care inequalities that exist in the world, offering to this field a direction based on the value of equity. I will now try to comment briefly on one of these values: equity. Equity, differently from the principle of equality, addresses differences, such as avoidable and useless social inequalities, in the search for what is just. Equity is said to be the attempt to ‘treat the unequal in an unequal way’ according to their needs. Global health directed towards equity should be developed to eliminate or at least reduce useless, avoidable and unfair inequalities that exist amongst human beings. The militants of this area of public health lay emphasis on the assumption of ‘justice as fairness’ as formulated by John Rawls in the 1970s. ‘To ask how things are and if they can be improved is a constant and indispensable element in the search for justice’ observes Amartya Sen: *A ideia de justiça* (São Paulo, Companhia das letras, 2011).

³⁴ Jeffrey P. Koplan, ‘Towards a Common Definition of Global Health. Viewpoint’, cf. www.thelancet.com, vol. 273 June 6, 2009.

³⁵ Geoff Watts, ‘Judith Rodin: on the Path to Resilience in Planetary Health’, www.thelancet.com. Vol. 386 November 14, 2015, p.1936

³⁶ Geoff Watts, *ibidem*, p. 1936. The glossary of the document of the Rockefeller Foundation and the Lancet Commission on Planetary Health defines the term ‘resilience’ as ‘the capacity of an entity – a

The document of the Rockefeller Foundation and the Lancet commission on public health defines planetary health in the following way: ‘The concept of planetary health is based upon the understanding that human health and human civilization depend on the flourishing of natural systems and a good management of natural systems’. The document goes on and seeks to clarify this new concept, observing: ‘The definition of health of the WHO is ‘a complete state of physical, mental and social wellbeing and not only the absence of illness or infirmity’. Our definition of planetary health wants to achieve a higher standard of health, of wellbeing and of world equity through special attention to the political-human and socio-economic systems that model the future of humanity and the natural systems of the earth, in addition to defining the limits of a secure environment within which humanity can prosper. Defining it in a simple way, planetary health is the health of human civilisation and the state of the natural systems on which it depends’³⁷.

The concept of planetary health places us in a new field of ethics. It teaches us that everything is interconnected on this planet, both the people who are now living and the people that will live as future generations. Every decision that we take about what to eat, how to move around, where to go for our holidays, what we buy, whether we should have a domestic pet or not, or also whether we should have a child, influences our natural planetary system. As a consequence, it also influences the health and the wellbeing of every person on the planet. The impact of each individual decision is infinitely minimal but its collective impact is enormous³⁸. The new concept and the vision of health as planetary health also highlights problems relating to fairness. And as regards fairness or equity, we may remember that this concept is at the centre of the agenda for sustainable development for 2030, which means ‘nobody should be left behind’. In many cases the poorest people of the world and those with least resources at institutional, cultural, governmental or philanthropic levels, must be helped because they are the most vulnerable to environmental conditions that are undergoing rapid change. It is the poorest people with deficient diets who will be pushed towards a worsening of their nutrition, towards areas with higher concentrations of CO₂, which are increasing as a result of the emissions of coal in the world. Future generations will suffer the consequences of today’s unsustainable models of consumption. This

person, a community, an organization or a natural system – to prepare for interruption, to recover from a shock or stress, and to adapt and grow starting from this fragmented experience’.

³⁷ The Rockefeller Foundation – Lancet Commission on Planetary Health, ‘Safeguarding Human Health in the Anthropocene Epoch: Report of the Rockefeller Foundation – Lancet Commission on Planetary Health: cf. www.thelancet.com, vol. 386 November 14, 2015, 1973-2016.

³⁸ The creative initiative of the UN, ‘The Environment’, is curious and surprising. This initiative seeks to value and spread the importance of the direct action of individuals in this global and planetary context, with the launch of the ‘Guide to Save the World’! There are 42 suggestions available for anyone who can contribute to improving the life of the planet. In terms of marketing, it is emphasised that ‘change begins with you’ and ‘don’t pollute my future’!

disconnection between those who benefit and those who endure its consequences is profoundly unjust. We must redouble our efforts to place humanity on a new trajectory in the management of the natural systems of the earth. This is not simply a question of health – it is an ethical imperative! ‘We need to broaden the domain of public health to include the way in which we manage the natural system of our planet: which kinds of cities we build, how we produce energy, how we feed ourselves and how we protect our marine and land biodiversity. In the context of planetary health, the boundary between public health and other aspects of human



Le cascate dell’Iguazú (Brasile-Argentina)

activity becomes more porous. In short, we will need a new paradigm³⁹. And this paradigm is the concept and vision of ‘planetary health’.

This new paradigm identified a series of threats to health and requires a new science to address priority research (Samuel S. Myers sees planetary health as a ‘new field of research’). In what way do multiple changes, biophysical developments, from the loss of biodiversity to the shortage of land and water to climate change, influence the quality and the quantity of food that we can produce? Whose health is put at risk? In what ways will changes in the global climate and in the use of soil influence our future exposure to infectious diseases? What are the consequences in terms of the movement of populations and conflicts derived from

³⁹ Samuel S. Myers, ‘Planetary Health: Protecting Human Health on a Rapidly Changing Planet’, p. 7: cf. www.thelancet.com, published online on 13 November 2017.

interaction between the raising of sea levels and the growing occurrence of extreme and dangerous natural events with ruined harvests and scarce resources? What can be done to help the most vulnerable people? These problems will need researchers and health-care workers. Urban experts will be needed, as will planners for urban areas, civil engineers and agronomists, as partners in achieving planetary health, and the same may be said for medical doctors, nurses and epidemiologists⁴⁰.

Like every new concept, the concept of ‘planetary health’ acquires various nuances in the attempt to obtain a better definition, a better understanding and subsequent practical application. In this sense, the argument of Richard Horton, Robert Beaglehole and others is illuminating. In commenting on the report of the Rockefeller Foundation and the Lancet commission on planetary health they observe: ‘Planetary health is an approach to life, it is a philosophy of life. It assigns priority to the person, not to illnesses, and to fairness not to the creation of unjust societies. It seeks to reduce to the minimum differences in health based upon wealth, instruction, gender and place. It supports knowledge as a source of social transformation and the right to self-fulfilment and, progressively, the achievement of a higher standard of health and wellbeing!’

‘We know that we have a planet that feeds and sustains life diversity, by which we live and on which we depend. Our objective is to create a movement for planetary health’. To reach this goal, ‘an urgent transformation of our values and our practices is necessary which must recognise our interdependence and interconnections and the risks that we are facing. We need a new vision of cooperative and democratic action at all levels of society and a new planetary principle of wellbeing for every person on the earth. We must conserve, support and make resilient human and planetary systems, where health is achieved by giving priority to the wellbeing of everyone’⁴¹.

The health-care dimension is a fundamental aspect for the progress of the agenda 2030 of the United Nations and for sustainable development. Amongst the seventeen goals, the third relates to health and wellbeing: guaranteeing a healthy life and promoting wellbeing for everyone and all ages⁴².

⁴⁰ Samuel S. Myers, *ibid.*, p. 7.

⁴¹ Richard Horton and Robert Beaglehole *et al.*, ‘From Public to Planetary Health: a Manifesto. Comment’: cf. www.thelancet.com, vol. 383 March 8, 2014, p. 847.

⁴² By the year 2030 the following is envisaged: 3.1) reducing the overall rate of maternal deaths to less than 70 deaths every 100,000 live births; 3.2) avoiding the avoidable deaths of neonates and children under the age of five, with all countries aiming to reduce neonatal deaths to at least 12 every 1,000 live births, and death rates of children under the age of five to at least 25 every 1,000 live births; 3.3) ending the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combating hepatitis, water-borne diseases and other transmissible diseases; 3.4) reducing premature deaths caused by non-transmissible illnesses through prevention and treatment by a third and promoting mental health and wellbeing; 3.5) improving the prevention and treatment of substance abuse, including the use of drugs and the injurious use of alcoholic drinks; 3.6) by the year 2020 reducing by a half the victims of road accidents at a global level; 3.7) assuring universal access to sexual and reproductive health services, including family planning, information and instruction, as well as the integration of reproductive health

10. Is there hope that we can build a sustainable future? looking ahead and planning opportunities for a new beginning!

Let us begin our analysis of this subject by understanding what connecting the value of health to the environment, to the planet earth, means, and going on thereby to the concept of ‘planetary health’ which evokes the thoughts of the astronaut Bill Anders. We will end this analysis by going back to him. It is very difficult to know what was going through the mind of Bill Anders when he went to the moon and discovered the earth. Perhaps one of the reasons why many people were amazed by the photographs of space was not only the extraordinary beauty of the blue, green and white corners of the earth but also a new awareness, a new discovery, that was evoked. Our planet seen from space is beautiful and unique, small and after a certain fashion also surprisingly contained. They are not pictures that speak about unlimited resources or about an unlimited capacity to absorb or the waste that we produce. Fascination and admiration are evoked and in us a feeling of protection and care is awakened.

Another American astronaut, Edgar Mitchell, the sixth person to walk on the surface of the moon, described the appearance of the earth from the surface of the moon in the following way: ‘Suddenly, from behind the rim of the moon, in long, slow-motion moments of immense majesty, there emerges a sparkling blue and white jewel, a light, delicate sky-blue sphere laced with slowly swirling veils of white, rising gradually like a small pearl in a thick sea of black mystery. It takes more than a moment to fully realize this is Earth... home’⁴³.

The Russian cosmonaut Alexei Leonov, for his part, spoke as follows: ‘The Earth was small, light blue, and so touchingly alone, our home that must be defended like a holy relic’⁴⁴. For our analysis we can take up the words of the cosmonaut Bill Anders who stated that he had ‘discovered the earth’. We could say that we are discovering a new relationship with our planet. Our ‘common home’ is

with national strategies and programmes; 3.7 attaining universal health-care coverage, including financial risk protection, access to health-care services of an essential level of quality and access to medical products and vaccines that are safe, effective, high quality and affordable to all; reducing substantially the number of deaths and illnesses caused by dangerous chemical substances and contamination and pollution of the air and underground water sources; 3.10) strengthening the implementation of a framework agreement about the control of tobacco in all countries of the world according to cases; 3.11) supporting research and development as regards vaccines and medical products for transmissible and non-transmissible diseases which in particular afflict developing countries, in order to provide access to essential medical products and vaccines at affordable prices; 3.12) increasing substantially the funding of health care and the recruitment, development, training and maintenance of health-care personnel in developing countries; 3.13) strengthening the capacity of all countries, and in particular developing countries, for rapid alarms, risk reduction and national and global risk management.

⁴³ Edgar Mitchell, <http://www.beliefnet.com/inspiration/2009/07/famous-astronaut-quotes.aspx?p=9> (consulted on 12 December 2017).

⁴⁴ Alexie Leonov, <http://beliefnet.com/inspiration/2009/07/famous-astronaut-quotes.aspx?p=7> (consulted on 17 December 2017).

at the same time a fascinating inspiration, but equally it is fragile. As a 'living organism', on the one hand it sustains us as human beings, like all the other living beings; on the other, it also needs, at this moment more than ever before, our responsible care. Here there emerges the urgency and the need for the ethics and bioethics of human responsibility.



This human responsibility starts with a responsible and respectful management of the earth. James Irwin, the eighth man to walk on the soil of the moon, described his vision of the earth as a profound mystical experience: 'That beautiful, warm, living object looked so fragile, so delicate, that if you touched it with a finger it would crumble and fall apart. Seeing this has to change a man, has to make a man appreciate the creation of God and the love of God'⁴⁵.

During the Enlightenment, Western civilisation embraced Cartesian dualism and emphasised the material and scientifically accessible aspect of the spiritual. The explosion of scientific knowledge and the consequent technological advances led to enormous benefits for humanity but they also made us blind to other forms of knowledge. The astronauts who first looked at the earth from space did not exalt the power of the science and technology that had taken them there. First of all they expressed wonder and reverence. 'Developed societies have generally drawn away from such a feeling of enchantment and reverence for the natural world that sustains us, or they have internalised it, reducing it to a dimension separate from our lives that does not form a part of our daily activities...It may be that native or aborigine cultures and many faith traditions have an important role in reconnecting us with other important forms of knowledge that are more consistent with the responsible management of our natural systems'⁴⁶.

At the beginnings of the studies connected with bioethics (USA, 1970), an encounter took place with Van Rensselaer Potter (1911-2001), a biochemist at the University of Wisconsin (Madison, WI), one of the fathers of this subject (indeed the inventor of the neologism 'bioethics'). The problem was immediately posed of progress that brought with it 'dangerous knowledge', hence the idea that knowledge had to be used for the social good (the common good) and only in this way would it become wisdom. And here bioethics began as the wisdom of using

⁴⁵ James Irwin, <http://beliefnet.com/inspiration/2009/07/famous-astronaut-quotes.aspx?p+7> (consulted on 21 December 2017).

⁴⁶ Samuel S Myers, 'Planetary Health: Protecting Human Health on a Rapidly Changing Planet', *The Lancet online*, published on 13 November 2017, p. 7: cf. [http://thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)32846-5/fulltext](http://thelancet.com/journals/lancet/article/PIIS0140-6736(17)32846-5/fulltext).

human knowledge for the social good ‘as a bridge towards the future’ (1971) – the name of his first publication and the first book of bioethics to be published in the contemporary world⁴⁷. Potter defended an ethics of life that went well beyond human beings and embraced the cosmic-ecological dimension. He recognised that his vision of bioethics included a cosmic dimension and was linked to the ecology of life. The guiding point of departure of this vision was Aldo Leopold (1887-1949), one of the pioneers of the environmental movement in America who was also a lecturer at the University of Wisconsin and wrote ‘The Land Ethic’.

Leopold proposed the need for a new ethical basis for a new relationship between people and the land. He imagined the awakening of a new ecological awareness that would redefine humanity as a part of nature rather than an external conqueror. Conservation was a terrible challenge, he observed; the erosion of soil, the pollution of water and the loss of wild fauna required solutions based not only on ecological concerns but also on ethical beliefs⁴⁸. A pungent declaration of Aldo Leopold reveals his philosophy and his understanding of this question: ‘The fact that the earth is a community is the concept that underlies ecology, and that the earth must be loved and respected is an extension of ethics’⁴⁹.

The Lancet commission on health and climate change, which monitors the development of this health-care problem in relation to climate change every year, recalled what was observed in the report of 2015: ‘Anthropogenic climate change threatens to undermine the last fifty years of gains in public health and, in contrary fashion, a global response to climate change could be the greatest global health-care opportunity of the twenty-first century’. It concluded in 2017 that ‘overall, the trends presented in this report are deep worry, highlighting the immediate threats to health posed by climate change and its consequences in all parts of the world. However, the more recent trends of the last five years demonstrate a rapid increase in action which solidified with the Paris agreement 2015. These timid signs of progress serve as a stimulus and reflect a growing political consensus and ambition which was forcefully seen in response to the withdrawal of the United States from the treaty on climate change of 2015. Whereas action should increase rapidly, progress provides a clearer signal: we are in a stage of transition towards low carbon emissions. No country or head of state can stop this progress and the direction of the journey, by 2030, has already been established’⁵⁰.

In general, today a very negative and apocalyptic vision of the future is cultivated. We already have works with a science fiction character about what will hap-

⁴⁷ Van Rensselaer, *Bioética ponte para o futuro*, São Paulo, Edições Loyola, 2016.

⁴⁸ Tony L. Goldberg and Jonathan A. Patz, ‘The Need for a Global Health Ethic’: cf. www.thelancet.com vol. 386 November 14, 2015, p. 38.

⁴⁹ Aldo Leopold, ‘The Land Ethic’, in *A. Leopold, A Sand County Almanac and Sketches Here and There* (Oxford University Press, New York, 1949), p. 201-26.

⁵⁰ Cf. Nick Watts, Markus Amann *et al.*, ‘The Lancet Countdown on Health and Climate Change: from 25 years of Inaction to a Global Transformation for Public Health’: cf. www.thelancet.com published online 30 October 2017.

pen. Stephen Hawking, for example, an English physicist, is convinced of the end of the world and believes that humanity has less than 600 years to leave the earth. Humanity ‘needs a new home’ and in this sense it is necessary to develop technologies that would allow the colonisation of another planet. Much less pessimistic than Stephen Hawking is



James Lovelock who argues that everything is already lost and that the damage done to the earth cannot be corrected. In the report ‘Safeguarding Human Health in the Anthropocene Age’ by the commission for planetary health, the Rockefeller Foundation and *The Lancet*, which we have commented upon and subjected to study in this analysis, conclude by stating that there would be a future if human beings achieved an agenda of work and behaviour starting today. ‘Humanity can manage successfully and live well in the twenty-first century if it corrects the unacceptable inequalities in health and in economic wealth, within the limits of the environment of the earth. But this will require the generation of new knowledge, the implementation of wise public policies, decisive action and stimulating leadership’⁵¹.

In addition, it will be necessary to adopt the agenda 2030 of the United Nations on ‘humanly sustainable development’, guaranteeing a healthy life and providing wellbeing for all people of all ages (goal 3) and assuring that nobody belonging to humanity is left out (fairness).

I share the promising vision of better days for the health of humanity and the planet of Samuel S. Myers who on this point argues that ‘To reach a state of planetary health a new vision will be needed of how we define our place on the planet. A new narrative will reject the consumerist dogma – which sees the achievement of happiness as being through an infinite race to purchase – and embraces the values that we all know. What makes us truly happy is the time that we spend with the people that we love, being connected and belonging to a specific place and community, feeling ourselves connected to something greater than ourselves and taking care of each other’⁵².

⁵¹ The Rockefeller Foundation – Lancet Commission on Planetary Health, ‘Safeguarding Human Health in the Anthropocene Epoch: Report of the Rockefeller Foundation – Lancet Commission on Planetary Health’: cf. www.thelancet.com, vol. 386 November 14, 2015, p. 274.

⁵² Samuel S. Myers, *op. cit.*, p. 7.

We need add nothing else than to admire and revere this vision of ‘science with wisdom’ and say ‘let it be so’! We have before us an urgent moment when we should begin to be constructive actors of another possible world, with our innovative activity involving responsible care for life and human and planetary health! This is the ethical moral imperative of everyone – without exceptions.

CHAPTER VI

| Pastoral and Ethical Reflections on our Elderly and Sick |

Growing old with dignity and elegance: an ethical imperative and also a personal choice¹!

'Wisdom is appropriate to the aged' . (Sir 25:5a)

'My son, take care of your father when he grows old; Give him no cause for worry as long as he lives. Be sympathetic even if his mind fails him, Don't look down on him just because you are strong and healthy. The Lord will not forget the kindness shown to your father' .

(Sir 3:12-14a)

Introduction

During the course of my fraternal visits to various areas of Camillian geography in the world during this first year of service of mine to the religious brothers of our beloved Order, taking seriously the invitation of our pastor, Pope Francis, to move out of ourselves (*personal exodus*) to meet our brothers and sisters, above all those who survive in the existential outskirts of life, I have had the opportunity of meeting very many elderly and sick religious of our Order.

I came across the cries of many which touched my heart, cries at times of people in difficulty and/or



Pope Francis washes the feet of twelve disabled people at the 'St. Mary of Providence' Centre of the 'Don Carlo Gnocchi' Foundation (Rome)

¹ Letter from the Superior General addressed to the *Camillian Order*, on the occasion of the celebration of the feast of *St. Camillus* (14 July, 2015) – 401 years from his death. Published in *Camilliani-Camillians*, n. 3-4 / 2015, pp. 4-13 (Italian version) and pp.14-23 (English version).

at times that were silent, expressed with tears in their eyes, with sad and beseeching eyes: 'do not forget about us, come back to see us again'; 'take care of our Order with affection, please!' I was reminded of some religious brothers of ours whom a Superior General of the Order (1977-1989), Fr. Calisto Vendrame – who was my spiritual director and teacher for various years during my period of formation in San Paolo, Brazil, remembered when writing a very fine 'Letter to the Elderly'. This message was inscribed in the hearts of an entire generation of young and adult Camillians at that time, many of whom are elderly today. I imagine that it also had an important effect in strengthening the self-esteem of elderly Camillians who today are probably in the house of the Father.

We remember with nostalgia this beloved religious brother of ours when re-reading this text which was published in our CCI (Centre of Camillian Information) bulletin in the column dedicated to 'The Word of the Superior General'. The prophetic vision of his message is of surprising contemporary relevance, and this in terms of Christian ethical values, belonging to historical, sociological and socio-political times that were so different from today...and a little more than thirty-three years have passed². Our human condition is such that when we are elderly or sick we are touched in a deeper way in our frailty and vulnerability, to the point of becoming 'high-sensitivity radar'.

In the special year that the Catholic Church has dedicated to consecrated life we are invited to 'look to the past with gratitude, to live the present with passion, and to serve with Samaritan compassion and embrace the future with hope'. This letter, in reality, emerged as an analysis from an ethical-pastoral point of view of the reality of overall human ageing (NB: the first point can even be ignored by those who are not interested in a scientific-academic knowledge of the context and the reality of the problem under examination) and requires a little time, patience and dedication for a thoughtful reading. In drawing up this message to my elderly and sick religious brothers I express my gratitude to those who have constructed this heroic Camillian history, which has lasted for more than four centuries, for the many exhortations that they have offered me.

Differently from Asian culture where elderly people are still seen as being culturally relevant and socially respected as the memory and the embodied wisdom of the community (cf. in Japan the day dedicated to the elderly is celebrated as a national holiday), in our western culture the elderly are not seen in such terms. The emphasis is increasingly placed on their disabilities and limitations, on the costs and expenditure that are needed for their care at the level of health-care policies, and on the deterioration of the system of pensions. Increasingly less emphasis is placed on their rich life histories, on the experience and human wisdom of which they are the custodians. At the basis of this reductive vision of the human person, who is defined solely for what he or she 'produces and not for what he or she is', a great question is located: ageing constitutes a stage in life that is characterised

² Cf. CIC, n. 147, year XII, 20 April 1982, pp. 157-158.

by an existential crisis that has three dimensions: an identity crisis (with self loss); a crisis of autonomy (with an increasing dependence on others); and a crisis of belonging (an uprooting from his or her environment and a move towards an old people's home). We need to retrieve, through a resilient approach, the meaning of this *crisis* that deeply afflicts *elderly people*, above all in our society which is by now defined as a *throwaway civilisation* and one with programmed expiry dates!

Until not so long ago, reference was made simply to *old age*. Today the scientific literature on ageing detects three categories of elderly people: a) young elderly people between the ages of 65 and 75; b) elderly people in the true sense of the term between the ages of 75 and 85; v) very elderly people, those who are over the age of 85, who in the near future, according to researchers in this field, will increasingly grow in numbers! At the time of St. Camillus people spoke a great deal about *the poor and the sick*, whereas the category of *elderly people* was almost never mentioned in his writings! Certainly there were elderly people during that epoch. Today, however, together with the poor and the sick we also have the great task of looking after the elderly who need special care and concern, above all if they have chronic degenerative diseases such as Alzheimer's and Parkinson's. The ageing of the population is a very recent phenomenon in human history. In developed countries the number of paediatric hospitals has decreased in a significant way and in many cases they have even disappeared, but in the other direction nursing homes and/or old people's homes have multiplied, becoming a real form of remunerative business within the panorama of the world of health and health care.

Today we are living to the full the glamour epoch of 'post-everything' in many aspects of human life. We live in a society that is called 'post-modern', reference is made to 'post-industrial', 'post-Christian' and even 'post-human' civilisation! Yes! 'Post-humanism' is an ideological movement which in proclaiming the banishing of death from the life of man – which is seen together with ageing as an *illness* to which a remedy must be found and not as a dimension of our existence – offers us the 'gift of immortality' on earth. In addition to sophisticated pseudo-scientific techniques, promises for the near future, we are almost able to stop the biological clock of human ageing and then, indeed, we could live eternal youth (*bio-gerontology*).

Humanity has still not managed to uphold and apply the fundamental rights of man which were proclaimed by the United Nations in 1948 at the end of the Second World War (1939-1945) and which guarantee the possibility of living with dignity (freedom of thought and of conscience, education, health, housing, work, etc.). And now we are already involved in this anthropological vision according to which a human being is something that has to be gone beyond and superseded. Naturally enough, we have before us an ideology which, just as it has tried to deny our finitude, is now also trying to deny our human condition. Age cannot be seen as a pathological process or worse as a tragic destiny upon which we cannot intervene except through passive acceptance!

We have to discover how it is possible to grow old with grace, wisdom, serenity and aesthetic elegance. This is the horizon of the analysis that I offer in this message, whose contents in large measure are organised into three parts: 1) some ethical reflections on statistical data about the reality of human ageing in the contemporary world and the challenges that are posed in terms of public policies and health care; 2) the challenge to become protagonists in the art of living with dignity and to be joyful about the ‘Sunday of our lives’; 3) some suggestions to young people and elderly people remembering with gratitude Fr. Calisto for the legacy of tenderness which he left in the hearts of many religious brothers of ours.

1. Human Longevity and the Ageing of the Population: a Rapid Global Check up

1.1 We are living longer today: increasing the number of centenarians!

Often when praying with the Psalmist we proclaim that ‘Seventy years is all we have, eighty years if we are strong; yet all they bring us is trouble and sorrow; life is soon over, and we are gone’ (Ps 90:10). Today we live much longer, we already coexist with a significant number of people who are more than a hundred years old. In the year 2011 there were 316,600 centenarians in the world according to the World Health Organisations (WHO). The second part of the verse of this psalm points out the challenge: to add more life to our years than years to our lives. Indeed, the final stage of life is always more characterised by the presence of terrible chronic-degenerative diseases, amongst which – principally – Alzheimer’s disease (dementia) and Parkinson’s disease.

The fact that the world’s population is ageing at a very high rate is no longer news for anyone. Advances in the field of public health, improvements in standards of living, the advance of medicine, of geriatrics and of gerontology, amongst other factors, have contributed in a significant way to giving increasing quality, dignity and health to elderly people. However, it is very sad to observe that many people – above all the most vulnerable and neediest – are excluded from this achievement, even though they live in a globalised and interconnected world which is increasingly globalising injustice and indifference more than solidarity. To reach old age is still the privilege of a few, above all in the poor countries of the world.

From a simple look at history we realise that human life was very short more than two thousand years ago at the beginning of the Christian era. According to the demographic data, in that epoch human beings on average lived for 25-28 years. Jesus was crucified at the age of only 33 and he could already be seen as an *old man*, given that he had lived longer than the average lifespan of people of that time, even though for us today he would still be very young! Wars, epidemics, natural disasters and the lack of prevention in relation to endemic diseases and parasites were the primary causes of a short existence. In 1900, nineteen centuries later, the

average life expectancy of human beings on the earth had grown to about 43-46 years. This means that in the twentieth century life expectancy was double. In this history of the development of human life, in less than a century, taking as reference point the beginning of the twenty-first century, and looking at the twentieth century, despite all the atrocities, the natural disasters, the epidemics, for example Spanish influenza decimated a third of the population of Europe in 1917 and wars that cost millions of human lives, life expectancy in human beings increased on average by 20 years, reaching 60-65 as a global average. This means that in less than a century we added another twenty years of life! Clearly the development of knowledge about public health, the prevention of illnesses, the discovery and the use of antibiotics, and improved living conditions were the key factors in this revolution which brought about an increase in human longevity.

The World Health Organisation in its report 'Global Health Statistics – 2014' offered some data on this global panorama where in recent decades human life expectancy has improved notably. A baby born in 2012 had an average life expectancy of 72.7 years, if a girl, and 68.1 years, if a boy. This means that this child has six years more of global life expectancy compared to children born in the year 1990. The greatest advances have been achieved in low-income countries where average life expectancy increased by nine years between 1990 and 2012, and more specifically 51.2-60.2 years for men and 54.0-63.1 years for women. An important factor that helped to increase life expectancy in low-income countries was the reduction in infant mortality and the treatment of infectious diseases in adults. The six countries that recorded the greatest advances in the growth of life expectancy in their populations were: Liberia (19.7 years), Ethiopia, the Maldives, Cambodia, Timor East and Rwanda.

The ten countries with highest life expectancy at birth for man and women born in the year 2012 are: (for men) Iceland, 81.2; Switzerland, 80.7; Australia, 80.5; Israel, 80.2; Singapore, 80.2; New Zealand, 80.2; Italy, 80.2; Japan, 80.0; Sweden, 80.0, and Luxembourg 79.7; (for women) Japan, 87.0; Spain, 85.1; Switzerland, 85.1; Singapore, 85.1; Italy, 85.0; France, 84.9; Australia 84.6; Korea, 84.6; Luxembourg. 84.1; Portugal, 84.0.

As one can see, life expectancy of men is about 80 years in nine countries. The highest levels are in Australia, Iceland and Switzerland. For women, life expectancy is the same as, or higher than, 84 years in ten countries. The greatest life expectancy for women is in Japan, with 87 years, followed by Spain, Switzerland and Singapore. At the other end of the scale, there are nine countries, all in sub-Saharan Africa, where the average life expectancy for both men and women is less than 55 years.

There is no doubt that people live longer but the length of this period of life depends upon the context in which we are born. A child born in the year 2012 in a high-income rich country has a life expectancy of 75.8 years, that is to say more than fifteen years more than a child born in a low-income poor country, that is to say 60.2 years. For girls, the difference is even greater: 18.9 more years in high-income countries (82.0 years) than in low-income countries (63.1 years).

Looking into the future, we hope that many more lives will certainly be saved by avoiding so-called *premature deaths*. We need a drastic move away from a culture with a segregationist and isolationist vision of elderly people, which causes *social death* before *physical death*, towards renewed inter-generational solidarity. In many countries near old people's homes places are beginning to be built for children to have moments of encounter between those who are beginning the journey of life and those who are almost saying goodbye to life. Lessons can be learnt on both sides.

1.2 Ageing in the twenty-first century: an achievement that should be celebrated and also a great challenge

The increase in longevity which ends with the ageing process is without doubt a triumph for the progress of human knowledge and one of the great successes of mankind. People live longer because of improvements in nutrition and hygiene, and advances in medicine, in health care, in instruction and in economic prosperity. Throughout the world the UN is trying to encourage, through its organisations that deal with the question of population and human ageing, a change in attitudes, of policies and social practices so as to assure that elderly people are not seen simply as passive recipients of pension plans but, rather, as active participants in the process of development, whose rights should be upheld.

There are some statistics on these demographic changes that are underway which provide an exciting panorama of the phenomenon of the ageing of the population at a global level. At the present time life expectancy at birth is 80 years in thirty-three countries. Five years ago this was true of only nineteen countries. At the present time only Japan has a population, over 30% of which is over the age of sixty. By the year 2050 it is estimated that sixty-four countries will have populations 30% of which will be made up of elderly people. The ageing of the population is taking place in all the regions of the world, in countries with different levels of development. Of the present fifteen countries which have more than ten million elderly people, seven are developing countries. Life expectancy at birth has increased all over the world. During the period 2010-2015, life expectancy at birth in developed countries increased to 78 years and in developing regions it rose to 68 years. In 2045-2050 every new born child will be able to live until the age of 83 in developed countries and the age of 74 in developing countries.

In 1950 there were 205 million people over the age of 60 in the world. By the year 2050 it is estimated that 10.5% of the population of Africa will be over the age of 60 compared to 24.5% in Asia, 24% in Oceania, 25% in Latin America and the Caribbean, 27% in North America and 34% in Europe. Every second, two people celebrate their sixtieth birthday in the world: an annual total of 58 million people. In the year 2012, 810 million people were aged over 60 and they

constituted 11.5% of the world's population. The forecast is that this number will reach a thousand million in less than ten years and more than double by 2050, that is to say 22% of the world's population. The number of centenarians in the year 2011 was about 316,600; at a global level this will rise to 3.2 million by the year 2050. At this moment in history, for the first time in history there will be more elderly people than children under the age of fifteen. In the year 2000 there were more people over the age of sixty than children under the age of five.

Women at an international level are older. Today, for every 100 women over the age of sixty, throughout the world, there are only 84 men. And for every hundred women over the age of eighty, there are only 61 men. These differences have important implications for the policies and planning of public programmes of health care and social security. The oldest part of the population is not a heterogeneous group to which general rules apply. It is important to recognise that this part of the population has many different characteristics, as is true of any other age group, as regards age, sex, ethnicity, instruction, income and health.

As regards income and health, at a global level only a third of countries (corresponding to 28% of the world's population) have plans for overall social protection which cover all the sectors of social insurance. Globally, 47% of elderly men and 23% of elderly women take part in the labour force. Thirty years ago aged economies, where the consumption of elderly people was greater than the consumption of young people, did not exist. Throughout the world, over 46% of people over the age of 60 have disabilities. More than 250 million elderly people have a moderate disability at this stage of their lives and this is the area where the most pressing needs for their lives exist: the availability of, and access to, health care and specialised assistance, in particular in the field of rehabilitation.

The report of the Population Fund of the United Nations, 'Ageing in the Twenty-first Century: Celebration and Challenges' (2012), offers the results of an interesting opinion poll carried out with 1,300 elderly people. It shows that we still have a great deal to do to offer dignified care to elderly people and to ensure the dignity of living in freedom with recognised respect. 43% replied that they feared physical violence; 49% believed that they were treated with respect; 61% used a mobile phone; 53% said that it was very difficult to pay for basic services; 44% described their current state of health as good; and 34% said that it was difficult or very difficult to have access to health care when this was needed.

In conclusion, one should emphasise again the need to respect the elderly, to offer the guarantee of an income, the opportunity of flexible work, and the elimination of forms of discrimination, violence and forms of abuse. They expressed the wish to continue to be active and respected members of society. In many cases it is elderly people who offer help and care to children and grandchildren, who do household work and who at times also offer support through financial contributions to their families using the modest resources of their pensions.

1.3 *Alzheimer's: the disease that challenges science and our solidarity*

This disease is associated with the ageing process and until a short time ago was called *sclerosis* or *senility*. When elderly people manifested memory problems or confused states they were defined in a pejorative sense as 'sclerotic'. Today we know that memory loss is a very serious question and unconnected with the will of people, but it can be a sign of a very grave illness – Alzheimer's disease. This disease afflicts about 35.6 million people in the world with the worrying forecast that it will double every twenty years, reaching 65.7 million in the year 2030, according to the calculations of the World Health Organisation. Its official name is connected with the German medical doctor *Alois Alzheimer* who discovered the disease in 1906.

There is no cure for Alzheimer's disease but it can and must be treated. It afflicts above all else the elderly. This is a sad and devastating disease that is responsible for 70% of cases of dementia. This disease manifests itself as a form of dementia with the loss of cognitive functions (memory, orientation, attention and language), caused by the death of brain cells. When it is diagnosed in time, it is possible to slow down its advance and to have greater control over its symptoms, thereby assuring a better quality of life for the person involved and his or her family. We still do not know the direct cause of Alzheimer's but we well know the risk factors that favour its development: hypertension, diabetes, smoking and a lack of physical exercise.

Today many films portray the drama of people who are the victims of this disease. Such is the case of the film *Still Alice* (USA, 2014). In this film, the leading character, a teacher of linguistics, reveals all the dramatic character of this disease. 'The whole of my life I have accumulated memories...and they have become my most precious possessions, but all of that has been taken away. As you may imagine, this is worse than hell'. There is no absence of numerous testimonies of the heroic dedication of family relatives in providing help and care to these patients. Maria Soledad C. Ortiz, an assistant and member of the Alzheimer's Association of Costa Rica, has spoken about the drama that she has experienced and the care that she has provided to her mother who has Alzheimer's disease.

'My mother was my best friend and confidante until one day, nine years ago, I began to lose her. My family and I as well thought that she was depressed, but after a medical examination and the various tests the unforgiving news arrived: Alzheimer's!

I felt the world collapse around me. I could not accept that my dear mother was no longer herself, that this illness would consume her and that the day would arrive when she would not recognise her own daughter.

I knew that all I could do was to give her my love, understanding and support. I showed this at every moment, taking care of her in the bath tub, giving her meals, changing her clothes, going for a walk, in every hug, smile and kiss. Life gave me the opportunity to give back a little of the love and devotion that she had given me when I was small.

It is very difficult and sad when you realise that this disease advances and you feel alone. Many friends and relatives do not know how to help, how to behave and simply go away, abandoning the person involved. But the real friends remain and some members of the family share responsibility in providing care with love and devotion.

Personally I have to divide myself between being a daughter, a mother and an assistant. It was not easy for me to reach the necessary equilibrium but with the help of God I have been able to manage things, but, to be honest, tiredness overwhelms me in a moment, but people never tire of loving’.

In the middle of a terrible and dramatic process of loss, we must remember that we never lose our dignity! Words are difficult: silence and embracing with solidarity our vulnerability and that of our neighbour, taking care of other people, is better! This is the example of a family drama, which today is increasingly frequent, which requires the attention of health-care systems in training professionals who unite the necessary technical-scientific skills with human and ethical competence, but which also train of assistants for the family home.

Pope Francis talks about a *spiritual Alzheimer’s disease* which involves forgetting about the history of salvation, about the personal history of the Lord. One is dealing here with a steady decline in the spiritual faculties which provokes grave disabilities in people. This takes place in those who have lost their memory of the encounter with the Lord, those who have become dependent on their own passions, imagination and manias, and build around themselves walls, becoming thereby the slaves of idols that have been sculptured with their own hands. Free us from this illness, Lord!

It is certainly the case that every season of human life has something to offer to society. We need to renew a new culture of care and respect for elderly people through education and the implementation of public, social and health-care policies that will create a new sensitivity towards appreciating the historical memory, the experience and the wisdom of the generation of elderly people which can be handed down to today’s young people, who are the elderly people of tomorrow, so that they will grow old with grace and dignity in the future.

2. Living the ‘Sunday of Life’ with Zeal and Dignity!

The time of life experienced as *Κρόνος* is very well documented today by the scientific knowledge of geriatrics and gerontology. But the pathway of obscurity and shadows which the *Κρόνος* brings about is documented above all: changes and a drastic loss of energy, of strength, of ability, of lucidity, of will and of awareness of our finitude. To accept the time of life as a *Καιρός*, as a journey of life, while one lives in *Κρόνος*, is an option for a dignified and healthy old age.

Elderly people cannot live in a passive way in line with the style of *Κρόνος* which sees future aging as an unforgiving destiny, with the reduction of strength,

energy and lucidity and with the growth of dependence on others. An elderly person needs to expand himself to herself in a creative way. He or she is going through a stage of life of existential wisdom and can still contribute in an active way to the life of the community and society. Ageing with dignity and elegance means living a choice, a challenge, an objective and a real mission that begins with ourselves, before proclaiming it to other people.

I would like to quote *Dom Aloisio Lorscheider* (a Franciscan religious), a Brazilian Cardinal who a few days before his death (23 December 2007), which took place at the age of eighty-three, gave a paper on 'Ageing with Wisdom' to his elderly Franciscan religious brothers in the same religious house to which he retired in silence during the last years of his life. He shared his personal experience and spoke about old age as the 'Sunday of life'. This was a fine image, one used by a shepherd who knows his sheep and recognises that on Sunday, being, socialising and celebrating or playing, acquire priority over work, over doing, over the things and the stress of our normal days!

We should meditate on the message of this 'wise and respectable old man' who tells us about his personal experience as an elderly person.

1. *Be careful not to lose our identity.* We are dignified people and we continue to be such even when we grow old. Ageing is not a misfortune of destiny: we can choose how to grow old without forgoing our capacities and our gifts of being and acting. The ideal is for death, at the moment of leaving this world (dying), to find us still fully alive and not living only awaiting death, ceding passively to boredom and pessimism. We have to *enjoy* every moment, taking all the juice out of life.
2. *A time of contemplation.* Old age can also be a time of contemplation and enchantment. We register many events, situations and meetings throughout our lives, including rather sad events, inside us. We should contemplate in a special way reality and the truth of our faith. If we do this, time will seem short because there are many things that have to be explored in a contemplative way inside us.
3. *A time of silence.* Old age is also a time of silence. St. Teresa d'Avila always laid emphasise on composure and above all on *interior silence*. When we were younger, because of our ages, we were more troubled and noisy. A little more advanced in years and we become calmer and more reflective. We prefer more silent places, far from the infernal noise of the city, of the traffic and of the factories. Listening to music can be an important advance.
4. *A time of despoliation and detachment.* We gradually despoil ourselves of many vanities, superficialities, rancour, complaints and sufferings. This is the time of our personal *Kenosis*, of forgiveness and of the capacity to live in peace. With the passing of the years, we run the risk of becoming like blocks of granite: hard, impermeable and immutable. We believe that we have nothing to learn from the young and we close ourselves up within ourselves. How are our ideas, our tastes, and friendly people? We have to transform this block of granite into a block of crystal.

5. *A time of prayer.* Prayer is the special mission of elderly people. There is more time available. If we do not pray, our old age loses its meaning. Old age is a special moment when the spiritual dimension should be cultivated more intensely. And it is a good idea to become rejuvenated in our prayer. Prayer rejuvenates the heart. St. Paul reminds us that ‘even though our physical being is gradually decaying, yet our spiritual being is renewed day after day’ (2 Cor 4:16).

Prayer is also an instrument by which to move out of loneliness, which is the greatest threat of our epoch. It links us up again with other people and with God, strengthening our sense of belonging. It is a mysterious force but one that works!

6. *A time of dominion over ourselves.* How do we behave? Like impatient and selfish elderly people, murmurers, or as elderly people with tolerant and detached hearts? We need to create within ourselves a new look with greater serenity as regards the lives that we have lived. This means controlling our irritations so as to cultivate joy at being still alive and being able to contribute something meaningful to life.
7. *A time to cultivate and bear witness to gratitude.* Only those who cultivate humility and embrace their own human conditions of vulnerability are able to give thanks! The arrogant and the self-sufficient, convinced that they are enough for themselves, do not feel the need for God. We are grateful to God for the very many wonderful opportunities for growth that we have had throughout our lives. More than a *lament*, we are challenged to cultivate an attitude involving the *appreciation of life*! We are invited to express our gratitude to God for the very many people who have supported us during our whole lives.

In my pastoral life and experience with sick people and the elderly my attention has always been struck by how much people communicate to us, above all before a serious surgical operation, for example if there is a real danger of dying: ‘Father, if I have to bear pain or depend on others then I would prefer to die, may God take me’. We find amongst us many situations of elderly people who suffer, disgusted by their growing dependence on other people for medical care and they feel useless. What do they have to do to reacquire self-esteem, the joy of living, even in these conditions of the greatest human vulnerability? To live is to live with others, helping each other with solidarity in our needs. We must pay attention because our society acts against this outlook of values and defines depending on others as something that is *ugly* and even *unworthy*. This is said not to be a life worthy of being lived: it is better to die! And when we have to address some important difficulty in our lives, or a process of degenerative illness, there are no longer values that give sense and meaning to life in these conditions. In this situation, euthanasia is seen as being very positive and even as a clear option by which to exit from this existential situation. We must learn to embrace our condition of vulnerability by accepting care! Just as we are helped at the moment

of our births...so we need help when we grow old and when the moment comes to leave this world. Remember what St. Camillus did and taught here!

Without any doubt it is a great challenge to prepare oneself to say farewell to this wonderful world created by God. Remember the short hymn that we say every evening at the end of the day – *Nunc dimittis* – known as the ‘Song of Simeon’ (Lk 2:29-32). This is the song of the night of life, spoken by the old Simeon who is already near to death and it reminds us of what we pray in *Hail Mary*: ‘the hour of our death’. Pray the canticle of *Nunc dimittis*, it places us in front of the art, the old style, of preparing our departure from this world when our time comes!

The greatness of Simeon lies in his humility, in the simplicity of his eyes which see the salvation of a frail child, in the tenderness of the embrace of his father but also of his mother in welcoming that baby that has just been born, in his readiness to create space for others, and always ready to place himself to one side, to diminish himself so that others may grow, as the prophet John the Baptist did. He has to grow; I, instead, must diminish (Jn 3:30).

There is no trace of that envy that is typical of elderly people towards those who will come after them; no suspicion, no jealousy, but only gratitude and serene joy. Whatever the case, Simeon was growing old in a healthy and serene way.

Simeon sees the salvation of God in that child because he is welcomed in faith. He believes that Scripture is a message of God for him: he believes in the promise of God. Here we have effective listening, listening that generates a strong faith and which can transform us into human beings who live the autumn of life as people who are more open, who are sunny, sweet, tender and hospitable.

3. Living with our Elderly and Sick Religious Brothers and the Need to Prepare Oneself to Grow Old with Serenity!

We are humans, not angels, and it was specifically in this frail and vulnerable human condition that one day, at a certain point in our lives, that we were touched by divine grace in a mysterious way. We have been chosen, instructed and sent into the world as men and women Camillians to be and proclaim *good news* (the Gospel). The challenges abound in this mission. According to Pope Francis, consecrated life has before it three great challenges which have to be faced up to with courage: ‘numerical decline, ageing and a fall in vocations’ (Pope Francis in his message to the Order of Minor Friars, 26 May 2015). Today we are faced with the challenge of re-establishing ties of intergenerational solidarity against an ideology that segregates, isolates and easily discards elderly people.

Our esteemed Fr. Calisto Vendrame – a former Superior General – in a text addressed thirty years ago to his elderly religious brothers, already warned us that ‘there is no need to separate our elderly. Their presence in our communities, when their experience is combined with wisdom, is a true blessing. To know how to listen and engage in dialogue in order to discover and meet the real needs of

the elderly of which they are often fully aware'. Another important point 'is to help the elderly to live their lives in all their dimensions, not taking their place' (cf. CIC, n. 147, year XII, 20 April, 1982, p. 155-158). In other words, to help is to respect the role of the elderly, their autonomy, even if reduced, without being paternalistic or adopting attitudes where they are treated as children.

'Some elderly people become unpleasant unnecessarily in good faith ('although it is not always 'good faith') because they feel obliged in conscience to see, correct and perhaps to censor and at times also to denounce. I would like if this were possible to spare them these sufferings, like the community, dispensing them from this obligation. When we are elderly, if we do not have the responsibility of being a Superior (who is the father of a community), we will all be more loved if we know how to behave like 'grandfathers' rather than like 'fathers'. The Book of Sirach advised this more than two thousand years ago: 'But you should know what you are talking about and not disturb the music' (Sir 32:3).

Father Calisto warned us: 'It seems to me to be important for us as religious to know how to grow old with wisdom and serenity, to prepare ourselves in time to overcome the barrier of age without traumas. In knowing how to resist the two temptations of those who grow old: that of not accepting reality and not leaving tasks which we cannot perform adequately to other people, and the opposite one of losing confidence in our own strengths, even if reduced, and abandoning everything. The secret lies in knowing how to leave some activities and engage in others that are more congruous to our own strengths, without ever losing interest in life'.

'If I could give advice to my younger religious brothers I would say: be full of understanding and love towards our elderly religious who with great sacrifice opened up the roads down which we now travel with tranquillity. They sacrificed themselves so that we could have what they could never have had. They need our gratitude and our affection. Open your eyes to see what they need, given that a 'beloved elderly person is a winter full of flowers'.

'To my older and sick brothers I say: we need your wisdom, example, prayer and warmth. Your presence in the community is precious not only because it gives us the joy of serving, like Christ himself, and anyway repaying what you have done for us, but also it enables us to recognise that without you the community would feel rather like an orphan and could also forget some dimensions of a reality that we should take into consideration so that our lives are more real'.

'We also know that we can have 'nights of the spirit' because God is not easy for anybody, even though He is love or more precisely specifically because He is 'Love'. Seeing you address in a serene way the ageing process, seeing you live not only memories but also dreams and projects, we also feel more serene and encouraged, travelling as we do down the same roads: we can look to the future with hope'.

Here the pathway we should follow is pointed to: the construction of a horizon of hope. To our elderly and sick let us express our care, respect and gratitude. Our

young men and adults – the elderly of tomorrow – have before then a mission and an existential choice and nobody can take their place in this responsibility. Thus we ask ourselves the following question: how are we ageing? Are we taking care of *the elderly man* who is silently growing inside us? What kind of elderly people will we be in the future and how are we managing our interior world? Some live only through memories, they proclaim and pray the ‘psalms of life’s lamentations’: are some still capable of dreams, projects and gratitude?

CHAPTER VII

| Assisting Elderly and Dying patients |

Ethical and pastoral guidelines for good accompaniment¹

'The years of our life are threescore and ten, or even by reason of strength fourscore; yet their span is but toil and trouble; they are soon gone and we fly away...So teach us to number our days that we may get a heat of wisdom'.

(Psalm 90: 10, 12)

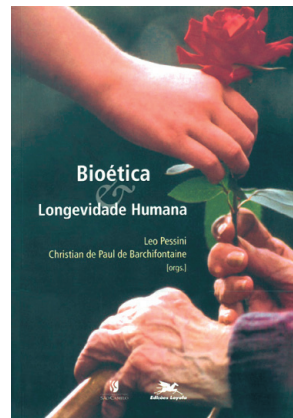
'Go and do likewise'.

(Lk 10:37)

Introduction

To live longer and with a good quality of life has been the dream of humanity since ancient times. Today this dream is masked by an ideology (illusion?) of eternal youth that seeks to deny every sign of the ageing process of our bodies. Thus human longevity becomes an authentic challenge for scientific research and geriatric physicians and gerontologists are working on an ideological agenda, trying to block the biological clock of human beings and thus give us the illusion of immortality.

An example of this cultural trend is the recent issue of *Time* which offers a report on longevity: the new data on how to live a longer, happier and better life. The cover is a splendid photograph of a child with a subtitle: this child could live to 142. News from the frontiers of longevity².



Leocir Pessini, *Bioética e Longevidade Humana* (2006)

¹ Published in: PAULA I. Carrasco de & PEGORARO R., *Assisting the Elderly and palliative Care*, XXI General Assembly of Members (2015), Vatican City, Pontifical Academy for Life, p.179-191.

² *'The Longevity Report: The New Data on How Best to Live a Longer, Happier Life'*, vol. 185 (6/7), *Time* 2015, pp. 56- 81. "How old can we live to be. That remains to be seen, but if a promising drug does

The aim of this paper is to offer some reflections and guidelines for a professional/pastoral relationship with elderly people in general, but in particular when we have to face grave suffering and chronic illnesses (such as Parkinson's and Alzheimer's).

At the present time we live immersed in a culture that gives space only to those who can produce: the healthy and autonomous young. The sick, the poor, the old and those who are dependent on others are simply excluded and thrown away in the 'fringes of human life' (the use and throwaway culture)

We need to construct a counter-culture of inclusion and authentic, true and genuine care for those in need, who are the preferred ones of Jesus.

This new type of approach and consultation will take into consideration the following thoughts and guidelines for action: 1) denouncing an exaggerated emphasis on health and anti-age sentiments that deny our human condition as mortal and finite creatures; 2) stimulating a critical vision of post-humanism with its proposals of immortality in our earthly domain; 3) cultivating wisdom to accept the vulnerability and frailty of our existing by addressing these realities that form a part of our human condition with the peace of mind of Christian faith; 4) rediscovering the value of Samaritan solidarity (*more heart in those hands – St. Camillus 1614-2014*) as a personal and professional value, travelling together with people who are in the shadows of life...pain suffering and death; 5) accepting the passing of time with patience, a period when we discover and value its dimension as *kairos*, although we live in the reality of the decaying finitude of *kronos*; and 6) embracing old age as our true 'Sunday of life' of our human existence and 'embracing' the old that is silently born within us.

1. The Denial of Our Mortality and Finitude. Searching for a Body that does not Age and a Happy Soul

We are living in a time defined as 'post-'. We speak about post-modernism, about a post-Christian era. And recently we have begun to speak about post-humanism and transhumanism.

What do we mean by post-humanism? Hook defines it as 'the intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities'³. According to

to humans, what it does to mice- a big if- the answer is 142. Mice have a median survival time of 27 months, but with treatment, the longest-living mouse hit 48 months, a life 1.77 times longer. The median human lifespan is 80 years – so if the oldest person lived 1.7 times longer, he or she would reach 142', p. 4.

³ HOOK C. Christopher, 'Transhumanism and posthumanism', in *Bioethics*, 4th Edition. Editor in Chief Bruce Jennings, vol. 6-S-Z (Macmillan Reference USA/a part of Gale, Cengage learning, 2014), pp. 3096-3102, p. 3097.

this author, a post-human is no longer a human being, given that he has been altered (modified) so significantly that he no longer represents the human species. From this point of view, there is the belief that the human species in its current form does not represent the end of the development of the species but, rather its beginning.

The instruments that transhumanists would use to achieve their goals include genetic manipulation, nanotechnology, cybernetics, pharmacology and computerised simulation.

One of the most ambitious and controversial visions of the transhumanists relates to their concept of mutation with an updating of the mind.

According to its exponents, the advances in calculation and nano-technologies will enable individuals to read the synaptic connections in the human brain, thereby allowing an exact replica of the brain to exist and function within a computer. This simulation could therefore 'live' in any desired mechanical form of the body⁴.

The hypotheses of Richard Jastrow about the future are as follows: 'in the end the human brain, installed in a computer, has been liberated from the weakness of mortal flesh...and controls its own destiny...housed in an indestructible lattice of silicon, and not constrained in time such a life could live for ever'⁵.

Obviously this subject is very controversial and two groups have arisen that contradict each other. On the one hand, there are the transhumanists, who defend every kind of alteration of the human condition: if we have the power to change human nature for the better, why not do so? On the other, there are those called 'bio-conservatives' who have raised a 'red flag' and drawn attention to the potential dangers of such changes for society and future generations.

Post, for example, described his vision in the following way: 'The post-humanist is a pure scientist who argues for fundamental alterations in human nature. Outside biological constraints. Who transcends humanity through technology. The post-humanist embraces the possible objective of decelerated and even arrested ageing, but only as a small part of a larger vision to re-engineer human nature and thus create human beings that are biologically and technologically better whom we humans today destine for death. As such, post-humans will no longer be human beings'⁶.

Once again in the view of this author, genetics, nanotechnology, cloning, cybernetics and computerised technologies are all part of the post-humanised vision that also includes the idea of downloading the synaptic connections of the brain and creating a computerised human mind liberated from the mortality of human nature and thus immortal. The posthumanists do not believe that biology is destiny but, rather, they think that it is something to be overcome because 'natural laws' do not exist: only 'human malleability and morphological freedom' exist⁷.

⁴ KURZWEIL R., *How to Create a Mind: The Secret of Human Thought Revealed* (Viking, New York, 2012).

⁵ JASTROW R., *The Enchanted Loom: Mind in the Universe* (Simon and Schuster, New York, 1981).

⁶ POST S.G. (ed.), 'Preface', in *Encyclopedia of Bioethics*, 3rd. edn. (Macmillan Reference USA, New York, 2004), Thomson Gale, vol. I, A-C. pp. XI-XV.

⁷ *Idem*.

An important document to understand the ethical implications and the multiple aspects of enhancement is a report by the President's Council of Bioethics of the United States of America entitled 'Beyond Therapy: Biotechnology and the Pursuit of Happiness'⁸.

In this very complex and intricate scenario of potential technological enhancements, amongst the types of human enhancement that will be possible in the near future moral bio-enhancement is perhaps one of the most controversial! For post-humanitarian thought, human nature as we know it represents a mere bond to be overcome in the search for an immortality that frees humanity from all decay, ageing and certainty of death.

Obviously we need healthy dialogue to distinguish with discernment healthy transformations from ones that are destructive of human nature. Like Post, we can ask ourselves: 'Will compassion be neglected in favour of biotechnological research, large muscles, longevity, a disposition to happiness and unreliable beauty? Or do affection and compassion form a part of 'ultimate human enhancement?''⁹

2. The Contemporary Context of Ageing: a Brief Vision of Some Great Challenges!

In the view of Marc Berthel¹⁰, who has been a professor of geriatrics for over forty years in France, the phenomenon of the ageing of the population has led the whole world to address the new challenges that society has to face up to.

In France, the increase in life expectancy by thirty years during the twentieth century is a recent reality in human history. Many factors have made this development possible: hygiene and the purity of water, a reduction in famines, vaccines and medical advance. The treatment of chronic illnesses now allows elderly people to survive longer. Developed countries were the first to benefit from this development. Now almost all the countries of the world are experiencing this phenomenon. Naturally, this is progress but new questions are emerging and we have to address them with intelligence and wisdom. Dr. Berthel emphasises three new questions.

2.1 *Conditions of life and resources*

In our countries moments of inactivity are not moments without resources: illnesses, maternity, disability, unemployment and retirement all benefit from the resources of social security. Do we realise that this is not the case in many coun-

⁸ U.S. PRESIDENT'S COUNCIL OF BIOETHICS, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, D.C., October 2003).

⁹ Post, 'Preface', p. XIV.

¹⁰ BERTHEL M., 'Advancing in Age: some New Issues' in *Newsletter of the Centre European d'Enseignement et Recherche en Ethique*, January 2015.

tries? 'More than 7% of the world's population does not have real social security protection'(data of the world report on social protection 2014/2015). State and military functionaries are protected but such is not the case with farmers and workers of the private sector. Survival depends on the solidarity and the savings of families where these exist. What will happen when family models change? Indeed, the processes of change have already begun: the fall in the number of births per family, the emigration of young people, urbanisation and the adoption of 'Western lifestyles' in countries with consolidated traditions.

2.2 The utilisation of services and the globalisation of care

National and international tourism is going well thanks to elderly people. A tourist agent of Vietnam in December declared that European, American and Japanese pensioners were his only customers. In these countries, hotels, restaurants and craftsmen depend in large part on the goods and services consumed by these rich foreigners. Is this the return of a certain kind of colonialism? On the other hand, rich countries import foreigners as domestic helps, in particular for the elderly: Polish nurses in German families, Rumanians in Italy, Bulgarians in Greece and Africans in the Lebanon, in conditions that at times are near to exploitation or ones equal to slavery. The rich acquire the work of the poor at a very low cost through the globalisation of the work of care.

2.3 The end of life: living or allowing oneself to die when one becomes a burden

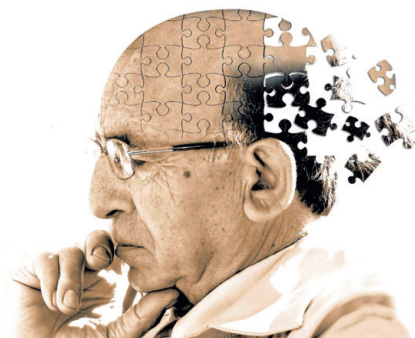
The Swiss sociologist Suisse Lalive d'Épinay upholds with force and conviction the ethics of responsibility in old age. He affirms that every elderly person is both an adult (like all other adults but different because of their position on the journey of life) and a citizen. With the experience of their finitude and the reality of their frailty, an elderly person can have the feeling that their life has come to its end and thus they could wish to 'save their relatives the stress of a prolongation of care and save society and future generations useless expenditure on care and treatment'. Lalive d'Épinay sees a request for assisted suicide as a final act of responsibility.

However, when we learn that 25% of the requests for assisted suicide made to the Swiss NGO *Dignitas* have financial motivations we must as a consequence ask about the pressure that may be applied to elderly people who are no longer independent, convincing them that they are useless and expensive. At a time when debates about questions relating to the end of life are once again commanding the attention of the mass media and are the subject of academic discussions we should not misunderstand or ignore these facts. Let us welcome all the efforts that are being made in the world to promote and implement palliative care as a human right. When we see that the International Organisation for Human Rights

Watch honoured an Indian medical doctor Dr. M.R Rajagopal with the prestigious human rights prize of 2014 for his role in promoting palliative care in his country, India, this is a sign of hope for a better future in this difficult field of medicine¹¹.

3. Solidarity: the path of genuine care between two extremes

On the one hand, we have the vice of defect where we condone neglect in the name of autonomy, and, on the other, the vice of excess, which we can call oppressive. Instead, we must find the ‘virtuous centre’. This is the Aristotelian vision, according to which virtue involves a balance or a proportion that can be destroyed by the vice of defect or excess. Solidarity involves the idea that ‘everybody is really responsible for everybody else’. The teaching of the Catholic Church speaks about solidarity as a ‘moral requirement inherent in all human relationships’ and it also speaks about ‘intergenerational solidarity’. Saint Pope John Paul II described solidarity as a ‘social virtue’¹².



There is no doubt that today bioethics still has a strong tie with the principle of autonomy (above all in the United States of America). The idea of autonomy, however, involves the connotation of non-interference. ‘Placing too much trust in the approval of elderly people can lead, if we are not careful, to the implicit acceptance of their abandonment when they are not self-sufficient. Overly rigid individualism and independence can be translated into health-care nihilism’¹³.

Respecting the dignity of a patient with Alzheimer’s disease cannot in any way mean saying simply that assistants require the exercise of an autonomy that is more injurious than useful for the patient. Rather, real respect for a person involves an acceptance of the concrete circumstances in which that person lives. Solidarity and respect do not deny the fact of the extension of dependence. From the point of view of the virtue of solidarity, the request for respect is an approach

¹¹ GWYTHYR L., BRENNAN F., and HARDING R., ‘Advancing Palliative Care as a Human Right’, *J. Pain Symptom Management* 2009; 38: 767-74. www.hra.org (site of the *Human Rights Award*, 2014). WHO and WORLD PALLIATIVE CARE ALLIANCE. *Global Atlas of Palliative Care at the End of Life*, 2014.

¹² POPE JOHN PAUL II, *Sollicitudo Rei Socialis* (30 December 1987), AAS 80 (1988), p. 513-586, n. 38. See also WOJTYLA K., *The Acting Person* (D. Reidel Publishing Company, Boston, 1979, PP. 284-85).

¹³ KAPP Marshall B., ‘Medical Empowerment of the Elderly’, in *Hastings Center Report* 1989, 9, no. 4, July/August: 6.

of sensitivity and attention on the part of the assistants¹⁴. This approach does not usurp the decision-making process when people are able and ready to exercise it. This very approach, however, means that the care-givers should not constrain the autonomy of a person who is incapable of exercising it. Trying to persevere in this kind of situation can easily become abandonment.

On the other hand, we have the vice of excess, which is called ‘oppressive care’. Stephen Post defines this as ‘forms of care based on the hypothesis that people with Alzheimer’s disease are so disenabled that they must be protected against the dangers and risks of life’. Oppressive care concentrates on differences rather than similarities. It emphasises the distinction between ‘them’ and ‘us’ based upon cognitive capacity. Ironically, this form of care increases the difference between ‘doing for’ rather than ‘being with’ them¹⁵.

The legitimate desire for treatment of Alzheimer’s disease can fall into the trap of exaggerated treatment if it continues to focus attention on cognitive capacity as the primary means by which to determine what matters for quality of life. This directs attention away from what Post calls ‘the critical moral task of changing the approach by providing methods of care that bear in the mind the non-cognitive aspects of the self’.

If we believe that we cannot treat Alzheimer’s patients who do not have an essential quality of life, simply because they do not possess cognitive capacities, we will do nothing to improve their quality of life and their ability to enjoy it.

What ‘real care’ means in this context, in Post’s view, is ‘constructing on the basis of solicitude, which includes joy, compassion commitment and respect. Care is joyful about the existence of a person with dementia...care responds substantially to the needs of a person with dementia...care is faithful even when the loved one disappears from the sphere of family identity and becomes almost unaware and thus unknown, but still remembered’¹⁶.

This ‘being with’ goes to the heart of the virtue of solidarity and to the heart of Christian morality. The virtue of solidarity moves the assistant (health-care professional, volunteer, family assistant) from the necessary ‘doing for’ to ‘being with’.

Post highlights six guidelines for the care of elderly people with dementia:

1. Something can always be done for (and with) people with dementia. ‘There is no longer anything we can do for that person’ is a lie!
2. Many factors can cause excess disability in people with dementia. The identification and the modification of these factors reduce the excessive disability by improving functioning and quality of life.

¹⁴ SMITH Brian P., ‘Solidarity with those Suffering: the ethics of Dementia’, in *Health Progress*, 2014 November-December, pp. 79-81.

¹⁵ POST S.G., *The Moral Challenge of Alzheimer Disease: Ethical issues from Diagnosis to Dying* (The Johns Hopkins University Press, Baltimore, 1985), p. 8.

¹⁶ *Ibid.*, pp. 8-9.

3. People with dementia have residual points of strength. Working with them to construct these theses improves their functioning and quality of life.
4. The behaviour of people with dementia involves comprehensible feelings and needs. Even if the person is not able to express them, the identification of, and the response to, these needs reduces behavioural problems.
5. Providing an adequate environment to people with dementia improves their functioning and quality of life.
6. People with dementia and their families constitute a single unit. Addressing the needs of families and involving them will bring benefits both to the person with dementia and to his or her family¹⁷.

In substantial terms, what is meant as regards elderly people with dementia is: ‘In respecting the person and doing something for him or her, the most demanding thing is only ‘being with’, that is to say being present and being a ‘meaningful presence’.

In my work as an educator and provider of formation to people who offer pastoral care, namely volunteers and health-care workers, I always observe that presence is only the eighth ‘sacrament’ of this human encounter. It is always a surprising encounter when the grace of God enables us to understand the frailty of human life.

Lastly, in a society that is increasingly emphasising independence, autonomy and self-determination, at this stage of human life we are physically, mentally and spiritually on the other end of the spectrum at a place that needs care and the help of others to go on living. Therefore, we must make our voices heard in this context and this is the ethical principle of solidarity where it is the prospect of autonomy and not autonomy itself that many supporters defend. In the name of autonomy, indifference and abandonment are the companions of elderly people. A society that promotes this perspective where there is no longer any space for the elderly is an aged society and one without a future.

4. The Search for *Wisdom of the Heart* to Lovingly Embrace our Process of Ageing and Promote Dignified and Genuine Care for the Elderly

What is the meaning of this movement of transhumanism in the face of a reality where almost a third of deaths every year in the world are still the result of infectious diseases (many of which are treatable), due to dirty water, malnutrition, exposure to dangers and to bad conditions of hygiene¹⁸?

The last Brazilian Cardinal, Aloisio Lorscheider, at the age of 83, when facing up to a heart deficiency, the process of ageing and the process of the decline of

¹⁷ *Ibid.* p. 11.

¹⁸ PRÜSS-ÜSTÜN A. and CORVALÁN C., *Preventing Disease Through Healthy Environments: Towards an Estimate of the Environmental Burden of Disease*, World Health Organisation; 2006. (cf. http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf).

his strength, a few months before his death sent a paper to his elderly Brazilian companions of the Franciscan community entitled 'Ageing with Wisdom'.

In this paper, he defined the time of lives when we have an advanced age as our 'Sunday of life'. It is a special and blessed moment when we are called to find time to engage in silence and prayer, a moment to detach ourselves from things and people, a time to conserve our identity and embrace our vulnerability, a special moment for contemplation and gratitude for all our experiences lived through all the stages of our human lives¹⁹.

It is here worthwhile remembering the message of Pope Francis for the twenty-third world day of the sick 2015²⁰ during which he speaks about *sapientia cordis*, wisdom of the heart.

Our healing presence amongst the elderly people as friends, companions, volunteers, professionals of medical care or pastoral workers, must nurture this '*sapientia cordis*'. This means: a). moving out of ourselves to push our brothers and sisters. It is necessary to actuate a personal 'exodus', promoting the culture of encounter. b). Being with our brothers and sisters and passing time with them. This is not wasted time or according to the ideology of the market, 'time of money', but, rather, 'holy time'. c). Serving our brothers and sisters in their social, psycho-social and spiritual needs. d). Being a living expression of solidarity, without any kind of judgement, based upon 'quality of life', which makes people understand the value of life and that it is worthwhile living it even when they are struck by a grave illness.

We must be very vigilant and resist the seduction of the ideology of the use of technology to produce a 'body without time and a happy soul'! There is much grace in being discovered and embraced in our human condition, even if it is marked by frailty, vulnerability, age, dependence, suffering, pain and death!

This can be discovered only through the eyes of a Samaritan faith which looks for the other whose life is marked by the vulnerability and frailty of old age; 'being with' and 'walking together' as a companion in the valley of death. There is no longer any fear because the Lord is our good pastor who walks with us and protects us! (*Psalm 23*).

5. Some Ethical Guidelines for 'Good Accompanying' at the End of Life

After these observations on the global context and the challenges that we find we have to address today on our journey with our companions at the last stage of life, I will sum up my thinking in ten ethical directions.

¹⁹ LORSCHIEDER Dom Aloisio, *Envelhecer com sabedoria*. www.ofm.org.br Accessed on 10 January 2015.

²⁰ POPE FRANCIS, *Message for the XXIII World Day of the Sick* (2015). <http://vatican.va> Accessed 10 January 2015.

This is in line with the Camillian tradition of the ‘fathers of the good death’, the name given down the centuries (above all from the sixteenth to the nineteenth centuries) to the members of the Order of the Ministers of the Sick (Camillians), an Order founded by Camillus de Lellis in Rome in 1582 and today active in 42 countries of the world, above all in poor countries and developing countries.

I will illustrate the ten guidelines for good accompanying and some of the fundamental values that have made this extraordinary history of over four hundred years of service, with its offering of care and witness to solidarity towards the sick and dying²¹.

1. *Recognising and embracing the reality of the human condition.* We are mortal and finite creatures! The transhumanist movement is a sophisticated ideology that seeks to deviate and deny our human condition of being mortals.
2. *Respect for human dignity – as an intrinsic value – must be at the centre of every kind of specialised care.* Beyond the necessary basic skills of specialised care, our humanity is the most important instrument there is to communicate ‘company’ and ‘solidarity’.
3. *Seeing the person as an ‘unicum’, as a unique human being who must be the protagonist of the whole process of care, respecting his or her values and his or her choices (autonomy).* A person is not only ‘biology’, a physical body, but also and above all ‘a biography’ that narrates to us his or her identity and history. Beyond the field of technical and biological care, ‘entirety’ means excellence of care with reference to the ‘biographical’ aspect of the human person. In addition to the physical dimension, we discover the psycho-social and spiritual dimensions of human life.
4. *Vulnerability is the very essence of human life, at its beginning and its end.* Care is a response to these two extremes that we call ‘protection’. Protection is a response to vulnerability and not to autonomy! Human life at its beginning and end is vulnerable to the highest degree. We must be extremely cautious with some approaches to the end of life that are made in the name of autonomy. In practical terms it means only abandonment and indifference towards dying people.
5. *Treating the dying person and his or her family as a ‘care unity’.* Principally in the Latin and African world, we are faced with ‘cultures directed towards families’. The mediation of the family, of communities of people (the wider family), is always an important element for any type of choice or decision connected with health-care treatment. Informed consent is more than an individual decision or a choice: it is a community question.
6. *Paying attention to the process of communication.* In some cases at the end of life verbal communication does not exist. Non-verbal communication must

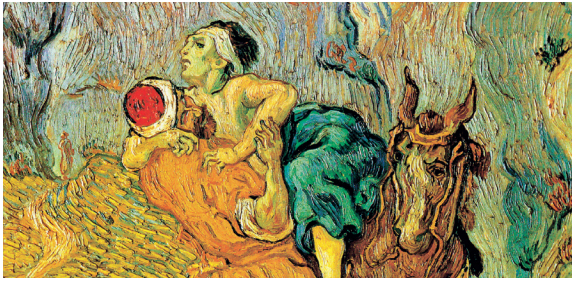
²¹ COSMACINI G., *Camillo: un uomo divenuto santo* (Missione e Salute, Milan, 2014). In particular the complete text ‘*Regole per ben servire gli infermi*’ written by Saint Camillus de Lellis between 1584 and 1585, pp. 93-97.

be addressed (body language). At the heart of human relationships, communication is fundamental. This is what transforms the concept of time as *kronos* (clock time) into *kairós* (time of grace).

7. *Reverence and silence in front of the person who is faced with pain and suffering (the dying person)*. It is imperative to avoid any type of moral judgement. Pain requires medical products and in the face of suffering we have the challenge of helping a person to find a meaning and act according to transcendental values (spirituality).
8. *Recognising the need for self-care for those who are entrusted with professional care (caring for those who provide care)*. To be a good companion in this very critical situation of life and death, a health-care professional must learn to take care of himself or herself. This will avoid the very common illness of so-called burn out! Frequent encounters are necessary not only for technical discussions but also for the sharing of values, feelings and emotions experienced during care for the dying.
9. *Learning the lesson of true solidarity!* In addition to doing things, solidarity is ‘only being with’ at the crucial moment when we feel powerless and there is ‘no longer anything to say or do’! It is enough to be present! Do not run away or sleep! This means being vigilant at the Gethsemane of the lives of people. Vigilant presence is the very essence of true humanity!
10. *Discovering and embracing the grace and the beauty of the human person!* To have this experience it is necessary to put together ethics with aesthetics! Ethics today is very distant given that it is linked to law, to rights and to obligations. Being a companion on the final journey of life of someone means nurturing reverential respect in the encounter with the other, that is to say the masterpiece of God. Care for the other is not only a professional obligation for a simple survival or a legal duty, but something of extraordinary beauty. Yes, we must re-establish the concept of ‘beauty’ at the centre of our relationships with other people.

Final Observations

We have a great challenge in front of us to embrace our human condition as finite and mortal beings. The ideology of post-humanism and medicalisation of all the stages of our lives seeks to deny every sign of ageing on our faces, searching for eternal youth and treating mortality as though it was a mere illness for which we can find a cure! In this way, this ideology seeks to deny and conceal every sign of ageing, suffering and death amongst us. In this way it marginalises and abandons only those people who remind us about this ‘hard’ human reality, who are suffering and in need, aged and dying! On this pathway we are constructing a wall of indifference rather than building a bridge and a culture of genuine care that



Vincent van Gogh, *The Good Samaritan* (1890)

rightly embraces those who are most in need at a time of their lives of extreme frailty²².

We must resist being seduced by the ideology of the employment of technology to produce a ‘body without age and a happy soul’! In accepting our human condition as mortal beings we are implicitly affirm-

ing that we are opposed to the development of science in the discovery of cures for incurable diseases (Parkinson’s, Alzheimer’s, HIV Aids, etc.) to help humanity to live longer in a correct happy and dignified way. There are limitations to our human condition that an ethical science must respect! Simply, we suffer from conditions that unfortunately do not have a cure: as creatures in this world, we are finite and mortal.

To summarise, it is beautiful to be discovered and embraced in our human condition, even if it is marked by frailty, by vulnerability, by age, by illness and by death!

This grace can be discovered and valued through the eyes of a Samaritan faith and action. If we adopt this approach of values, the search for the other whose life is marked by the vulnerability of the human process of being a mortal creature; ‘being with’ and ‘walking together’, as a companion, in the uplands, in the mountains and in the valleys of our human lives, but especially when we have to address the unknown and the terrible valley of death... Then we can sing, like the psalmist in psalm 23, ‘I am not afraid because the Lord is our good Shepherd who walks with us and protects us’!

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²² PESSINI L. and BARCHIFONTAINE C. de P. (eds.), *Bioética & Longevidade humana* (Edições Loyola & Editora do Centro Universitário São Camilo, São Paulo, 2006).

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CHAPTER VIII

| The Future of Bioethics and Bioethics in the future in Times of Globalisation |

Concerns, Expectations and Hopes!

'If bioethics is not critical it can become apologetic or ideological'.

Bruce Jennings, Editor of *Encyclopaedia of Bioethics* (fourth edition) 2014.

'If there are two cultures which seem to be able to speak – Science and Humanity – if this is a reason why the future seems uncertain, then perhaps we could build a bridge from the future edifice of bioethics as a bridge between two cultures'.

Van Rensselaer Potter.

'Our epoch is beginning seriously to take into consideration the possibility of the trans-human through biotechnological improvements of biological human capacities such as duration, type of personality and intelligence. What will be the state of altruistic generation of human beings who adventurously are making great efforts to change the time of life? Will compassion be left aside in favour of stronger muscles, greater longevity, permanent happiness and eternal beauty? Or are the care and compassion that are inside us the ultimate human improvement?'

Stephen Post, editor of *Encyclopedia of Bioethics*,
New York (third edition) 2005

Introduction

Bioethics will have attained twenty-five years of existence in the year 2015. Bioethics began with the pioneering insights and events of the early 1970s in the United States of America, with Van Rensselaer Potter at the University of (Madison, WI), and Helleggers and his colleagues in Washington D.C. at Georgetown University and the Kennedy Institute. Since its birth until today bioethics has evolved, changed and been transformed, just as the world has itself become more globalised, with the involvement of other cultures and other countries other than those of the Anglo-American context, in this way incorporating the perspectives of Latin America, Asia and Africa. Today, indeed, we speak about *global bioethics*.

One of the first works of analysis was the *Encyclopaedia of Bioethics* which was published by Georgetown University in its first edition in 1978 with Thomas Warren Reich as its editor. From that initial moment until today, this publication has come out in four editions: the second in 1995, the third in 2004, and the last completely renewed and revised edition in 2014 edited by Bruce Jennings.

In the editorial of the previous edition of our review *Bioethikos* I commented on the evolution of the various editions of this Encyclopaedia which is now simply called 'Bioethics'. In this editorial note I will continue the exploration of certain aspects that are linked to the future of bioethics, starting with this work which is fundamental for bioethics itself. In the fourth edition three fundamental aspects of this development clearly stand out.

We are faced with bioethics that has become more professional and addressed with the rigour specific to a discipline of an international and global character. Let us now observe in an objective way these aspects. Bioethics is becoming increasingly *professional*, given that the first students to graduate in bioethics have emerged: they have been literally the first *bioethicists* trained with bioethics programmes at the various academic levels of master's, PhD and post-doctoral work which are legally recognised in many countries.

Today a new professional figure in the world of health and health care is emerging whose identity is developing in the form of a professional *bioethicist*. This figure is very different from the majority of those people who study and write on issues connected with bioethics but have trained in other disciplines such as medicine, nursing, philosophy, theology and law, to mention only a few, and then go on to teach and work in the field of bioethics. Many authors of the fourth edition of the *Encyclopaedia of Bioethics* could be called bioethicists in this sense. Many of the people who have the greatest knowledge and experience in bioethical questions have entered this area of research because these subjects were intrinsically contiguous and important for their work and their thought, but these scholars have other identities and intellectual and professional origins. This scenario will change in an important way within few years.

The field of bioethics is adopting an increasingly marked 'disciplinary rigour' in the sense that the intellectual agents whom we could call 'bioethicists' are more aware of their approaches, rigour and methodological requirements in addressing questions with a scholarly rigour. Various research publications have emerged on the epistemological status of bioethics in an area of intersection between two cultures – science and the humanities – with interdisciplinary characteristics. Articles on general methodology in bioethics, and empirical methodology in particular, which look at the field of inquiry from the point of view of the social sciences, and those that study the characteristics of the analysis employed and tensions at the level of ideology and legitimisation, bring out the intellectual, professional and economic forces that have an influence on the field of bioethics and the increasing diversity of approaches that exists. Various paradigms of bioethics should be highlighted: we are speaking about 'bioethics and different forms of bioethics' or

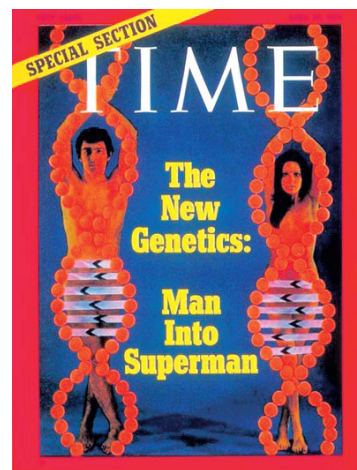
‘bioethics or different forms of bioethics’(divisions?) which always correspond to the challenges of the realities in which they find themselves. Pluralism in this area of research is an inevitable reality.

Lastly, as a third characteristic, bioethics has become more international and thus more global, creating in countries of the developed world and more recently also in the poorer countries of the southern hemisphere of the planet its own institutions of education and research in bioethics. Today most developed countries have their own national bioethics committees which advise governments and civil servants in the drawing up of new public policies connected with bioethical questions as regards the application of new technologies. The work of such international agencies of the United Nations as UNESCO and the World Health Organisation (WHO) have contributed a great deal to important documents in the context of human health, bioethics and research on human beings, and in the dissemination of bioethical thought amongst its member States.

Today bioethics is provoking a great deal of interest not only with the general public and the mass media in general, above all because of questions connected with the end of life (euthanasia, assisted suicide and exaggerated treatment), but also in relation to multi-centred and international research projects on genetically modified organisms (GMO), the transfer of technology and patents, and research in the field of synthetic biology, to cite the three areas of greatest international cooperation. The HIV/AIDS pandemic has certainly been an important factor in the growth of international interest in bioethics. Many articles have centred on the subject of AIDS and questions connected with human rights.

Looking to the future, bioethics will engage in another important step and will become global. This is necessary because questions relating to the management of power, correct scientific research, technology and health, which bioethics in fundamental terms addresses, today have no limits at the level of frontiers, and the legal sovereignty that separates nations and States is more an obstacle than a help or a guarantee in the management and the regulation of biotechnology and its connections with the economy in today’s world. To these elements are added the great ecological challenge collected with global warming. We are faced with problems that concern the whole of humanity at the level of its future existence. Global problems require, therefore, a global approach!

With these three characteristics of professionalisation, greater disciplinary and methodological rigour, and the global expansion of the focus of inquiry, bioethics has constructed its epistemological identity and deigned the profile of its acting



Cover from 'Time' (19 April 1971)

subject, namely a new professional figure called a 'bioethicist', thereby projecting a promising future as well.

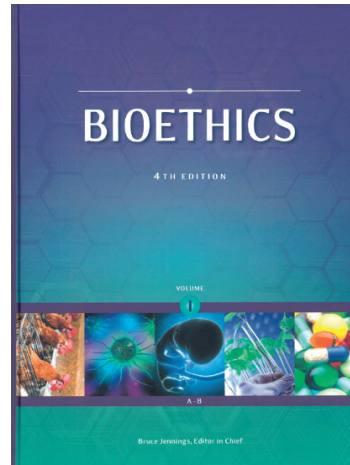
In this sense of a projection towards the future, it is interesting to observe that the Bioethics Council of England, called the Nuffield Council, an independent organisation but one which advises the British parliament and government, inaugurated its academic year in November 2014 by organising a round table with four experts, all of whom were women – perhaps fearing a reaction of the female role in the face of a history fundamentally written by men? – on the subject 'Bioethics in 2025: What will the Changes be?'. We have a very impressive summary of the views of these four speakers on questions that will be important for bioethics over the next decade, with initial answers to the first essential questions 'what is bioethics?' and 'who are experts in bioethics?', before an analysis of the challenges for the next decade.

Below I refer to some of the questions that have been raised: 1. the development of a more inclusive approach in bioethics. The voices that hitherto have been silent (or silenced?) should be listened to: children, ethnic and cultural minorities, patients and health-care workers, the users of health-care systems, amongst others. 2. we need to have greater access to technologies of human reproduction. 3. There should be a more global and fairer access to health care (universal access to health care). 4. We will understand better that the limits of our moral community should not be confined to the human universe alone, as is the case today, but, rather, should embrace all living beings, including the cosmic-ecological sphere (the pioneering insight of Potter). 5. In terms of human improvement, this means that our bodies will be repaired or improved by realities from the animal or mechanical world (the beginning of post-humanism?). 6. The scientific and ethical challenges as regards a 'moral pill' which fosters feelings of trust, empathy and cooperation, as opposed to envy and violence, for example. This was the provocation of the biologist Molly Crockett, a lecturer in experimental psychology at the University of Oxford. Clearly we still do not know what kind of behaviour we could improve or whether the complexity of the chemistry of our brains impedes the bringing about of the changes that are wished for!

Lastly, in addition to the personal projections of our scientific perceptions and our systems of values, it is our responsibility to build the future. It is not the future that we should fear but a future without bioethics, given that without bioethics it may be that there will even not be a future! For the good of our lives and the lives of future generations we can say that the guarantee of our survival in the future is without doubt the cultivation of bioethical values today!

1. Some Innovative Characteristics of the Fourth Edition of the *Encyclopaedia of Bioethics*

Bioethics is about to reach its twenty-fifth birthday if one considers that its appearance in the 1970s in the United States of America with the insights of Van Rensselaer Potter (Wisconsin University, Madison, WI), and the Kennedy Institute (Georgetown University) in Washington D.C., produced in 1978 an important reference work. I am referring here to the publication of the first edition of the *Encyclopaedia of Bioethics* in two large volumes under the editorial guidance of Reich Thomas, a researcher in the ethical field at the Kennedy Institute of Georgetown University. Reich was also the chief editor of the second edition of this work which was revised, updated and published in 1995 by Simon & Schuster Macmillan (New York). The third edition, which was published in 2004 by Macmillan Reference USA/Thomson and Gale, had as its new chief editor Stephen G. Post (*Case Western Reserve University*) who had previously worked with Reich as associate editor on the second edition.



Encyclopedia of Bioethics (2015)

With its first publication in 1978 the *Encyclopaedia of Bioethics* had already become the first reference point for those dealing with the new promising field of bioethics, contributing to a definition of the discipline itself. At that time the promising field of bioethics was not well defined and not sufficiently recognised. Both the first edition and the second edition (1995) are still fundamental reference points for bioethics both for teachers and for students, as well as for those who work in the field of health care, philosophy, ecology, law and the study of religions.

The latest edition of this monumental work, which was completely revised and updated for its fourth edition of 2014, had as its editor Bruce Jennings (Yale University, College of Public Health, New York) and offers, compared to the previous editions, a complete revision and updating of all the questions and issues. This edition was broadened to include opinions and perspectives that come from other countries and nations, as well as the principal North-American outlook specific to its origins, on questions such as abortion, a Hindu vision analysed from the point of view of health-care controls, social responsibility, access of health care, research on stem cells, as some of the very important questions of the current stage of development of bioethics.

In the introduction to the first edition of the *Encyclopaedia of Bioethics*, the chief editor Warren T. Reich defined bioethics as ‘the systematic study of human conduct in the field of the life and health sciences, where this behaviour is exam-

ined in the light of moral values and principles'. This definition was the basis of the first three editions of this work (1978, 1995 and 2004) and became the point of departure for this new revised and updated edition. The aim of this new reformulation depends on what is included in 'life sciences', on the definition and the determinants of health and ethical methods. These questions, as was the case in the previous editions, are addressed in a very broad and expert way.

Perhaps echoing the sixth World Congress of Bioethics which was held in Brasilia in 2002 and whose central theme was 'Bioethics: Power and Injustice', Bruce Jennings in the introduction to this fourth edition states that 'this edition of Bioethics does not disdain questions of power in the field of science, technology and health. The ethical dilemmas are often indicative of structural inequalities and injustice. These subjects are explored in numerous articles relating to public health, injustice and exploitation, racism, and problems connected with the well-being of children, generation and sexuality' (cf. Introduction, p. XIX). The chief editor of this fourth edition states that 'in 2014 the sector of bioethics changed and is still at a stage of mutation. The three principal developments that have been highlighted in the vast gamut of articles demonstrate a greater professionalism, disciplinary rigour and international expansion with the recognition of a global perspective'. It is stated in a clear way that bioethics has become global. Questions such as power, justice, science, technology and health, and research on human beings, which bioethics has addressed hitherto, now no longer recognise rigid geographical boundaries as was the case in the past.

Starting with this fourth edition, the whole appellation of the work, called the *Encyclopedia of Bioethics* for the previous three editions, was simply changed into *Bioethics*. It is made up of six volumes, with 569 articles, of which 221 were new and published for the first time in this edition. 108 of these addressed questions which were not dealt with in the previous additions. It contains new articles on subjects such as 'Abortion: Perspective Starting with Hinduism', 'The Abuse of the Health-care Profession', 'Biodiversity', 'Cognitive Disability/Traumatic Injury to the Encephalon', 'Hospitals: Ethical Questions of Governance', 'Humanitarian Aid', 'Nuclear Weapons', 'The Pedagogy of Bioethics'...

In this edition greater emphasis is placed on a large number of topics. We have witnessed a greater attention paid to public health, with the discussion of questions of ethics and public health-care policies and bioethics, such as infectious diseases, epidemics and environmental health. In a context of innovation, with the reform of health-care systems which are in crisis throughout the world, both in the United States of America and in other countries, many articles of this edition address this subject and the improvement of health care, its quality and its sustainability, as well as economic justice, both at a domestic and an international level. The subjects of ageing, chronic and degenerative diseases, and long-term care indicate a renewed sensitivity to such issues. Changes in attitudes to, and public policies on, abortion at an international level are amply analysed. There is greater emphasis on new developments in the field of biotechnologies, genetics

and human reproduction as well as care and treatment at the end of life, with greater attention being paid to palliative care.

Lastly, the fourth edition of this monumental work on bioethics highlights greater emphasis on environmental ethics, its philosophies and theories (biocentrism and ecocentrism); on scientific disciplines (ecology, conservationist and evolutionary biologies); and on the problems of a public character (climate change, loss of biodiversity, the dangers that threaten environmental health, clean water and technological effects connected with ecology and health, the organisation of agriculture and its practices, amongst other questions). Subjects such as post-humanism and trans-humanism, developments in the neurosciences, nanotechnologies, and synthetic biology are subjects where a creative commitment of bioethics and environmental ethics seems to be very interesting and promising.

In the view of Bruce Jennings, one way of looking at an academic encyclopaedia in any sector is to understand it as a compendium of the most recent knowledge and academic discussion in a particular area of human knowledge. This is the idea of an encyclopaedia as a *mirror*. A reference work of such quality is of great utility and evident value. Another way of understanding an encyclopaedia is to see it not only as a compendium of knowledge but also as a publication that expands and develops a particular area of knowledge beyond current positions. This vision of the encyclopaedia reflects what is behind it in terms of its historical pathway and at the same time throws light on the future that awaits us. This is the idea of an encyclopaedia as a *lamp*. From this point of view this encyclopaedia could be a creative intellectual force in the dynamic field of the development of bioethical knowledge, inspiring new directions of research and taking into account new problems and theoretical approaches that have not received a great deal of attention during the current stage of the development of bioethics.

2. A post-human future: ideology or utopia? threat or hope?

One of the most important challenges for bioethics at the beginning of the twenty-first century, which has been baptised ‘the century of biotechnologies’, is the arrival of the first signs of a new epoch which is defined as the era of post-humanism or trans-humanism. Humanity has still not managed to apply through a practical implementation the famous ‘Universal Declaration of Human Rights’ (UN, 10 December 1948) and we are already beginning to take into serious consideration the possibility of the ‘trans-human’ through biotechnological improvements in biological human capacities as such: duration, types of personality and intelligence, the re-programming of the human mind, just to mention some elements.

Genetics, nanotechnologies, cloning, cryogenics, cybernetics and ICT, bio-gerontology and anti-ageing medicine are all part of a post-human vision which also includes the hypothesis of developing a computerised mind without flesh and

mortality and thus immortal! For the post-humanists, biology and human nature as we understand them today are not a destiny to which the whole of humanity must resign itself but, rather, something that is temporary, grotesque, and something to be overcome and improved.

Is this perhaps a contemporary version of the myth of Prometheus, the Greek titan who stole the sacred fire of the gods? Is this not a mere scientism that should be fought, which seeks to re-programme human nature so as to create human beings that are biologically and tech-



nologically superior? For others, all these efforts are seen as a step ahead in the development of technological forces in favour of ‘human improvement’. This is a battle between two great visions of two sets of militants – the so-called ‘post-humanists’ and ‘bio-conservatives’.

Post-humanism raises very serious questions in the field of bioethics. It directly concerns the goals and aims to be reached through the acquisition of biotechnological power and not only problems of security or the efficacy or morality of the means that are employed. It involves the nature and the meaning of human freedom and the development of the human. The current trends seek to open up the road to going ‘beyond therapy’ and ‘towards perfection and happiness’ which is already promised as a reality to be found in our lives. For example, repairing a deficiency in sight and being able to see the colours of life are important improvements that should be welcomed. This is said to be a form of therapy that would enable us to live more fully. The growing use and acceptance of aesthetic surgery, medical products to improve the performance of the body and mood, the selection of the sex of children, surgical operations to lower weight and remove wrinkles, treatment for baldness, etc.: these practices have already become big business. Important investments have been made in research in the field of the neurosciences and in the study of the biological date of psychiatric disorders correlated with all mental states. It appears clear that the new discoveries have generated a great deal of hope as regards the working of the psyche and the biological bases of behaviour, certainly increasing our capacity, and our wish, to change and improve. But is there a limit to all of this? Or is the limit given by how much knowledge we have at a given historical moment? We must remember that not everything that is technically possible is in itself ethically commendable!

Techno-science in itself, like biotechnology, is not an evil – indeed it is the cause of a great deal of good but also of harm when it is used without ethical criteria. It is an instrument and as such it must be carefully examined and handled on the basis of fundamental human ethical values. The ideology of post-humanism which wants to transform itself into instruments that hope to obtain immortality is, however, an illusion. Even though consensus is difficult to achieve in terms of improvement technologies, humanity should speak about these technologies which intend to dominate not only physical and bio-physical nature but also the human body itself, or better, the human condition, so as not ingenuously to become the prisoner of enslaving scientific utopias, with the risk of offering our future to the hidden forces of the market.

Differently to what happened with other technical and scientific transformations in the past, today, faced with the expectations offered by technological innovations, we must cultivate not only attitudes of welcome and optimistic feelings but also a good level of healthy scepticism! Humanity has learnt a great deal from the great collective tragedies of the twentieth century which were in large measure nurtured by techno-scientific utopias. Today we live in a risk society where each new step forward in the technological field requires not only prudence but also caution. Our monitoring and vigilance are increasingly necessary, as are public control and control by national bioethics committees in order to advise our public powers.

We urgently need to cultivate, together with scientific boldness, ethical prudence which is always necessary. What are the so-called '*fundamental human qualities*' which we should never change? From the environmental question we have inherited the commitment to learn humility and respect for nature which should be applied here as well. We ask ourselves whether in the future compassion, solidarity and care will be overtaken by biotechnological research to obtain stronger muscles, greater longevity, permanent happiness and beauty or whether these virtues are the 'ultimate human improvement' to be desired.

We are faced with a tension between threats and hopes, between ideology and utopia! We need safe and prudent ethical reference points to discern which of the proposed modifications are salutary, and in this case we can, and we must, encourage them, and which are destructive and can compromise the lives and dignity of human beings and the future of life itself on the planet and which are clearly to be avoided! A human being cannot flee from this critical moment of our history; he must shoulder the responsibility of making a wise choice or run the serious risk of disappearing!

New knowledge generates new powers for man and man can with pride also wish or seek to be 'God'. It is for this reason that this is the time of ethics, of critical awareness, of freely taking responsibility for the future of human life. From this point of view, scientific progress means hope and not fear of the worst! Prudence, caution and responsibility are the essential bioethical reference points in this scenario.

Where has scientific progress brought us? What could still change in our lives? This is one of the most important challenges for bioethics at the beginning of the twenty-first century, which has been baptised ‘the century of bio-technology’. All aspects of human life are at a stage of being colonised by technological discoveries, from the initial until the final stages of our existence.

Science, one of the most prestigious reviews of scientific current affairs in North America, in a very creative and original way when completing 125 years of existence (on 1 July 2005) listed the 125 questions that still do not have answers about the universe, life and man. ‘Unsolved mysteries nourish science by offering motivation and direction’, observed Tom Siegfried, an American journalist. Amongst the twenty-five most detailed mysteries for *Science* in the various areas of human knowledge, those connected with the subject of ethical thought, with the arrival of the era of ‘post-humanism’, may be referred to:

- a. *Astronomy*. What is the universe made of? Are we alone in the universe?
- b. *Genetics*. Why do human beings have so few genes (about 25,000 structural genes – half of a rice genome)? To what extent can one link genetic variation to personal health? What genetic changes make us human?
- c. *The body*. What is the biological basis of consciousness and when can it be extended to life? How is regeneration controlled? How does a skin cell become a nerve cell? How is the memory conserved and retrieved? Are we able to eliminate the immunological response in a selective way? Is a vaccine against HIV possible?
- d. *Biology*. How can a somatic cell become a plant? What causes the diversity of species? How and where did life begin? How did behaviour in cooperation evolve? Will there be a sea of biological data?
- e. *The earth*. How does the centre of the planet function? How warm will our world be with the greenhouse effect? Will Malthus continue to be mistaken? What can take the place of oil at a cheap price and when?

It is important to emphasise that the twenty-five mysteries that are discussed only refer to three of the eight areas of knowledge, that is to say genetics, the body and biology. There are another fifteen of the twenty-five greatest mysteries. It is specifically here that the work of the life sciences is of the greatest significance. Even though humanity, through scientific knowledge, has already decoded many mysteries connected with the universe and human life, we realise that we still have many challenges ahead of us.

This question is so important that it stimulated the thought of the then North-American Bioethics Committee which advised the Bush administration. Under the leadership of its chairman, Leon Kass, it produced a document which addressed these critical points connected with the development of biotechnologies. The title of this study is indicative: ‘Beyond Therapy: Biotechnologies and the Search for Happiness’.

Two brilliant works of science fiction marked the twentieth century as regards thought about the future of humanity. The novel *1984* written by George Orwell (published in 1949) and the novel *Brave New World* by Aldous Huxley (published in 1932). These works concentrated on two different technologies that would in fact arise to shape the world over the subsequent generations. *1984* dealt with what we today we call information and communication technology: of fundamental importance for the vast totalitarian empire that had been constructed in Oceania was an instrument known as the telescreen which could send and receive pictures simultaneously to and from every home – a floating *Big Brother*. The telescreen was what allowed a great concentration of social life under the power of the Ministry of Truth and the Ministry of Love, enabling the government to abolish privacy and to monitor every word and every action. *Brave New World*, in its turn, addressed a great technological devolution – biotechnology. This work was published in 1932 but it is advisable to remember that the so-called discovery of the century, the identification of the structure of DNA, took place only two decades later, in 1953. *Bokanovskização*, that is to say the incubation of people not in wombs but, as is said today, *in vitro*; a drug that provided immediate happiness to people; a film that could be felt where sensations were stimulated through the implanting of electrodes; the modification of behaviour through constant subliminal repetition and when this did not work through the administration of various artificial hormones – these are some examples of this invented scenario, a scenario that is simply frightening.

Pope Benedict XVI, on the occasion of his homily during the vigil of Easter Saturday (3 April 2010), placed in his reflections some questions connected with technology which nurtures in human beings the prospect of overcoming their mortality because they are able to speak about a post-human future. ‘Man’s resistance to death becomes evident: somewhere – people have constantly thought – there must be some cure for death. Sooner or later it should be possible to find the remedy not only for this or that illness, but for our ultimate destiny – for death itself. Surely the medicine of immortality must exist’. Today as well, man are looking for such a curative substance. Contemporary medical science, which is unable to exclude death, continues to nurture this search by eliminating the largest possible number of its causes.

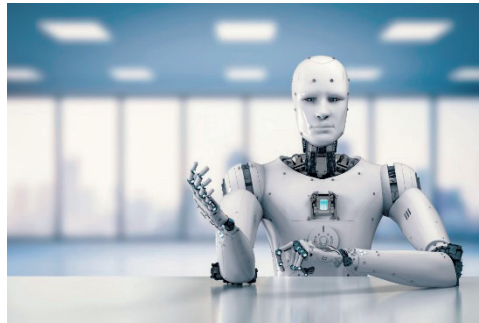
3. The ten most important scientific advances of 2014

The North American review *Science* which is published by the American Association for the Advancement of Science every year makes an assessment of the important events that had taken place during that year in terms of development and/or scientific discovery. For the year 2014 it presented a list of the ten scientific discoveries with the most promising prospects in the context of human health as regards overcoming chronic degenerative diseases such as diabetes, Alzheimer’s,

cancer and AIDS. In the same context there are also thorny bioethical questions connected with genomics, the neurosciences and nanotechnologies, above all when one begins to analyse the brain, with the implanting of chips and the removal of negative memories, interference with DNA, and the addition of new letters to the alphabet of life.

1. *The Rosetta Mission and the encounter with a comet.* With an investment of 1,4 billion euros, the European Space Agency launched the satellite Rosetta in 2014 and in ten years it travelled 6,000 million kilometres to reach the comet 67P, a small object which is only four kilometres long and travels at 135,000 kilometres an hour in space. On 12 November it dropped the probe Philae which then landed on 67P. The landing was the great achievement of this mission. About 80% of the scientific results of the mission will arrive on the satellite Rosetta which is continuing on its way together with the comet.
2. *Rewriting the memories that have been removed by our memories.* An experiment carried out at the Massachusetts Institute of Technology (USA), led by Dr. Susumu Tonegawa, could rewrite the memory of certain mice, transforming their traumatic memories into something pleasant and enjoyable through ontogeny. This revolutionary technique introduces certain genes of seaweed that are sensitive to the light into the DEL groups, 'neurons that contain memories', and they are able to illuminate brain cells with a laser light. This would be the end of mourning – our 'pain' which is associated with the death of the people dearest to us.
3. *Art in caves and European protagonism.* Until this year Europe had a monopoly of the symbolic art of the Palaeolithic age, with spectacular hands, bison, rhinoceroses, lions and bears painted in grottos such as those in Chavet in France about 39,000 years ago. In October the archaeologist Maxime Aubert of Griffith University in Australia announced the discovery of paintings in the caves of Maros in Indonesia on the Island of Sulawesi, paintings which go back to 39,000-35,400 years ago. They have about ten hands imprinted on a rock and two paintings of pigs and these are older than the first depictions of animals in Europe. Either the Indonesians invented symbolic art on their own or modern human beings were already refined when artists began to colonise the world starting from Africa about 60,000 years ago.
4. *DNA and another two artificial letters.* The alphabet of life, DNA, writes with the same four letters G, C, T and A (the four initials of the organic compounds that make up DNA – guanine, cytosine, thymine and adenine) all the books of microscopic instructions provided in all the cells of living beings. This alphabet of life was reanimated in a laboratory of the Scripps Research Institute (USA) where scientists created two new artificial letters called X and Y and inserted them into the DNA of a living being, the bacterium *Escherichia coli*. This opens up the prospect of the creation of artificial bacteria that are able to synthesise medical products or produce of fuel and other applications. One could say that this is one of the results of the Human Genome Project (2000).

5. *The multiplicity of dwarf satellites (CubeSats)*. The year 2014, with the launch of seventy-five dwarf satellites, reached a record for launches into space and democratised space. These are cubes that are about ten centimetres wide and weigh less than a kilogramme. They are equipped with technology to monitor deforestation, urban development and changes in river beds and other applications. Thanks to their low cost, companies, universities and research centres can have access to information and data that have hitherto been inaccessible. These are the new scenarios brought about by the development of the nano-sciences and nanotechnologies.
6. *Robots that erect pyramids without human coordination*. Robots have been created that can work as a team without human supervision. One of these projects – drawn up Harvard University (USA) – is based upon termites in order to obtain robots that are able to erect very elementary pyramids, towers and castles starting with very elementary instructions and without the coordination of a chief or a work plan.
7. *Young blood that rejuvenates*. The blood of a young mouse can rejuvenate the muscles and brain of rats according to two studies by the Harvard Department for Stem Cell and Regenerative Biology at Harvard University (USA) directed by the scientist Douglas Melton. At Stanford University (USA) this experiment has also begun to be tested on human beings with a sample of eighteen Alzheimer's patients who are given the plasma of young donors.
8. *Dinosaurs led on to birds*. Dinosaurs did not die out: they evolved and led on to birds. A study of researchers at the University of Oxford (UK) calculated the corporeal mass of 426 species of dinosaurs starting with the size of the bones of their feet. The gamut goes from the 90 tons of *Argentinosaurus* to the 15 grams of *Qiliana fraffini*, an ancestral bird. This study demonstrated that dinosaurs gave rise to birds and reduced their body mass in order to adapt to the new context created by massive volcanic eruptions and waves of cold caused by the fall of an asteroid on the earth sixty-six million years ago.
9. *New cells to cure diabetes*. Two important initiatives were taken to treat diabetes, a chronic disease that means that a person is not able to regulate the quantity of sugar in his or her blood. This disorder takes place because of a lack of insulin which is a hormone produced by the beta cells of the pancreas which transports the glucose in food from the blood to the muscles, to fat and to the liver. The scientists of the Stem Cell Foundation of New York managed to create cells that produce insulin from cells of the skin of a woman aged thirty-two with type 1 diabetes using a technique known as therapeutic clon-



ing. Another team of the University of Harvard managed to transform human embryo cells into insulin-producing cells.

10. *The invention of chips that imitate the human brain.* IBM introduced the TrueNorth chip which is the size of a postage stamp and tries to imitate the working of the human brain with its network of 86 million neurons and billions of connections. At the present time this chip is still far away from the performance of the 1.5kg grey matter of every person which can make 256 million connections with its own transistors. The prospect of a technological change will allow the carrying out of operations with a large number of data in an increasingly effective way. These are very promising pathways for the neurosciences and they are demanding as regards neuro-ethics.

4. Bioethics and the search for an integral anthropological vision

We are going through a historical moment that is marked by ‘uncertainty’ and as a consequence we are faced with an increase in fundamentalism and relativism in various areas of human knowledge. Bioethical analysis is not extraneous to this wider context which, indeed, conditions it. One of the reasons behind the growth of fundamentalism in the sector of bioethics is the negligence with which the fundamental anthropological question is neglected: ‘who is a human being’. This is the cornerstone on which any bioethical paradigm is based in terms of its contents and its theory, and its concrete options as well.

Our challenge is to try to put together the sciences that are concerned with the human being with the development of a map of anthropology that is relevant to bioethics. In general, we can make a distinction between theocentric anthropology and anthropocentric anthropology. Theocentric or transcendent anthropology (the human being is seen as a spiritual being) includes the great religions of humanity both in the West and the East. In Christianity the ‘eminent dignity of the human being’ is the result of his divine sonship as a creature made in the ‘image and likeness of God’.

Today in many academic scientific environments, which are still the prisoners of a decadent positivism, secularist anthropologies predominate. One may speak about five categories of responses to the anthropological question. 1) The positivist-empirical vision, whose image and idea of the human being derives from what is observable and verifiable with the methods of the natural sciences (man-machine); 2) the psychological-behavioural vision which emphasises human subjectivity, that is to say a combination of sensations, insights and emotional experience (man as a being of feelings and motions); 3) the philosophical vision (man as a thinking being) concentrates on human reason to understand the reality of moral life and deduce the good life for man; 4) the pragmatic utilitarian vision, *homo faber*, for which man is a being who creates new things and is able to transform the

environment in which he lives; and 5) the economic vision, *homo oeconomicus*, according to which man is a being who is able to produce and accumulate wealth.

Dialogue and respect for the differences between these different anthropologies are the *conditio sine qua non* to avoid falling into fundamentalism, whether of a theological, philosophical or scientific sort. In a context of pluralism one should cultivate a healthy secular vision that avoids secularism (closure in the immanent world). In essential terms every anthropology captures some essential aspect of human existence. The difference in each outlook is its contribution to a better understanding of everything. Even if we can be sceptical about achieving an overall concept of what constitutes the essence of the human condition, as humanity we need to achieve at least some agreement on what is fundamental and essential for our humanity and for the ethical values that should defend and guarantee our standards of law and public order. Given the hegemony of the economic factor, which is called *economicism*, in all dimensions of human life, we forget that just as things have a price so people have dignity (Kant) and that this should always be recognised and respected. May God liberate us from cynicism which is very similar to that of some insensitive people of power who ‘know the price of everything but the value of nothing’ (Oscar Wilde)!

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APPENDICES

Appendix I

*Introduction to the Declaration of Astana
Strengthening Systems of Primary Care
in order to Achieve Universal Health-Care Coverage!*

In the context of the celebrations for the fortieth anniversary of the famous *Declaration of Alma-Ata* (1978), the World Health Organisation (WHO), in coordination with UNICEF and the Ministry of Health of Kazakhstan, organised an international conference on basic health care. The meeting took place on 25-26 October 2018 in Astana, the capital of that nation.

Countries from all over the world signed the so-named *Declaration of Astana* and committed themselves to strengthening their basic health-care systems as a necessary pre-condition for the supply of universal health-care coverage and the achievement of the sustainable development goals (cf. Agenda UN – 2030). This document reconfirms and re-launches the historic *Declaration of Alma-Ata* of 1978 in which was coined the famous slogan ‘health for all by the year 2000’.

‘Today, rather than health for all we only have health for some’, said Tedros Adhanom Ghebreyesus, the Director General of the WHO. ‘All of us must accept the solemn responsibility that today’s declaration on basic health care will allow everyone, everywhere, to exercise their fundamental right to health’. Although the *Declaration of Alma-Ata* of 1978 laid the foundations for basic health care, the advances achieved over the last four decades have not been uniform. At least a half of the world’s population does not have access to essential health-care services, including treatment for non-transmissible and transmissible illness, maternal and child health, mental health, sexual health and indications for responsible parenthood.

‘Even if today the world is a healthier place for children, about six million children die every year before their fifth birthdays, chiefly because of absolutely preventable causes, and over 150 million children are underweight for their height’, declared Henrietta Fore, the Executive Director of UNICEF. ‘We as a global community can change this system, offering high quality health-care services nearer to those who need them. This is the basis principle of primary health care’.

The *Declaration of Astana* arrives in a context of a growing international movement involved in increasing investments in basic health care directed towards universal health-care coverage. Health-care resources are prevalently concentrated on initiatives for certain specific illnesses and not on basic health-care systems.

This is a gap that has been highlighted by various health-care emergencies over recent years.

UNICEF and the WHO will help governments and civil society to act in conformity with the *Declaration of Astana* and will encourage them to support change. Both agencies will support countries in implementing this *Declaration*, in cooperation with all other partners.

The *Declaration of Astana*, adopted by the conference, is committed to four strategic areas: the need to make courageous political choices for health in all fields: the construction of sustainable primary health care; the strengthening of individuals and communities in the defence of health; and the need to align support for the interested parties with the policies, the strategies and the national plans of individual governments.

GLOBAL CONFERENCE ON PRIMARY HEALTH CARE
From Alma-Ata towards universal health coverage
and the Sustainable Development Goals
Astana, Kazakhstan, 25 and 26 October 2018

We, Heads of State and Government, ministers and representatives of States and Governments¹, participating in the Global Conference on Primary Health Care: From Alma-Ata towards universal health coverage and the Sustainable Development Goals, meeting in Astana on 25 and 26 October 2018, reaffirming the commitments expressed in the ambitious and visionary Declaration of Alma-Ata of 1978 and the 2030 Agenda for Sustainable Development, in pursuit of Health for All, hereby make the following Declaration.

We envision Governments and societies that prioritize, promote and protect people's health and well-being, at both population and individual levels, through strong health systems; Primary health care and health services that are high quality, safe, comprehensive, integrated, accessible, available and affordable for everyone and everywhere, provided with compassion, respect and dignity by health professionals who are well-trained, skilled, motivated and committed; Enabling and health-conducive environments in which individuals and communities are empowered and engaged in maintaining and enhancing their health and well-being; Partners and stakeholders aligned in providing effective support to national health policies, strategies and plans.

I

We strongly affirm our commitment to the fundamental right of every human being to the enjoyment of the highest attainable standard of health without distinction of any kind. Convening on the fortieth anniversary of the Declaration of Alma-Ata, we reaffirm our commitment to all its values and principles, in

¹ As well as representatives of regional economic integration organizations.

particular to justice and solidarity, and we underline the importance of health for peace, security and socioeconomic development, and their interdependence.

II

We are convinced that strengthening primary health care (PHC) is the most inclusive, effective and efficient approach to enhance people's physical and mental health, as well as social well-being, and that PHC is a cornerstone of a sustainable health system for universal health coverage (UHC) and health-related Sustainable Development Goals. We welcome the convening in 2019 of the United Nations General Assembly high-level meeting on UHC, to which this Declaration will contribute. We will each pursue our paths to achieving UHC so that all people have equitable access to the quality and effective health care they need, ensuring that the use of these services does not expose them to financial hardship.

III

We acknowledge that in spite of remarkable progress over the last 40 years, people in all parts of the world still have unaddressed health needs. Remaining healthy is challenging for many people, particularly the poor and people in vulnerable situations. We find it ethically, politically, socially and economically unacceptable that inequity in health and disparities in health outcomes persist.

We will continue to address the growing burden of non-communicable diseases, which lead to poor health and premature deaths due to tobacco use, the harmful use of alcohol, unhealthy lifestyles and behaviours, and insufficient physical activity and unhealthy diets. Unless we act immediately, we will continue to lose lives prematurely because of wars, violence, epidemics, natural disasters, the health impacts of climate change and extreme weather events and other environmental factors. We must not lose opportunities to halt disease outbreaks and global health threats such as antimicrobial resistance that spread beyond countries' boundaries. Promotive, preventive, curative, rehabilitative services and palliative care must be accessible to all. We must save millions of people from poverty, particularly extreme poverty, caused by disproportionate out-of-pocket spending on health. We can no longer underemphasize the crucial importance of health promotion and disease prevention, nor tolerate fragmented, unsafe or poor-quality care. We must address the shortage and uneven distribution of health workers. We must act on the growing costs of health care and medicines and vaccines. We cannot afford waste in health care spending due to inefficiency.

We commit to:

IV

Make bold political choices for health across all sectors. We reaffirm the primary role and responsibility of Governments at all levels in promoting and protecting the right of everyone to the enjoyment of the highest attainable stand-

ard of health. We will promote multisectoral action and UHC, engaging relevant stakeholders and empowering local communities to strengthen PHC. We will address economic, social and environmental determinants of health and aim to reduce risk factors by mainstreaming a Health in All Policies approach. We will involve more stakeholders in the achievement of Health for All, leaving no one behind, while addressing and managing conflicts of interest, promoting transparency and implementing participatory governance. We will strive to avoid or mitigate conflicts that undermine health systems and roll back health gains. We must use coherent and inclusive approaches to expand PHC as a pillar of UHC in emergencies, ensuring the continuum of care and the provision of essential health services in line with humanitarian principles. We will appropriately provide and allocate human and other resources to strengthen PHC. We applaud the leadership and example of Governments who have demonstrated strong support for PHC.

V

Build sustainable primary health care. PHC will be implemented in accordance with national legislation, contexts and priorities. We will strengthen health systems by investing in PHC. We will enhance capacity and infrastructure for primary care – the first contact with health services – prioritizing essential public health functions. We will prioritize disease prevention and health promotion and will aim to meet all people’s health needs across the life course through comprehensive preventive, promotive, curative, rehabilitative services and palliative care. PHC will provide a

comprehensive range of services and care, including but not limited to vaccination; screenings; prevention, control and management of non-communicable and communicable diseases; care and services that promote, maintain and improve maternal, newborn, child and adolescent health; and mental health and sexual and reproductive health². PHC will also be accessible, equitable, safe, of high quality, comprehensive, efficient, acceptable, available and affordable, and will deliver continuous, integrated services that are people-centred and gender-sensitive. We will strive to avoid fragmentation and ensure a functional referral system between primary and other levels of care. We will benefit from sustainable PHC that enhances health systems’ resilience to prevent, detect and respond to infectious diseases and outbreaks.

VI

Empower individuals and communities. We support the involvement of individuals, families, communities and civil society through their participation in the development and implementation of policies and plans that have an impact

² In joining consensus, the delegation of the United States of America wishes to draw attention to objective 8.25 of the Programme of Action of the Report of the International Conference on Population and Development, which states “in no case should abortion be promoted as a method of family planning”.

on health. We will promote health literacy and work to satisfy the expectations of individuals and communities for reliable information about health. We will support people in acquiring the knowledge, skills and resources needed to maintain their health or the health of those for whom they care, guided by health professionals. We will protect and promote solidarity, ethics and human rights. We will increase community ownership and contribute to the accountability of the public and private sectors for more people to live healthier lives in enabling and health-conducive environments.

VII

Align stakeholder support to national policies, strategies and plans. We call on all stakeholders – health professionals, academia, patients, civil society, local and international partners, agencies and funds, the private sector, faith-based organizations and others – to align with national policies, strategies and plans across all sectors, including through people-centred, gender-sensitive approaches, and to take joint actions to build stronger and sustainable PHC towards achieving UHC.

Stakeholder support can assist countries to direct sufficient human, technological, financial and information resources to PHC. In implementing this Declaration, countries and stakeholders will work together in a spirit of partnership and effective development cooperation, sharing knowledge and good practices while fully respecting national sovereignty and human rights.

- We will act on this Declaration in solidarity and coordination between Governments, the World Health Organization, the United Nations Children’s Fund and all other stakeholders.
- All people, countries and organizations are encouraged to support this movement.
- Countries will periodically review the implementation of this Declaration, in cooperation with stakeholders.
- Together we can and will achieve health and well-being for all, leaving no one behind.

The success of primary health care will be driven by:

- **Knowledge and capacity-building.** We will apply knowledge, including scientific as well as traditional knowledge, to strengthen PHC, improve health outcomes and ensure access for all people to the right care at the right time and at the most appropriate level of care, respecting their rights, needs, dignity and autonomy. We will continue to research and share knowledge and experience, build capacity and improve the delivery of health services and care.
- **Human resources for health.** We will create decent work and appropriate compensation for health professionals and other health personnel working at the primary health care level to respond effectively to people’s health needs in a multidisciplinary context. We will continue to invest in the education, training, recruitment, development, motivation and retention of the PHC workforce,

with an appropriate skill mix. We will strive for the retention and availability of the PHC workforce in rural, remote and less developed areas. We assert that the international migration of health personnel should not undermine countries', particularly developing countries', ability to meet the health needs of their populations.

- **Technology.** We support broadening and extending access to a range of health care services through the use of high-quality, safe, effective and affordable medicines, including, as appropriate, traditional medicines, vaccines, diagnostics and other technologies. We will promote their accessibility and their rational and safe use and the protection of personal data. Through advances in information systems, we will be better able to collect appropriately disaggregated, high-quality data and to improve information continuity, disease surveillance, transparency, accountability and monitoring of health system performance. We will use a variety of technologies to improve access to health care, enrich health service delivery, improve the quality of service and patient safety, and increase the efficiency and coordination of care. Through digital and other technologies, we will enable individuals and communities to identify their health needs, participate in the planning and delivery of services and play an active role in maintaining their own health and well-being.
- **Financing.** We call on all countries to continue to invest in PHC to improve health outcomes. We will address the inefficiencies and inequities that expose people to financial hardship resulting from their use of health services by ensuring better allocation of resources for health, adequate financing of primary health care and appropriate reimbursement systems in order to improve access and achieve better health outcomes.

We will work towards the financial sustainability, efficiency and resilience of national health systems, appropriately allocating resources to PHC based on national context. We will leave no one behind, including those in fragile situations and conflict-affected areas, by providing access to quality PHC services across the continuum of care.

Appendix II

AMAZONIA

1. The Urgent Need for Ecological Bioethics and the Promotion of *Integral Ecology*

Pope Francis has convened (15 October 2017) a special synod of bishops on Amazonia for the month of October 2019 whose general subject will be ‘Amazonia: New Paths for the Church and for an Integral Ecology’.

In the preparatory document for this synod it is stated that ‘In the Amazon rainforest, which is of vital importance for the planet, a deep crisis has been triggered by prolonged human intervention, in which a “culture of waste” (LS 16) and an extractivist mentality prevail. The Amazon is a region with rich biodiversity; it is multi-ethnic, multi-cultural, and multi-religious; it is a mirror of all humanity which, in defence of life, requires structural and personal changes by all human beings, by nations, and by the Church’.

Some information on the realities of the Amazon demonstrate its importance in the context of planetary ecology. The Amazon basin constitutes for our planet one of the largest reserves of biodiversity (from 30% to 50% of the flora and fauna of the world) and of not frozen fresh water in the world (20%). It also possesses over a third of the primary forests of the planet. Amazonia extends over seven and a half million square kilometres and contains the territory of nine nations: Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela and French Guyana. In reality, a single Amazonia does not exist – the region has many types of ‘Amazonias’.

In this context, water, through its streams, rivers and lakes, constitutes the characteristic element and integrator – the great river that constitutes the principal axis of Amazonia is seen as the mother and the father of them all. In such a diverse territory, obviously diverse human groups co-exist.

According to the *Conselho Indigenista Missionário do Brasil* (CIMI), the nine countries that make up the pan-Amazonian area have registered the presence of three million indigenous people, made up of about 390 different peoples and nationalities.

The most recent migratory movements in the Amazonian region have shown that about 110-130 indigenous peoples are in a situation of ‘voluntary isolation’ and have

withdrawn completely from the so-called process of civilisation. Today we are witnessing a migration of indigenous peoples from their original territories towards cities. At the present time, 70% to 80% of the population of the pam-Amazonian region lives in cities. Many members of the indigenous peoples are without documents or they are illegal immigrants, refugees or belong to other groups of vulnerable people.

The document Aparecida refers to a lack of respect for indigenous people: ‘Society tends to underestimate them, ignoring their differences. Their social situation is marked by exclusion and poverty’ (DAP89). During his visit to Puerto Maldonado, Pope Francis said: ‘Their worldview and wisdom have much to teach those of us who do not belong to their culture. All our efforts towards improving the lives of the Amazonian peoples will always be too few’. ‘Probably the Amazonian indigenous peoples have never been so threatened in their territories as they are now’. Today, because of the scandalous policy of these new colonialisms, ‘Amazonia is a disputed land on many fronts’.

The preparatory document of the synod observes: ‘For the indigenous peoples of the Amazon Basin, the *good life* comes from living in communion with other people, with the world, with the creatures of their environment, and with the Creator. Indigenous peoples, in fact, live within the home that God created and gave them as a gift: the Earth. Their diverse spiritualities and beliefs motivate them to live in communion with the soil, water, trees, animals, and with day and night. Wise elders – called interchangeably “*payés, mestres, wayanga or chamanes*”, among others – promote the harmony of people among themselves and with the cosmos. Indigenous peoples “are a living memory of the mission that God has entrusted to us all: the protection of our common home.”’

Certainly humanity that defines itself as ‘civilised’ has much to learn from this form of ancestral indigenous wisdom.

Humanity urgently needs a renewal of its own style of life and to go through a profound *ecological conversion* – as the encyclical *Laudato si’* observes – so as not to have an apocalypse of the planet, not to regress to a reality that is an inferno of suffering and death for the peoples of Amazonia.

In this enclosure I offer a series of emblematic photographs of the Amazonian region, an authentic ecological paradise, whose conservation is the best guarantee for life on planet earth.

2. The Ethical Concept, Indigenous to the Andes, of ‘Living Well!’

Some countries of Latin America, such as Bolivia or Ecuador, are the guardians of a deep culture that is rich in indigenous traditions and cultures. In their recently approved State Constitutions they preserved a very ancient concept specific to Quechua culture: *Sumak Kawsay*, the ideal of *Buen Vivir*.

In Bolivia a law was passed called the ‘Framework Law for *Mother Earth* and Integral Development for *Buen Vivir*’ (2013) which values the ancestral knowledge

of the indigenous populations and the inter-cultural and Afro-Bolivian communities. Amongst its fundamental principles, it states that ‘environmental resources and the natural processes of the elements and the life system of Mother Earth cannot be seen as commodities – they are gifts of sacred Mother Earth’. In addition, the law speaks about defending and regenerating Mother Earth, historical responsibility, harmonious relations, social justice, climate justice, and dialogue between this traditional knowledge and modern science.

The concept of *Buen Vivir* is defined by this Bolivian law as a ‘cultural horizon of civilisation, an alternative to capitalism, conceived in an intercultural context to foster harmonious encounter between all the beings, components and resources of Mother Earth and to eliminate inequalities and mechanisms of domination’. As regards food, the law describes the need for the ‘protection of local and autochthonous varieties, as well as the promotion of cultures and traditions of food’. Thus it is necessary to impede the commercialisation of genetic resources, the privatisation of water, bio-piracy and the illegal transfer of genetic material, avoiding the participation of regimes of monopoly and/or oligopoly in the production and commercialisation of seeds and food. The ‘good life’ includes the values of knowing how to grow, to obtain nutrition, to work, to communicate, to dream, to listen and to think.

This Constitutional text also states that the State will create the best conditions possible to ensure that the distribution of the wealth generated by the strategic sectors of the economy ‘has a direct impact on the construction of a more just, more supportive and fairer society, eliminating every form of material, social and spiritual poverty’. It also refers to the need to facilitate access to the land, to water, to forests, to biodiversity and to other components of nature. In addition, it envisages the gradual elimination of genetically modified organisms (GMO). In the energy sector, the law encourages the development of the production of renewable energy, giving priority to solar and wind energy and small hydroelectric plants.

In Ecuador a law exists known as ‘The National Plan for *Buen Vivir*’ (2013-2017), in which *Buen Vivir* is defined as ‘a style of life that facilitates happiness and the survival of cultural and environmental diversity; it is harmony, equality, fairness and solidarity. It is not opulence or infinite economic growth’. We have here a new paradigm of sustainable development that privileges the distribution of these goods in a fair way for everyone, in opposition to the concept of progress which privileges the production of goods solely for profit.

In the rich and consumerist societies of the developed countries of the planet, a great deal of reference is made to ‘quality of life’, which in many cases has acquired the meaning of the ‘exclusion’ and ‘discarding’ of the most frail and vulnerable people in society. Only individuals who possess certain ‘qualities’ of life are desired, worthy and appreciated in these societies – the others are simply excluded.

This ancestral concept of the indigenous populations of the Andes of *Buen Vivir* is an inspiration to live in harmony with nature according to a form of respectful development that does not harm or, even less, destroy, the possibility of a future for

life. In an epoch when humanity is strongly debating its own responsibilities in relation to the ecological crisis, the destruction of the environment and global warming, we are offered a lesson that we should learn by this indigenous ancestral wisdom!

This great value of life of *Buen Vivir*, which is specific to the indigenous peoples of the Andes, is an objective and a horizon with a high meaning that should be sought after and adopted with responsibility in order to achieve a harmonious and respectful coexistence between the cosmos, nature and humanity itself.







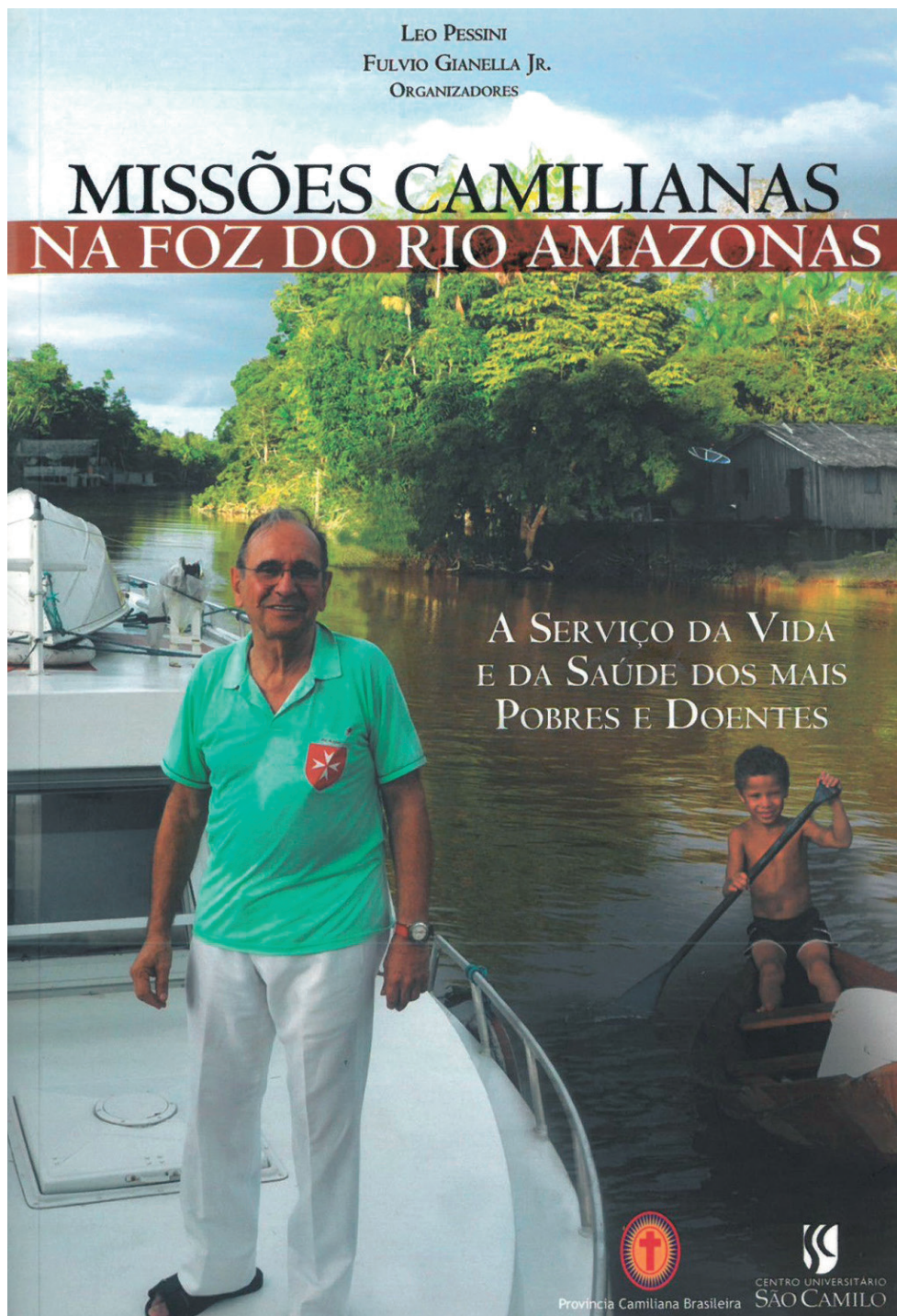














Appendix III

A tribute to the town of Iomerê (SC): The Birthplace of the First Generation of Brazilian Camillians

The first two Italian missionaries, Fr. Innocente Radrizzani and Fr. Eugenio Dalla Giacoma, arrived in Brazil on 15 September 1992, at the port of Rio de Janeiro (RJ), after a sea voyage of almost twenty days from the port of Genoa (Italy) (29 August 1922). They settled in the city of San Paolo. This was the first Camillian mission outside *old* Europe: this mission in the land of the Americas was an expression of the bold missionary endeavour of the former Province of Lombardy and Veneto, with the blessing of the Superior General, Fr. Alfonso Maria Andrioli.

Roundabout 1935-1936, the first Camillians arrived in this small village, first called *Faxinal Branco* (1912) and then renamed *São Luiz* (from the name of the coloniser). In 1944 it was given back its original name of *Iomerê* (1944). Today *Iomerê* is a small town of 3,000 inhabitants located in the south-east of the State of *Santa Catarina*, in the South of Brazil, with a population made up essentially of Italian immigrants and Germany European settlers who in the past were involved in agriculture. The first presence of the Camillians was an exploratory journey in order to enter into contact with the local people and assess the possibility of future Camillian vocations amongst 'good families with Catholic customs'!

At that time there was no asphalt road. Instead, there was a part of the *São Paulo-Rio Grande* railway (with a steam train). A long journey of two days that was very tiring had to be endured. After reaching the railway station (Videira or Pinheiro Preto), which was eight kilometres from the village, you could reach *Iomerê* on horseback or on a cart drawn by oxen.

It was in this place that the Camillians began their mission at the service of the people, visiting the sick in their homes, celebrating Holy Mass in the *São Luiz* Chapel, and beginning the construction of a seminary for young vocations and a little clinic, which was later transformed into a hospital. The chapel and the homes of the people, which were very simple, were built with planks of pinewood which was very abundant in that region.

Most of the homes were built in that way, imitating the classic style of the Italian houses. Without electricity at the outset, lighting during the night was

provided by candles and carbide or kerosene lamps. Life was very simple and marked by sobriety.

All the religious of the first generation of Brazilian Camillians went through the *São Camilo* Seminary and then continued with their formation in *São Paulo*. Most of them came from the region of *Santa Catarina* and the area of *Rio Grande do Sul*. During the golden age of the seminary there were 120 seminarians, from the age of 12 upwards! This was a period of the history of the Church which preceded the Second Vatican Council.

Amongst the religious who passed through this minor seminary and who provided service to the general government of the Order of Camillians, we may remember Fr. Calisto Vendrame (Superior General), Fr. Giulio Munaro, Fr. Niversindo Cherubin (economic commission), Fr. Ademar Rover (member of the General Consulta) and Fr. Leocir Pessini (Superior General).

We may define *Iomerê* and the *sacred* cradle of the first Brazilian Camillians, the *little Bethlehem* of Camillian vocations in Brazil!

To them all go our respect and gratitude!

TRIBUTE TO IOMERÊ





Appendix IV

To know about the Author and his principal academic and scholarly works

Below I give a select list of my principal scholarly works in the field of moral theology and bioethics – these are the fields that make up my area of study, analysis and research, to which I have dedicated myself intensely, especially over the last thirty years.

Most of this scholarly and academic output was published in Portuguese (in Brazil with the *Edições Loyola* of the Jesuits), in Spanish (Colombia and Mexico) and in English (the U.S.A., England and Australia), with almost nothing in Italian or French. For this reason, through this publication on bioethics in our current times of uncertainty and perplexity it is my intention to leave a sort of personal legacy to the Order of the Camillians, giving my confreres the opportunity to read my work in both the official languages of the Order (Italian and English) and in French. All of my thoughts and reflections have emerged in the context of the ‘existential and geographical fringes of the planet’ (cf. Pope Francis) and starting with my experience as a Camillian religious always led to ‘put more heart in my hands’ (cf. St. Camillus).

To have a better understanding of this personal journey, I here offer a summary of my *curriculum vitae* in which one can identify three strong and fundamental periods in the construction of this scholarly and academic pathway.

1. The first fifteen years were completely dedicated to service to the sick (1981-1995). During the first thirteen years, I worked as a chaplain at the *Hospital das Clinicas* of the Faculty of Medicine of the University of San Paolo (Brazil). The next two years, as Superior of the community, were dedicated to the formation of theology students (at the seminary of Ipiranga). During these first fifteen years, I studied clinical pastoral education (1982-83, 1985-86 in Milwaukee, USA) and wrote almost nothing, with the exception of a pastoral testimony on the case of the death of the Brazilian President, Tancredo Neves, which was published in a book entitled ‘I Saw Tancredo Neves Die’. Cardinal Paulo Evaristo Arns OFM wrote the foreword to this work. Fr. Calisto Vendrame, a former Superior General of the Order, encouraged me to write and publish this pastoral testimony (“certain things if they are not written down, do not exist”, he used to say) in order to encourage a positive appreciation of chaplains in the field of health care.

2. During the second stage of this journey, which lasted another fifteen years (1995-2010), I held posts and performed tasks in the university world as a lecturer and the editor of two scholarly reviews (*Bioetikos e O Mundo da Saúde*). I held a leading position in the educational field of the Camillian Province of Brazil in the *União Social Camiliana*, a body that supports our Camillian university in Brazil. During this period I attended courses for a licence and a doctorate in moral theology and bioethics at the *Nossa Senhora da Assunção* Faculty of Theology of the Pontifical Catholic University of San Paolo. In the fields of civil society, the Church and the government of Brazil, I had the role of national coordinator of pastoral care in health of the Bishops' Conference of Brazil (2004-2007); I was a member of the National Committee on Research on Human Beings of the Ministry of Health of the federal government (2005-2008); and I was a consultant on bioethics for the Federal Council of Medicine (2010-2014). This was my most productive period in terms of academic output, with numerous publications of books and articles. I actively took part in numerous national and international conferences in the field of moral theology and bioethics.
3. The third stage of my life's journey has been characterised by my service of leadership with my Camillian confreres (2010-2020) over two distinct periods: the first as Provincial Superior of the Camillian Province of Brazil (2010-2014) and the second as Superior General of the Order of Camillians (2014-2020).

I can sum up the journey of my existence in three stages: 1. thirteen years as a religious and a priest when I exercised my Camillian ministry with the sick (1981-1995); 2. fifteen years as a director of a university, a lecturer, a dean and a writer (1995-2010); 3. twelve years of leadership at the service of my confreres, first at a *Provincial* level and then at a *general* level. *Divine Providence* first shaped me to be a Samaritan Camillian in the world of human pain and suffering, then to be a Camillian educator, and lastly to walk together with my confreres as a guide and pastor.

At the end, my life and my Camillian ministry, if my state of health so allows, will move towards the beginning, when I experienced the enchantment of, and the passion for, life as a Camillian: serving in a Samaritan way, with concealment, with wisdom, in silence and with humility!

The following phrase of the famous poet T.S Eliot (1888-1965) for me is very true and profound: '*We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time*'.

Academic Degrees

Post-Doctorate in *Bioethics* at the Institute of Bioethics of the University of Edinboro, Pennsylvania, U.S.A., 2012-2014.

License and Doctorate in *Moral-Bioethical Theology* at the Pontifical Catholic University of São Paulo (PUC-SP) / Pontifical Faculty of Theology *Nossa Senhora da Assunção*.
 Post-Graduate in *Clinical Pastoral Education* and *Bioethics* at the *St. Luke's Medical Center* in Milwaukee (U.S.A.) (1982/1983 – 1985/1986).
 License in *Theology* at the Pontifical Salesian University of Rome, 1977-1980.
 License in *Philosophy* at the University Center *Nossa Senhora da Assunção*, São Paulo, Brazil, 1975-1977.
 The Doctoral Thesis was published with the title *Distanásia, até when prolongar a vida*, in Portuguese, (São Paulo, Edições Loyola, 2001, 2005²).
 Member of the Editorial Advisory Board – *The Journal of Medicine & Philosophy* (2010) edited by Oxford University Press. Cf. www.oxfordjournals.org

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Note: this was the first text of bioethics published in Brazil (1991) and was directed towards professionals of the world of health and health care. Over 100,00 copies have been printed in eleven editions. This is considered the reference work for the introduction of bioethics into degree courses in philosophy and theology and the world of health and health care (medicine, nursing, physiotherapy, pharmacy).
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