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Cryonics: a chance to
live longer?

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Cryonics: a chance to live longer?

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ABSTRACT: This paper aims first of all to clarify what cryonics is and which objectives it pursues. Indeed, having regard to the fact that cryonics is the only chance to the present day to live longer, it must be taken into account more seriously than it is today, especially by the lawmaker. Thus, it will seek to investigate the consequences of the cryonics' collision with the real world. Starting from the desirable broadening of the death's concept, through to the strengths and weaknesses of cryonics, and the relationship between cryonics and religion, to the examination of two legal cases. All of this, ultimately, leads to the statement that even if cryonics is now a growing phenomenon, the legislator persists in ignoring it. One can speak of a non-cryonic legal system.

KEY-WORDS: Cryonics; Definition of death; Religion and science; Medical life-saving technology; Law.

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1. Introduction

It is a good to immediately warn the reader that this paper is not a science fiction novel or a screenplay of a Hollywood movie, although these are the contexts in which cryonics has mostly appeared.

The primary goal of this work is to instill in the reader the awareness that cryonics is increasingly present in our reality. Everything started when Robert Ettinger, known as the “father of cryonics”, convinced himself that what he had read on science fiction magazines could become real. In 1962, Mr. Ettinger published “*The prospect of immortality*”¹, a cornerstone of cryonics, in which he lays the groundwork of the latter. Not long after, cryonics became even more real with the establishment of fully-fledged companies in the United States and Russia that started to put cryonic suspension services on the market.

However, despite the presence of cryonics is growing in our reality, the lawmaker continues to neglect it.

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¹ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962.

2. What is cryonics?

Before anything else, it is worth looking back into history primarily to assess what cryonics is and, secondarily, with the purpose of shedding light on some terms that play a key role within this work.

From the most ancient times, mankind has felt pity for deceased and has worried about life after death. As a proof of what it has just been said, both in the Middle East and in Europe, in the Neolithic period our ancestors began to practice burial and cremation. The aim of both these death rituals is to dispose of corpse. One of the ways to define cryonics is to consider it as a modern alternative with a different goal than the ancient practices of burial and cremation². Unlike the latter, indeed, cryonics aims to preserve (not disposal) human corpses and protect them from their natural deterioration, in the hope that in the future medical science will be able to revive them and to restore their health³.

A primordial description of cryonics can be found in Robert Ettinger's masterpiece, "The Prospective of Immortality", which drew on his personal experience. As a matter of fact, when he was a child he used to read Hugo Gernsback's "Amazing Stories", an American science fiction magazine. Especially, he was impressed by a Neil R. Jones story "The Jameson Satellite" which was published in July 1931. In this story, the professor Jameson's corpse was kept at very low temperature and, consequently, enclosed in a rocket ship in order to be shot off into space and therefore become an Earth's satellite. His intent was to preserve indefinitely his body after death. However, the corpse inside the rocket was found by a group of mechanical men with organic brains who treated Jameson's brain and installed it in a mechanical body. Even though Mr. Ettinger was only twelve when he read the story, immediately it seemed clear to him – as he wrote later – «that the author had missed the main point of his own idea! If immortality is achievable through the ministrations of advanced aliens through repairing a human corpse, then why should not everyone be frozen to await later rescue by our own people? »⁴. Inspired by this science fiction, Mr. Ettinger developed his innovative ideas that led him to shape the concept that all of us today call cryonics.

Mr. Ettinger began the afore-mentioned work by putting the reader's attention to a certain fact, namely that at low temperatures it is possible to preserve death people indefinitely. This is something that can actually be done today but the medical science is not able to revive the individual yet. Subsequently, he continued his mental process with a reasonable assumption according to which in the near future the medical science will be able to repair the human body from its damage, both those eventually caused by freezing and those

² W. T. GORDON, *The Vocabulary of Cryonics*, in *American Speech*, Vol. 50, Number 12 (Spring – Summer, 1975), p. 133.

³ W. T. GORDON, *The Vocabulary of Cryonics*, in *American Speech*, Vol. 50, Number 12 (Spring – Summer, 1975), p. 132-133.

⁴ <http://www.cryonics.org/about-us/robert-ettiner-biography/> (accessed 16 November 2018).

caused by death⁵. Bearing in mind that the medical science's progress has insured that diseases considered incurable in a remote past become treatable, it was not difficult to believe that what was a probability, in the future could become a certainty. From Ettinger's point of view, this is the exactly why a collective effort was needed to make the aforementioned assumption more and more concrete⁶.

Recovering initial benchmark, burial and cremation practices are easy to carry out while cryonics requires a complicated and technical procedure⁷ called cryopreservation or, also, cryosuspension. In short, the practice just mentioned consists in a scientific procedure by which human's corpses are preserved at low temperatures (about -196 C°) indefinitely⁸. Despite the many uncertainties that are still hiding behind cryonics, nowadays there are companies that currently implement the human cryopreservation. To this day, throughout the Eurasian, there is only one company in Russia, all the others are located in the USA.

"Alcor Life Extension Foundation" is one of the most famous worldwide centres dealing with cryonics and a detailed description of the latter's procedure can be found on its website. The main steps of this proceeding will be used as an example and summarized below.

First of all, it is worth noting that cryonic procedures may begin only after the declaration of legal death⁹ has occurred. This is not just due to the fact that cryonics is unproven medical procedure, but also due to the fact that a procedure which allows unfreezing without seriously damaging the tissues does not yet exist¹⁰. Indeed, on the grounds that these damages could lead to the irreversible death of the patient, if it did not expect the statement of death made by the doctor, the cryonics could be assimilated to a murder. Moreover, the death is not a single event but rather a process requiring more time that one might think. Hence, it should be pointed out that the legal death is not necessarily irreversible as it was believed in the past, but it depends on the advancement of medical knowledge and available technology¹¹. Nowadays it is recognised that the death due to cardiac arrest is reversible, as well as feasible by combining the cardiopulmonary resuscitation (CPR) and the automated external defibrillators (AED). With the aim to make it possible, it matters to take actions before the cardiac arrest and the consequent lack of circulation cause irreparable damage to the brain. It also concerns a time window of about 6 minutes from heart failure that offers cryonics the possibility of success¹². Now it is possible to better understand why the minutes immediately after legal death's declaration are very important to carry out cryopreservation smoothly. For that reason, Alcor encourages all its terminally ill members to move to hospices that are closer to the centre of cryonics so that the life support

⁵ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p. 11.

⁶ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p.12.

⁷ W. T. GORDON, *The Vocabulary of Cryonics*, in *American Speech*, Vol. 50, Number 12 (Spring – Summer, 1975), p. 133.

⁸ <https://alcor.org/procedures.html> (accessed 16 November 2018).

⁹ The criteria for determining legal death will be set out afterward.

¹⁰ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 516.

¹¹ OLE MARTIN MOEN, *The case of cryonics*, *J Med Ethics*, 41, 2015, p. 677.

¹² BENJAMIN P. BEST, *Scientific Justification of Cryonics Practice*, *Rejuvenation Research*, Vol. 11, Number 2, 2008, p. 498.

procedures begin as soon as the heart stops beating, and legal death is declared. Nevertheless, every time the dying patient's transfer is not possible Alcor can distribute required equipment and only when the terminal ill's conditions becomes critical shall provide a cryonics transport team that wait nearby the hospice 24 hours a day¹³. Alcor calls this phase "standby" because a cryonics team is put on standby for life support procedures¹⁴. The cryonic patient has to be stabilized and then placed in an ice water bath. Breathing and blood circulation are artificially restored by a "heart-lung resuscitator".

Furthermore, protective medications are administrated to the cryonic patient in order to keep the blood pressure and to protect the brain from "reperfusion damage". In few minutes, the patient body's temperature is reduced to a few degrees above the freezing point of water and blood has to be replaced with preservation solution developed by Alcor to support life at low temperatures. The main purpose of this protective solution is to ensure that the tissues are vitrified and prevent the ice's formation during the cooling process. It is good to keep it in mind because the ice formation could damage tissues and precisely for that reason pressure, temperature, cryoprotectant solutions and the brain are constantly supervised by a computer. Subsequently, cryonic patient is cooled by nitrogen gas at the temperature – 125°C and approximately three hours later will be completely vitrified. In the end, it will still take about two weeks for the patient to be cooled to –196°C¹⁵ and preserved under liquid nitrogen at this temperature indefinitely. Having said that, the concept of cryonics could be defined more properly as the cryogenic preservation of humans¹⁶.

Before to move towards the next chapter, it is necessary to highlight that Cryonics, also known as suspended death, is very similar to the suspended animation. The latter, as Ettinger would point out, «refers to a standstill in the life processes of the body» and «it is a stasis that can be imposed and removed at will, and the subject is regarded as alive at all times»¹⁷. One can forthwith realise without difficulties what is the difference between suspended animation and suspended death: the first has to do with life whereas the second with death.

Above all, it will be helpful to take a step backwards in order to better understand what suspended animation is. First of all, it has been mostly linked to animal's kingdom. Indeed, animals are cyclically subjected to stressful climatic changes and for this reason they had to devise a way to survive. Dormancy is one of the

¹³ <https://alcor.org/procedures.html> (accessed 16 November 2018).

¹⁴ REBEKAH CRON, *Is Cryonics an Ethical Means of Life extension?*, University of Exeter, 2014, p. 5.

¹⁵ <https://alcor.org/procedures.html> (accessed 16 November 2018).

¹⁶ REBEKAH CRON, *Is Cryonics an Ethical Means of Life extension?*, University of Exeter, 2014, p. 3.

¹⁷ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p. 12.

chances to outlive but it is not the only one¹⁸ because not all animals, or more in general living beings, are able to resort to this “trick”. In biology, dormancy refers to the temporary state of reduced metabolic and physical activity. There are more type of dormancy depending on the environmental conditions that animals have to cope with. One of them is hibernation and it entails a mechanism used by many mammals to reduce energy expenditure and survive over the winter. Before the cold season arrives, firstly the hibernating animals eat enough food to form a reserve of fat that will provide them the little energy needed during hibernation. Secondly, they have to find a safe and sheltered place to spend the winter. Thirdly, while being in hibernation heart rate and breath frequency is reduced and the body heat decreases near to ambient temperature. Lastly, hibernating animals slip into a state of suspended animation¹⁹.

Hibernation and cryonics, along with suspended animation and suspended death, are based on the same principle: the lowering of temperature can stop biological changes. Nevertheless, the fact remains that hibernation and suspended animation are states of stasis of a living being still alive while cryonics and suspended death are the condition of a biologically dead body which has been frozen and stored at a very low temperature, so that degeneration is arrested and not progressive²⁰.

Nevertheless, it is also true that successful cryonics more than death deals with life and, with this in mind, cryonics may be regarded as a kind of suspended animation²¹. However, if this argumentation is not enough inasmuch today it cannot know if cryonics is winning or not, it would be the reasoning developed in the following chapter.

3. The concept of death

The concept of death is closely linked to cryonics; hence, it is appropriate to point out its complexity that is mostly overlooked by people.

Above all, death can be easily defined in negative as the permanent ending of vital processes in a cell or tissue²². Conversely, in seeking to develop a positive definition, one must to keep in mind that as opposed to the joined-up thinking the death is not an event but a sequence of events, i.e. a process. Therefore, death is not instantaneous, but it is an occurrence that needs time. Depending on its progress medical science is able to interrupt this process or not, that it is why our death’s definition depends on the state of advancement of

¹⁸ The migration instinct is another way by which animals can survive. ANDREW T. RASMUSSEN, *Theories of Hibernation*, *The American Naturalist*, Vol. 50, No. 598 (Oct., 1916), p. 619, published by The University of Chicago Press for The American Society of Naturalists.

¹⁹ <https://ed.ted.com/lessons/what-s-the-difference-between-hibernation-and-sleep-sheena-faherty> (accessed 16 November 2018).

²⁰ ROBERT C. W. ETINGER, *The prospect of immortality*, 1962, p. 13.

²¹ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 518.

²² <https://en.oxforddictionaries.com/definition/death> (accessed 16 November 2018).

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medical science and technology. Indeed, as it has been already mentioned above, what in the past led to certain death with the modern technology can be managed so as to reverse death itself. Thus, death is permanent and irreversible only when the current medical science is not sufficiently skilled to restore the patient's health, in other words medicine turns out to be powerless.

It is worth remembering that a terminal ill can be cryopreserved only after the legal death has been pronounced for reasons outlined above. Though, an obvious question springs to mind on this point: when does legal death occurs?

Before answering this question, it is good to note that Mr. Ettinger set out three definition of death. The ending of heartbeat and breathing leads to "clinical death". Afterwards, a patient is "biologically dead" when he is found in a state from which resuscitation of the body as a whole is impossible by currently known means. Lastly, it is known as "cellular death" the irreversible degeneration of the cells of ours body takes place²³.

As it can be seen, each criterion corresponds to a different definition of death, but which of these matches the one used for the verification of legal death?

It is worth pointing out immediately that legal death is linked to the definition of clinical death. However, the parameters enucleated by Ettinger for the assessment of the latter can no longer be said to be current.

As a matter of fact, in the past the legal death and, therefore, the clinical one occurred when the heartbeat and breathing stopped; this was due to the fact that the well-functioning of the heart and lungs was easy and immediate to check. However, since the heartbeat as well as the breathing can be restored by machines, it became clear that was necessary to refer to other criteria. In the face of the developments in intensive care medicine and organ transplantation, in the second half of the 20th century the brain's activity began to be considered by many as a criterion for determining the legal death²⁴.

As far back as 1959, several French neurophysiologists published results of research they had conducted on patients in extremely deep coma receiving respirator assistance. Multiple tests were carried out in which it arose that these patients lacked reflexes and electrophysiologic activity. It concluded that the patients had suffered permanent loss of brain functions, in other words the vital organs were kept in operation by the machines. This phenomenon has been called the "respirator brain"²⁵.

²³ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p. 12-13.

²⁴ SEEMA K. SHAH & FRANKLIN G. MILLER, *Can We Handle the Truth? Legal Fictions in the Determination of Death*, *American Journal of Law & Medicine*, 36, 2010, p. 541.

²⁵ President Commission for the Study of ethical problems in medicine and medical and behavior research, *Defining death, a Report on the Medical, Legal and Ethical Issues in the Determination of Death*, 38, 1981, p. 22.

In the light of the above, the interest in “brain death” has increased. In that respect a Harvard committee was created to develop a new set of criteria according to which individuals who had sustained traumatic brain injury that caused them to be in an irreversible coma, and had lost the ability to breathe spontaneously, would be considered dead²⁶.

However, one question remained outstanding: why the “brain death” can lead to a diagnosis of death?

The now deposed President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral research²⁷ undertook to answer to this question in “Defining Death” report²⁸. In the latter it is explained that all part of human system is mutually interdependent, consequently the loss of any part leads to the breakdown of the whole and, eventually, to the cessation of functions in every part²⁹. Notably, three organs, i.e. the heart, lungs and brain, play a vital role and, because of their very close interrelationship, the irreversible cessation of any of these stops the other two and consequently halts the integrated functioning of the organism as a whole³⁰.

The “brain death” criterion comes to play when the operating of the heart and lungs is made possible solely by mechanical means and it is necessary to ascertain whether there is or not brain activity in order to verify death. However, it can no longer believe that this latter criterion is trouble-free. Indeed, there is no guarantee that when a shutdown of brain activity occurs the subject is irreversible dead. As an example of what it has just been said, in the drowning case the human brain stops its activity because of low temperatures. Nonetheless, the brain’s injuries reported are much less severe and, consequently, it is possible to restore to normal functioning of the brain after it stops for up to 66 minutes³¹.

3.1 Cryonics and death

At this point, it should wonder if the criteria of legal death with the advent of cryonics have to change. As it has had the opportunity to see so far, the definition of death is not one and absolute, but as opposite it is a

²⁶ SEEMA K. SHAH & FRANKLIN G. MILLER, *Can We Handle the Truth? Legal Fictions in the Determination of Death*, *American Journal of Law & Medicine*, 36, 2010, p. 544.

²⁷ «The Presidential Commission for the Study of Bioethical Issues (the Bioethics Commission) is an advisory panel of the nation’s leaders in medicine, science, ethics, religion, law, and engineering. The Bioethics Commission advises the President on bioethical issues arising from advances in biomedicine and related areas of science and technology. The Bioethics Commission seeks to identify and promote policies and practices that ensure scientific research, health care delivery, and technological innovation are conducted in a socially and ethically responsible manner», <https://bioethicsarchive.georgetown.edu/pcsbi/about.html> (accessed 16 November 2018).

²⁸ President Commission for the Study of ethical problems in medicine and medical and behavior research, *Defining death, a Report on the Medical, Legal and Ethical Issues in the Determination of Death*, 38, 1981.

²⁹ President Commission for the Study of ethical problems in medicine and medical and behavior research, *Defining death, a Report on the Medical, Legal and Ethical Issues in the Determination of Death*, 38, 1981, p. 32.

³⁰ President Commission for the Study of ethical problems in medicine and medical and behavior research, *Defining death, a Report on the Medical, Legal and Ethical Issues in the Determination of Death*, 38, 1981, p. 33.

³¹ OLE MARTIN MOEN, *The case of cryonics*, *J Med Ethics*, 41, 2015, p. 677.

relative concept that takes on a different meaning over the time. Thereupon, isn't it true the fact that maybe one day, in a not too close future, medical science will be able to revive people who opted for cryonics instead of burial and cremation, leads to redefining the concept of death? As it will be better highlighted later, most of the state legislators have not yet taken into consideration the phenomenon of cryonics. This has meant that the criteria adopted for the definition of death have remained unchanged compared to the picture painted above and, consequently, cryonic patients are considered by law as dead.

Considering that one of cryonics intention is to bring back to life and health the same man who died from an incurable (at least at the time when the death occurred) disease and who decided to trust cryonics, keeping this man's personality, thoughts, memories etc. intact becomes a primary objective that cryonics must pursue. However, this is possible only when the tissues have not been damaged during cryonic procedure and as a result of the future thawing process. In this connection, Ralph C. Merkle³² has theorized a definition of death that is well suited to cryonics: "*information-theoretical death*".

According to latter, as he explained, a person is dead if their memories, personality, hopes, dreams etc. have been destroyed and specifically if the structures in the brain that encode memory and personality have been disrupted and it is no longer possible in principle to recover them³³. As opposite, a person is not dead if the structures in the brain are sufficiently intact that inference of the state of memory and personality are feasible in principle, and therefore restoration to an appropriate functional state is likewise feasible in principle³⁴. This last definition fits better to cryonics on the ground that a preserved patient, in accordance with the negative definition of death cited above, shall not be said properly deceased. Indeed, in this case the process that leads to death has not been completed, but it has been interrupted by cryonic procedures. It is self-evident that the cryonic patient is not properly alive, but at the same time is not even dead irreversibly; according to cryonic promoters, soon or later the medical science will be able to reverse the proceeding already started from death to life.

However, if the criterion of "brain death" is taken into account the cryonic patient would be considered dead because of understandable reasons: he shows no signs of brain activity. Therefore, in order to establish if the cryonic patient is dead or not it is required to check whether loss of personal identity has occurred and if that was the case the subject could be declare dead in light of the Merkle's criterion. By all means, as already mentioned, the cryonic proceeding is designed in great detail to minimize all sort of losses that could derive

³² A current senior research fellow at the Institute for Molecular Manufacturing, <http://www.merkle.com/> (accessed 16 November 2018).

³³ R.C. MERKLE, *The technical feasibility of cryonics, Medical Hypotheses*, 39, 1992, p. 9.

³⁴ R.C. MERKLE, *The technical feasibility of cryonics, Medical Hypotheses*, 39, 1992, p. 9.

from the cooling off and, regardless, any small collateral damages will be fixed thanks to the improvement of already-existing repair technology, e.g. nanorobotics³⁵.

To conclude, it must be clear that the aim is not to completely change the criteria for establishing the legal death, but rather to think up a further criterion that best serves cryonics. Therefore, the real purpose is to try to provide a definition of death that involves even the grey areas that are formed gradually with the progress of science and technology. Indeed, cryonics can be regarded as the successor of machines that enabled the restoring of heartbeat and breathing: in short it is just another form of medical life-extension. Hence, in view of the above the definition of death does not have a theoretical basis, but it is dependent certainly on the technology of the day.

4. Strengths and weaknesses of cryonics

As it has been emphasized in the second chapter, cryonics is an alternative to the ancient practices of corpse's disposition. With this in mind, at this stage it should be noted that cryonics is the best alternative (despite the doubts that will be exposed not long after) available to mankind today. Indeed, even if on the one hand the success of cryonics (i.e. to make death reversible) is still uncertain, on the other hand an irreversible death follows undoubtedly the burial and cremation. Consequently, is it not true that a chance to live, albeit small, should be preferred to certain death? In an effort to answer to this tricky question, the pros and cons of cryonics will be assessed hereunder.

4.1 The legal status of cryonic patients

In the United States, where almost all cryonic companies are located³⁶, neither a federal law nor a state law regulates cryonics or at least mentions it. Nonetheless, this does not mean that no law is applied to cryonics³⁷, but that the legislator, wrongly underestimating the issue involved, decided not to directly regulate it. Many might argue that the lack of regulation is due to the long reaction times of law to technology progress and advancement of medical science rather than to a decision of the lawmaker. Indeed, there is no doubt that the regulation of innovative phenomena such as cryonics is a complex undertaking that takes time. This objection could certainly be a valid when the cryonic companies had just started their business, and therefore when cryonics has become a concrete part of our reality. At present, however, cryonic companies have been

³⁵ OLE MARTIN MOEN, *The case of cryonics*, *J Med Ethics*, 41, 2015, p. 678.

³⁶ In this chapter it will just take into consideration the context in the United States. In fact, since almost all the cryonics societies are found here, the problem of the status of cryonic patients arises mainly in this context.

³⁷ <https://alcor.org/Library/html/legalstatus.html> (accessed 16 November 2018).

worked in this field for about 40 years³⁸; a non-indifferent time frame in which the legislator could have filled the legislative gap, if he wanted to. This gives the impression that the legislator is waiting to see if cryonics works or not, before intervening to regulate it.

The proposal to introduce the "*information-theoretical death*" has not yet been taken on board by the lawmaker and, consequently, the criteria to determine the legal death have remained unchanged. This implies that the brain death's criterion is currently applied and, in virtue of this, the status of the cryonic patients is that of deceased persons³⁹. This status is merely a label that as such can always be changed by the lawmaker. However, as has already been said, the only chance that seems to be able to shift this etiquette is the proof of the medical science's skill to reverse the process of death⁴⁰.

Although, is this label really such a negative thing? Thanks to the latter, American cryonic companies can benefit from the Uniform Anatomical Gift Act (hereinafter referred as UAGA) in several respects. Above all, the UAGA was passed in the US in 1968 and has since been revised in 1987 and in 2006. The purpose of this act is to establish a regulatory framework for the donation of organs, tissues and other parts of the human body in the US. Moreover, in the light of the subject discussed in this work, it is worth noting that the UAGA helps regulate body donations to science, medicine, and education⁴¹. Notably, it provides for the opportunity to donate after death their own organs for transplant as also the whole body to medical schools or medical research; cryonic companies can be included in the last category. There are many States that have a clear legislation which requires the State and the family to respect individuals' choices as to disposition of their own remains. As a result, a declaration pre-mortem written by the prospective cryonic patient and, also, a contract, signed by the latter, in which is inserted a legal clause that provides for the donation of the cryonic patient body as anatomical gift for research, allows the companies to obtain the legal custody of the patient's body⁴². This donation effectively removes the ability of family members to "dispose" of the individual in some other way.

In addition, further obvious benefit of this label is that life insurance and various forms of trusts can be used to finance cryonic suspensions by nominating cryonic companies as beneficiary.

If the cryonic patients were to be considered alive, it would be impossible in legal terms justify the donation of the whole body or to legitimize the insurance company's payoff provision before the cryonic patient's

³⁸ Two of most important American companies are active in this field from the 70s: Alcor was founded in 1972 and the Cryonics Institute in the 1976.

³⁹ <https://alcor.org/Library/html/legalstatus.html> (accessed 16 November 2018).

⁴⁰ <https://alcor.org/Library/html/legalstatus.html> (accessed 16 November 2018).

⁴¹ BRITTA MARTINEZ, *The Uniform Anatomical Act (1968)*, 2013, <https://embryo.asu.edu/pages/uniform-anatomical-gift-act-1968>.

⁴² <https://alcor.org/Library/html/legalstatus.html> (accessed 16 November 2018).

death⁴³. Hence, in some respects, it would be better if the label of death was keeping but the latter does not solve the problem that insurance insurers may want to have back their money once cryonics has been able to bring its patients back to life.

Meanwhile, however, the body's donation of cryonic patient leads to the loss of its ownership and this, in a future in which cryonics will prove to be successful, will raise serious problems. In the first place, it follows that during the suspension's period the cryonic patient is powerless in the face of the owner's choice to destroy the cryopreserved body rather than reanimating it. In the second place, moreover, if after the resuscitation the ownership of the previously donated body does go back to the cryonic patient, the risk is that the latter slumbering as a free man will be revived as a slave. The mankind could relapse like a wildfire into the hole of slavery⁴⁴.

4.2 Loneliness argument and reintegration in the future society

Imagine that in future cryonics is actually capable to keep its promise and that, consequently, the resurrected cryonic patient wakes up alone, without family or friends, in a different State and in a completely different society that could reject him; it is no difficult to understand how much the awakening may be traumatic. Admittedly, when the cryonic patient chooses to be cryopreserved, he can also realize the fate he will have to face and, therefore, it is presumed that he has taken it into account in evaluating the pros and cons.

The loneliness argument is surely a weak point of cryonics, but at the same time it can be challenged very easily. First of all, all that said above is right but so long as it is supposed that neither the family members nor friends opt to be cryopreserved. Even though this were the case, it does not mean that the resurrected cryonic patient would not make new friends or strive to find his family's descendants⁴⁵. Thus, although this argument is the first practical objection to cryonics, it is also the weakest of all.

On a psychological level, the huge changing of society weighs more. It is common knowledge that nowadays big changes require less and less time, in fact the technology's progress makes great strides. On top of that, it could take years before medical science both cures the incurable disease that led the patient to be declared legally dead and figures out a way to thawing in complete safety the cryonic patient. Keeping pace with these great changes is even now problematic, thereby one can only imagine how difficult it could be for a cryonic patient who will wake up in a hundred years or more.

⁴³ <https://alcor.org/Library/html/legalstatus.html> (accessed 16 November 2018).

⁴⁴ REBEKAH CRON, *Is Cryonics an Ethical Means of Life extension?*, University of Exeter, 2014, p. 14.

⁴⁵ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 516.

Besides, the real distress is to find the own role in such an advanced society and to achieve this the cryonic patient must be able to fit in the latter. In short, the reintegration comes first but once more it depends on whether the future society will be well-disposed or not in this regard. The cryobiologist John Baust has argued: «the individual who freezes himself or herself to come back in the future makes the assumption he will be a contributor to that society and that they would want him»⁴⁶. In this respect Alcor makes clear that all human beings have intrinsic value in any society irrespective of whether they contribute to the society or whether the latter wants them⁴⁷. But if not? If the society rejected the cryonic patients brought back to life? What life could cryonic patients have without a job, without human affections, without something to value? The risk of falling into a deep depression is certainly not far away. These considerations must all be put on the scale: in the light of above, it is worth taking the risk of investing the savings of a lifetime in cryonics? This final question leads us to the issue of the next chapter.

4.3 Cost of storage: right for rich?

The high cost of cryopreservation is a recurring theme; this entails that cryonics is not for everyone but rather it can be considered a right for rich. Is this really the case? First of all, it is necessary to quantify this “high price” concretely: looking at ALCOR’s website one can see that the minimum policy for whole body’s cryopreservation is 200,000 \$ and for brain’s cryopreservation amounts to 80,000 \$. Therewith, it is noted that other funding options, e.g. trust or life insurance, are available⁴⁸. Having regard to the fact that the cryonics process is really elaborate and that the preservation could virtually last for an unlimited period, the minimum price is not so high as the most believed. All the more reason if it shall be deemed that life insurance and trust can be used to finance the cryonic companies.

Hence it is about a six\five-digit price, but nevertheless one might say that most people can easily be self-financing in several ways. The bottom line is that a distinction between who can afford cryonics and who not does not exist; it is all about priorities and, consequently, how we want to spend our money.

The most crucial objections linked to the cryonics’ cost is that medical science is not able to “awaken” cryonically preserved individuals with today’s technology. Experiments concerning cryosuspension and reanimation have already been carried out on animals, but not yet on humans. For that reason, question arises: is it worth to spend a life-savings or own life-insurance on cryonics that is an unproven or rather non-

⁴⁶ JOHN BAUST, *Frozen in Time*, Miami Herald, Sept. 17, 2002.

⁴⁷ <https://www.alcor.org/notablequotes.html> (accessed 16 November 2018).

⁴⁸ <https://alcor.org/FAQs/faq01.html#cost> (accessed 16 November 2018).

existent technology yet? For a large number of people, the money spent in cryonics are thrown away⁴⁹. Nonetheless, bearing in mind that during our existence we use our savings for harmful items as cigarettes or for futile items like luxuries, perhaps instead of talking about waste of money it would be better to talk about investment. Unfortunately, the latter is not something safe, but it always involves a risk that sometimes is small and, sometimes, big. In the cryonics' case, the risk is that none of cryopreserved patient will ever be reanimated and that the money invested in cryonics will be lost (which otherwise would happen once dead, in fact the money in the afterlife cannot be brought). On the other hand, however, the return on investment concerned is a new chance to live in health one's life.

This latter argument is not as incisive as the following ethical objections are. First of all, spending all the savings in cryonics storage instead of leaving them as legacy to the family (as traditionally happens) or giving them in charity is considered selfish by many people. Even if there is something true in what has just been said, one cannot certainly accuse of selfishness a man who is only trying to increase his chances of living. Inheritance and charity are ways of using accumulated savings that can no longer be used as dead; but if these resources can be used for something that the dead person can benefit from, why not do it?

Secondly, depriving someone who needs organs in the hope of a second chance of life is deemed to be even more selfish. Above all, it is worth noting that the organs donation is not a duty, but a free choice and as such, although society imposes it as the right decision, each of us today is free to opt or not for the donation of one's organs after death. On this respect, taking into account that cryonic patients, deciding to be cryopreserved, have faith that one day they will be able to still use their organs: how can they be blamed?

Lastly, if cryonics qualifies as a form of medical life-extension or a sort of suspended animation, the selfish argument got knock-down. In fact, who would be enough bold to accuse terminal patients, kept alive by the machines, to not donate their organs having regard to its medical conditions? The same mental process can be done for cryonic patients which are not already dead and are kept alive by cryonics inasmuch a life-saving technology. Undoubtedly, however, the society is not yet willing to think of cryonics in these terms.

4.5. The "Cryonic Wager"

⁴⁹ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 516.

Cryonics' opponents, as heralds of pessimism, strongly underline that the chances of cryonics' success are very few. However, as David Shawn does not hesitate to point out, «those who say that the odds of reanimation working are infinitesimally small should bear in mind that there is a lot more evidence that it will work than there is of a heaven or a hell»⁵⁰. In spite of this, even today many people do not waver to discredit cryonics in the same way they do not hesitate to believe in heaven and hell or, as it will figure out in the following discussion, in God.

In the preface of *"The Prospect of Immortality"* Jean Rostand wrote about Ettinger: «he has the insight to realize that we have nothing to lose and, possibly, everything to gain by pressing the search. It is, in a sense, a Pascal's wager based on a faith in science. Certainly, a decision to let all corpses remain corpses is, in the face of Mr. Ettinger's alternative, the highest folly»⁵¹. Precisely the fact that we have nothing to lose in trying, but rather everything to gain leads Rostand and many others to look at cryonics from the view point of Pascal's Wager; therefore, in this regard, it is appropriate to talk about "Cryonic Wager".

Before going into the matter, it is essential to clarify what Pascal's wager exactly is. First of all, Blaise Pascal was a French scientist and philosopher of the XVII century who questioned the existence of God. Pascal's thinking opens with a statement of fact: it is impossible to know whether God exists or not. However, he continued his mental process arguing that believing in God entails enormous benefits regardless of the effective existence of God.

Pascal's Wager	God exists	God does not exist
Wager for God: believe in God	Eternal happiness in Heaven (+ 1)	Lose nothing (0)
Wager against God: don't believe in God	Eternal damnation in Hell (- 1)	Lose nothing (0)

As appears from the table, looking at the several pay-off, wager for God is the best choice that it can be done. Indeed, if God exists, believing in him opens the gates of Heaven but equally if God does not exist, having faith in him does not lead to any loss but rather ensures a life full of happiness and serenity. On the contrary,

⁵⁰ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 520.

⁵¹ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p. 8.

not believing in the existence of God leads to misfortune: if God exists the payoff is eternal damnation in Hell and likewise if God does not exist, nothing is lost.

In view of that: what choice should one make? Pascal reached the conclusion that the most rational choice as well as convenient is undoubtedly believe in God. Theists shudder (many would say with good reason) when they hear about the “*faith in God*” as the most logical choice. According to Lycan and Schlesinger there are several powerful objections against Pascal’s dialectic. Firstly, the faith is not something rational that can be controlled, and nobody can be persuaded to have faith through sensible argumentation such as those above. Secondly, even if this were possible and God existed, can it really be thought that God gets be deceived in this way? Thirdly, the probability of the God’s existence is extremely low. Fourthly, if God does not exist and it is chosen the wager for God, the whole existence would be a lie. The fifth and the last objection is that the faith in God leads to leave sin and for a large number of people it could be not that easy⁵².

That being said, it is possible to come back to the Cryonic Wager’s issue. One merely has to replace "cryonics works" to "God exists"; in other words, it is asked to replace faith in God, with faith in science.

Cryonic Wage	Cryonic revival is possible	Cryonic revival does not possible
Wager for cryonics	Immense gain: life-extension (+1)	Neutral (0)
Wager against cryonics	Immense loss: death (- 1)	Neutral (0)

Even in this case, as in the Pascal’s Wager, having regard to the payoff in the table only one is the choice to make: wager for cryonics. As a matter of fact, in this way if it comes out that cryonics works an immense gain will be obtained, namely the possibility to live longer; whereas if it does not have to be so, it will be lost only a small amount of money. On the contrary, wager against cryonics could lead to an immense lost if cryonics works: a chance to extend the life will go to waste. The fives objections mentioned above do not apply to Cryonic Wager and, as Shawn pointed out, «in the Cryonic Wager, we are merely being asked to hope that science might advance enough in the next few hundred years to permit safe thawing of frozen bodies, which sounds quite plausible when compared with believing in the eternal existence of an omnipotent deity»⁵³. Hence, even if the chance of cryonics’ success is about 1% or less, what is there to lose?

⁵² DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 520.

⁵³ DAVID SHAW, *Cryoethics: seeking life after death*, *Bioethics*, Vol. 23, Number 9, 2009, p. 520.

In the light of foregoing, it may be concluded that the Cryonic Wager is the most powerful argumentation in support of cryonics.

5. Cryonics and Religion

In the previous chapter the troubled relationship between science and religion appears, even if only in passing.

In this section, efforts will be made in order to give the deserved attention to this recurring topic, in particular having regard to the relationship between religion and cryonics.

First and foremost, it is worth noting that religion and science are both fundamental components of the human social life. Nevertheless, for centuries they have been fighting a never-ending war. As it has also been reminded by Martin J. Heineken, an American Lutheran theologian, cited in Ettinger's "The prospective of Immortality": «whenever there was a new discovery which went counter to the traditional beliefs, the church and its leaders were quick to protest (...) Giordano Bruno was burned at the stake in 1600 because he no longer believed in a finite, enclosed universe (...) In 1632, Galileo was forced to recant his conviction that the earth revolved and not the sun (...) Martin Luther did not think well of Copernicus for contradicting the cosmology of the bible (...) [and] (...) the church opposed (...) inoculation, anesthesia, birth control, and above all, the theory of evolution»⁵⁴. Despite this, history teaches us that little by little, religion has learned to live with the scientific contribute to human life. This goes to shows that religions' adaptability is slow, yet not existent.

In the field of cryonics Ettinger wrote in his masterpiece that «there are several obvious ways in which the program⁵⁵ may seem incompatible with religion», but only «if one thinks hastily and superficially»⁵⁶.

One of the apparent reasons of this incompatibility is linked to the soul's enigma, but before dealing with the latter, it is useful asking what is meant by soul. As also Ettinger rightly pointed out «its definition is so vague that no one, however religious, can claim to know much about it, much less lay down moral directives about it»⁵⁷. The fact of the matter is that if it is not known what the soul exactly is or where it precisely is both during the lifetime and after the death, why then should it be an obstacle to cryonics?

⁵⁴ROBERT C. W. ETtingER, *The prospect of immortality*, 1962, p. 85.

⁵⁵ Ettinger is referring to cryonics program.

⁵⁶ ROBERT C. W. ETtingER, *The prospect of immortality*, 1962, p. 77.

⁵⁷ ROBERT C. W. ETtingER, *The prospect of immortality*, 1962, p. 80.

It helps to take a step backwards. An important component in most religions is the duality of soul and body and precisely this constitutes a break point with cryonics. First tracks of the mentioned dualism are found in the ancient western philosophy on the basis of which it was set up a hierarchy of human activities. The latter entails that spiritual activities were considered superior to the material ones; therefore, it follows the superiority of the soul over the body. As a matter of fact, the latter is weak and succumbs to sin, whereas the soul is strong and prevails over it⁵⁸. Despite the above-mentioned uncertainties, many firmly believe that the soul is seated in the body and that the soul is the seat of our identity. Therefore, when death occurs, the soul and consequently the personal identity abandon the body and will never return. From this point of view, cryonics is not seen as something positive but rather as something terrifying. Indeed, it would entail either the revival of a body without soul or the revival of the body without a new soul. All this has some sci-fi and, also, there is no denying that by many or almost everyone would be judged as an aberration which probably conflicts with the will of God⁵⁹.

In relation of what has been said, it cannot be ignored the resemblance to the Prometheus's myth and the Frankenstein's novel. Indeed, in the ancient Greek myth the Titan Prometheus dares the Gods and their power by stealing the fire from the Olympus in order to donate it to humans. In the same way in the Mary Shelley's novel, the doctor Frankenstein, which is also known as the Modern Prometheus, playing with the nature rules has challenged God and exceeded the human limits trying to get life from death; therefore, that was how he created the Creature. Hence, as well as Prometheus and Frankenstein, cryonics trying to cheat death go beyond the limits and, for this reason, violates the will of God.

With regard to what has just been said, it can be found a grain of truth but only if one remains anchored to a wrong and superficial conception of cryonics. Indeed, what misleads us is that the death is an essential step in order to be cryopreserved and this brings us to think about cryonic patient as a dead person. It should be borne in mind that what we all consider as death is actually a legal construct which in reality means that today's medicine cannot do anything else. Consequently, it can be concluded that the claims are no longer valid if cryonics is considered properly as another form of medical life-extension. Getting back to the soul's issue, therefore, from this perspective the cryonic patient is not dead but still alive and this means that the soul – or more accurately the personal identity – is still in the body (assuming that is its "home"). Besides since nobody asks where is the soul of a patient in a coma, why then should you put the problem with cryonics?

⁵⁸ One is aware that this philosophical as well as theological question is much more complex than it is represented here, but the aim of this work is not to go into the details of different philosophical thoughts, as such the above is sufficient to understand the following.

⁵⁹ ROBERT C. W. ETTINGER, *The prospect of immortality*, 1962, p. 77.

Moreover, in response to the objection that cryonics fails to comply with God's willing, it can be argued that the life is a gift from God. Consequently, one wonders either why a life-extending treatment would be at odds the God's willing and, also, on what grounds the religion could condemn cryonics.

6. Cryonics and Jurisprudence

The overriding goal of this work is to make the reader aware that cryonics is always more present in our reality. To support this, two different legal cases will be considered.

6.1 The Hindu guru's case

The case at stake is undoubtedly connected to the afore-mentioned relationship between religion and cryonics. Nevertheless, before getting straight to the heart of the matter, it is necessary to set out the facts of the dispute concerned in which Ashutosh Ji Maharaj is involved. First of all, the latter is considered to be the founder and the mentor of an Indian socio-spiritual-cultural and not-for profit organization known as Divya Jyoti Jagrati Sansthan⁶⁰ (hereinafter referred as the Sansthan); in other words, he is or was the Head of a religious sect.

In the night of 28 January 2014, Ashutosh Ji Maharaj was declared clinically dead by a medical board because of a heart attack. In consequence of this fact, Dalip Kumar Jha, declaring himself to be the biological son of the Indian preacher, claims the right to dispose of his father's body in order to observe the holy rites.

By contrast, the Sansthan firmly states that Ashutosh Ji Maharaj is not dead but rather in deep meditation's state; strictly speaking he has taken *Samadhi*⁶¹ and, also, has declared that he would return to the world of the mortals in one's body only after he had completed his spiritual mission. For this reason, the conservation of mentor's body is of great importance to the Sansthan's members.

All this leads to the arise of a dispute between the Sansthan and the presumed son of the Hindu guru. On the one hand, the latter, as plaintiff, requires that the Indian Court ascertains the death of his father and,

⁶⁰For more information, one can rely on the official website of the religious sect: <https://www.djjs.org/about-djjs>.

⁶¹«Samadhi as a concept is not alien to the Indian society having formed a part of many a folk-lore and mythology. It finds vociferous practitioners amongst the Yogis and the ascetics. It is known to be the "Final Initiation" also termed as 'ascension' where the practitioner abandons the physical body to achieve an elevated stage. It is supposed to result in complete detachment of oneself from the physical realm of existence. There would be examples where even practitioners of Yoga would offer this state albeit for a limited period and while being in Samadhi would offer no symptoms that the medical practitioner acknowledges as essential to life». The decision of the High Court of Punjab and Haryana at Chandigarh, 5 July 2017, p. 31-32.

consequently, orders the release of the body with a view to dispose of it with cremation⁶². On the other hand, the Sansthan resists the petition supported by the Indian State which claims that one cannot force the Sansthan to deliver the body of their mentor without violating their right to practice one's belief; a right, moreover, enshrined in the Indian Constitution.

It is worth noting that in India there is no law relating to the disposal of a dead-body and this makes room to this kind of debate. Without dwelling on such a lack, at the first instance in 2014 the Single Judge concludes the judgement by establishing that Dalip Kumar Jha is the son of Ashutosh Ji Maharaj and as such has an inherent right to cremate the dead-body of his deceased father as the normal customs and religious practices would dictate. Moreover, it has further stated that he has the right to claim the dead-body in preference to others who want to preserve it thereby denying the deceased respect and decency in death.

The Indian Single Bench's decision has been challenged in front of the Indian High Court of Punjab & Haryana at Chandigarh by the Sansthan in 2017. In view of the fact that the followers of the spiritual Guru firmly believe that their mentor would be back once his spiritual mission was fulfilled, the lawyer of the religious sect argues that this belief is protected by Articles 25⁶³ and 26⁶⁴ of the Indian Constitution. On the strengths of this, unless it is proved that this religious belief conflicted with public order, health or morality, nobody could have made claims to get the Guru's body back, not even his alleged⁶⁵ son. Moreover, the appellant's lawyer reminds that previously Ashutosh Ji Maharaj has spent a lot of his time meditating in sub-zero temperatures in the Himalayas and that in these occasions there was an absence of vital parameters. Hence, it is not a strangeness.

⁶² The Single Judge has summarized what was required to be adjudicated in the following terms: «This Court has been called upon to adjudicate the conflict whether the belief and practice of the followers of spiritual personality Shri Ashutosh Ji Maharaj that he has been in the state of 'Samadhi' despite having been declared clinically dead, would constitute an essential and integral part of religion for claiming the protection under Articles 25 and 26 of the Constitution of India. Dalip Kumar Jha, petitioner, has approached this Court for enforcement of his religious belief that being son of the above said Godman, he has got to dispose of the body as per the religious rituals». The decision of the High Court of Punjab and Haryana at Chandigarh, 5 July 2017, p. 4.

⁶³ Art. 25, Constitution of India: «Freedom of conscience and free profession, practice and propagation of religion. (1) Subject to public order, morality and health and to the other provisions of this Part, all persons are equally entitled to freedom of conscience and the right freely to profess, practice and propagate religion. (2) Nothing in this article shall affect the operation of any existing law or prevent the State from making any law: (a) regulating or restricting an economic, financial, political or other secular activity which may be associated with religious practice; (b) providing for social welfare and reform or the throwing open of Hindu religious institutions of a public character to all classes and sections of Hindus. Explanation 1: The wearing and carrying of Kirpans shall be deemed to be included in the profession of the Sikh religion. Explanation II: In sub-clause (b) of clause (2), the reference to Hindus shall be construed as including a reference to persons professing the Sikh, Jaina or Buddhist religion, and the reference to Hindu religious institutions shall be construed accordingly».

⁶⁴ Art. 26, Constitution of India: «Freedom to manage religious affairs. Subject to public order, morality and health, every religious denomination or any section thereof shall have the right: (a) to establish and maintain institutions for religious and charitable purposes; (b) to manage its own affairs in matters of religion; (c) to own and acquire movable and immovable property; and (d) to administer such property in accordance with law».

⁶⁵ It is used the term "alleged" because it was not clarified if Dalip Kumar Jha is effectively the Ashutosh Ji Maharaj's son.

To support his argumentations, the lawyer refers to cryonics' science claiming that if the religious belief is not sufficient to prevent the Court from taking a destructive approach, it should certainly be the scientific belief of cryonics. But what does cryonics have to do with all this? The answer of this question lies in the fact that the Hindu Guru's body is conserved by his disciples in a commercial freezer waiting for the spiritual mission's fulfilment⁶⁶.

The reasoning of the appellants' lawyer is brilliant. Indeed, by combining the religious belief on the basis of which the Guru's spirit will come back to retake one's body with the cryonics' belief according to which a dead-body conserved at low temperatures can be reanimated in future, he develops a knockdown argument. Surprisingly, cryonics and religion find themselves fighting side by side in order to get out as winners of the present dispute.

After examining the case, the Indian High Court concludes in favour of the Sansthan on the following grounds. First and foremost, in the light of both Articles 25 and 26, it is set out the right «of the citizens to practice one's belief, faith and manage religious affairs of an institution provided they do not conflict with the public order, health, or morality besides giving an individual the freedom of conscience»⁶⁷. Specifically, the Article 25 of Indian Constitution states that «all persons are equally entitled to freedom of conscience and the right freely to profess, practise and propagate religion»⁶⁸. It is worth noting that the "freedom of conscience" seems not to be the same of "the right freely to profess, practise and propagate a religion". Indeed, as the Indian High Court points out, a "free conscience" entails something wider than the right to freely profess a cult. The Court expresses itself with these exact words: «a free conscience would give freedom to nurture a thought, acquire a belief, embrace a religion, adopt a practice, theorize an idea, give vent to intellectual outpourings and enhance creativity, preserve tradition, shun contemporary thought, pursue modern values, societal mores, give reasons for assent and offer courage for dissent etc.»⁶⁹. In short, this is a fundamental right that enables the blossoming of a pluralistic society.

This being said, the Indian High Court has to assess whether the belief of the Sansthan is protected by the Article 25 of the Constitution and, consequently, entitles the Guru's followers to retain the body in a state of preservation. In this regard, it is shown that the "Samadhi" is an essential concept not only in the Sansthan's belief but also in the mythology and religion around with a large part of Indian philosophy revolves. Hence,

⁶⁶ < <http://www.ansa.it/web/notizie/rubriche/mondo/2014/03/13/Muore-guru-indiano-devoti-congelano-Medita-10224869.html> > accessed 16 November 2018.

⁶⁷The decision of the High Court of Punjab and Haryana at Chandigarh, 5 July 2017, pag. 30.

⁶⁸ Article 25, Constitution of India «(...) all persons are equally entitled to freedom of conscience and the right freely to profess, practice and propagate religion (...).».

⁶⁹ The decision of the High Court of Punjab and Haryana at Chandigarh, 5 July 2017, p. 30-23.

the disciples of Ashutosh Ji Maharaj cannot be accused to practice a deviant belief. It is worth emphasizing that the preservation of the body is not part of the Sansthan's belief. Nevertheless, in the light of the fact that the Indian Guru wishes to return to live in the one's body, the conservation of the latter is essential. Hence, bearing in mind that the Ashutosh Ji Maharaj's followers believe completely in their mentor's words, it's not difficult understand that also this is a part of the sect's belief that have to be protected by the Article 25.

The Indian High Court concludes the question by establishing that «the belief of the Sansthan of the Maharaj being in Samadhi cannot be forcefully shattered through the power of the State or a mandate from the Court, without inviting an accusation of violating the provision of Article 25 of the Constitution of India, particularly till the time such a belief does not conflict with public order, health or morality»⁷⁰.

Ultimately, the Indian High Court complains about the above-mentioned absence of any law or obligation to give any directions to dispose of a dead-body in India. This is exactly the reason that not only prevented the Court from invading the sacred territory of personal beliefs and faith, and from pursue a different solution of this case, but also has made successful the appellants' lawyer.

6.2 The 14-year-old girl's wish arrives in front of the Supreme Court of London

«I have been asked to explain why I want this unusual thing done. I'm only 14 years old and I don't want to die, but I know I am going to. I think being cryo-preserved gives me a chance to be cured and woken up, even in hundreds of years' time. I don't want to be buried underground. I want to live and live longer and I think that in the future they might find a cure for my cancer and wake me up. I want to have this chance. This is my wish»⁷¹.

Those that have just been read are the words written by JS, a girl of only 14 years who was diagnosed with a rare type of cancer in 2015. As it can be inferred from the words quoted, despite her age, JS is a bright and intelligent young person who is able to articulate strongly held views on her current situation and to form a wish for cryonics. Undoubtedly, as the Judge Jackson noted, the JS's application unique of its kind is an example of the new questions that science poses to the law, perhaps most of all to family law⁷². Before getting straight to the heart of the matter, the first order of business is to outline the circumstances of the case.

⁷⁰ The decision of the High Court of Punjab and Haryana at Chandigarh, 5 July 2017, p. 34.

⁷¹ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [10].

⁷² Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [23].

After cancer's diagnosis, the life expectancy of this young lady became more and more critical as time passes until in August 2016, the active treatment was discontinued and replaced with palliative care. It was then that JS, realizing she would die shortly after, started searching for information on cryonics on internet. Due to the finite space here, the focus will not be given to cryonics and its aim inasmuch reference can be made to what has been outlined in the previous chapters. One has only to remember that the scientific theory on which cryonics is based is still speculative and controversial⁷³. In this regard, the Judge Jackson emphasized many times over in the disposal that the case at stake is not about whether cryonic preservation has any scientific basis or whether it is right or wrong, much less approving or encouraging cryonics, or even ordering that JS's body should be cryonically preserved⁷⁴. All this case is rather about JS's right to know whether her wish could be realized by those who will be responsible for his estate after her death, namely her parents.

The other crucial issue is exactly the disagreement of her parents about what to do after their daughter's death.

On the one hand the mother supports JS's wish, on the other the father worried about JS's choice⁷⁵ refuses, at least initially, to support it. Such a diversity of opinions is exacerbated by the fact that JS's parents are divorced for some time. Following this, JS has lived almost all her life in London with her mom and from 2008 she did not have any sort of relationship with her father. The latter suffering from cancer in turn, after coming to know of JS' condition, opened a procedure in order to get the permission to see his daughter. He only obtained the permission to write her, nothing more. However, JS refused to have any contact with the father and above all, that the latter was given information about her condition.

Having said that, it is worth seeing which arguments the judge Peter Jackson used to determine the best interest of JS and, therefore, to solve the case.

Firstly, the judge actively engaged himself in order to concretely understand what JS's choice to be cryopreserved would have implied. For this reason, the honorable Judge requested a meeting with the volunteers of an English non-profit organization and the entire medical staff of the hospital where JS was admitted. The former, against payment, made all the necessary arrangements for the cryopreservation of the body prior the shipping to the chosen cryonic American company.

⁷³ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [7].

⁷⁴ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [30].

⁷⁵ In particular, the father wrote: «Even if the treatment is successful and [JS] is brought back to life in let's say 200 years, she may not find any relative and she might not remember things and she may», Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [21].

Nonetheless, due to their lack of medical knowledge, the volunteers needed the cooperation of the medical personnel. The outcome of such a synergy was not only the enhancement of the judge's awareness about cryonic, but also the willingness of the hospital to cooperate for JS's sake.

As a matter of fact, knowing her desire fulfilled, as much as possible due to her imminent death, would ease her sense of anguish and agitation.

Having learned that, the Judge wonders whether such a treatment could be deemed illegal on the basis of any legislative provision.

Firstly, the honorable Jackson after confronting with the Human Tissue Authority (the HTA) confirmed that the case at stake is not regulated by the Human Tissue Act 2004 and, therefore, the HTA does not have the authority to intervene. It should be born in mind that cryonics as such was not taken into consideration by the legislator while enacting the Act in 2004.

At last, the Judge Jackson after going to the old authorities on unlawful treatment of dead bodies concludes that the process of cryoconservation is not comparable to any kind of crime.

Hence, not finding any legal obstacles to achieving the JS's desire to be cryopreserved, he made sure that there were not even practical ones. In this regard, the United States authorities have confirmed that there is no prohibition on human remains being shipped to the US for cryonic preservation, but only on the condition that the UK funeral director and the US commercial organization are in communication to guarantee that local, state and federal requirements are complied with⁷⁶. Considering that at in the case at stake the aforementioned condition was complied with, Jackson reaches the conclusion that there were neither legislative nor practical obstacle to the cryoconservation. This was the first victory for the little JS.

Once it is established that her wish could be realized, it remains to be decided who would decide for her after her death, as responsible for her estate. One of the key problems in this case is the young age of JS. Indeed, as the Judge Jackson himself writes: «If she was 18, she would be able to make a will, appointing her mother as her executor, and it would then be for the mother to make arrangements for the disposal of JS's body, no doubt in accordance with her wishes. However, children cannot make wills»⁷⁷. The law in relation to the disposition of a dead body (see also the decision of Kay J in *Williams v William*, 1882)⁷⁸ establishes that a dead-body is not property and, therefore, cannot be disposed of by will. Hence, in the English law, there is no right to dictate the treatment of one's body after death, and this independently of testamentary or religion.

⁷⁶ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [17].

⁷⁷ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [25].

⁷⁸ Kay J in *Williams v Williams* [1882] LR 20 ChD 659.

Undoubtedly, the will of the deceased is significant, but not binding on third parties⁷⁹.

Moreover, the right to possession of the body and the duty to arrange for its proper disposal belongs to the administrator or executor of the estate, and at the case at stake belongs to both JS's parents. In view of the disagreement of the latter about the wish of the daughter, the Court's task is to determine which parent would be made the arrangements. In fact, pursuant to section 116 of The Supreme Court Act⁸⁰, the honorable Jackson take the view that he had the authority to substitute one for both. On the strength of this, the Judge concludes that undoubtedly the mother is best placed to manage this difficult situation and, therefore, the responsibility is in her hand. On the contrary, the father is forbidden to intervene⁸¹. This is must considered the second and definitive win of the JS and her wish to be cryopreserved after one's death.

In conclusion, the reminder of the honorable Judge Jackson to the English legislator is noteworthy and, thus, it will be reported herein: «It may be thought that the events in this case suggest the need for proper regulation of cryonic preservation in this country if it is to happen in future»⁸².

7. Non-cryonics legal system: a focus on the Italian situation

As emerged on several occasions in the course of this work, the lawmaker has been seised to fill the legislative gap regarding the discipline of cryonic science. Undoubtedly, this chapter by focusing on the Italian legal framework will not manage without.

⁷⁹ Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [48].

⁸⁰ Supreme Court Act, 1981, section 116: «Power of court to pass over prior claims to grant: (1) If by reason of any special circumstances it appears to the High Court to be necessary or expedient to appoint as administrator some person other than the person who, but for this section, would in accordance with probate rules have been entitled to the grant, the court may in its discretion appoint as administrator such person as it thinks expedient. (2) Any grant of administration under this section may be limited in any way the court thinks fit».

⁸¹ In particular the orders consisted in the following: « (1) A specific issue order permitting the mother to continue to make arrangements during JS's lifetime for the preservation of her body after death. (2) An injunction in personam preventing the father from (i) Applying for a grant of administration in respect of JS's estate; (ii) Making or attempting to make arrangements for the disposal of JS's body; (iii) Interfering with arrangements made by the mother with respect to the disposal of JS's body. (3) A prospective order under s.116 of the Senior Courts Act 1981, alternatively under the inherent jurisdiction of the High Court, to take effect upon JS's death, appointing the mother as the sole administrator of her estate in place of the mother and father jointly, and specifying that the mother shall thereby have the right to make arrangements for the disposal of the body, and to decide who should be permitted to view it. (4) An order for disclosure of the papers to the Human Tissue Authority». Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [41].

⁸² Re JS (Disposal of Body) [2016] EWHC 2859 (Fam), [69].

In Italy, as in the rest of Europe, there is currently no law governing cryonics, nor a law that prohibits it. In view of this, it has been made possible for a certain Aldo Fusciardi to be cryopreserved after he died of heart attack in 2012. He is regarded as the first Italian pioneer of cryonics⁸³.

After him, only few people chose to be cryoconserved rather than being buried or cremated. Nevertheless, if on the one hand there is no law against cryonics, on the other hand there is a legislative gap left by Italian lawmaker (and not only) which makes it difficult to combine the cryonics proceeding with the 24-hour observation period enshrined in Article 8 of the Presidential Decree No. 285 of 10 September 1990⁸⁴. The latter specifies that nobody can be subjected to conservation treatments in cold storage before a 24-hour time span after death has passed. Without going any further as it has already been adequately outlined in the previous chapter, it is just worth mentioning that cryonic proceedings must be initiated as soon as the patient has been declared legally dead. Nonetheless, the compliance with the observation period as well as the Italian bureaucracy make difficult to respect the afore-mentioned condition. For this reason, the Italian cryonic patients are forced to move to America or Russia to await their own death.

Nowadays, thanks to Filippo Polistena's initiative, it has been founded in Mirandola⁸⁵ the first and only funeral home (hereinafter referred to as Polistena Human Criopreservation) which, having made exclusive agreements with *KryoRus*, offers services for cryoconservation as an alternative to the traditional procedures. It is worth specifying that this forward-looking funeral director does not take care himself to cryopreserve the body, but rather to prepare the latter for the cryopreservation. As a matter of fact, the body of the cryonic patient will be relocated in Russia, where the *KryoRus* will put in place the full-blown cryopreservation. The packages offered range from a minimum price of 18,000 \$ to a maximum of 36,000 \$; the price changes depending on the chosen treatment (the whole body's preservation or rather the brain's preservation)⁸⁶. Furthermore, the Polistena Human Criopreservation will be act as in intermediary between the future cryonic patient and the Russian cryonic company for the signing of the contract.

Basically, the Polistena Human Criopreservation fills the same role that before in all Europe was carried out exclusively by a non-profit organization in the United Kingdom, i.e. Cryonics UK⁸⁷. In fact, the latter has been created with the view to provide both pre and post-mortem assistance to all those in the UK who want their

⁸³ http://www.ansa.it/sito/notizie/magazine/2014/12/27/gli-italiani-tra-i-pionieri_d2c82ecd-f3f1-4e34-b377-6d9f3bb56047.html (accessed 16 November 2018).

⁸⁴ Article 8, No. 285 of the D.P.R. 10 September 1990: «Nessun cadavere può essere chiuso in cassa, né sottoposto ad autopsia, a trattamenti conservativi a conservazione in celle frigorifere, né essere inumato, tumulato, cremato, prima che siano trascorse 24 ore dal momento del decesso, salvo i casi di decapitazione o di maciullamento e salvo quelli nei quali il medico necroscopo avrà accertato la morte anche mediante l'ausilio di elettrocardiografo la cui registrazione deve avere una durata non inferiore a 20 minuti primi, fatte salve le disposizioni di cui alla legge 2 dicembre 1975, n. 644, e successive modificazioni».

⁸⁵It is a *comune* in the Province of Modena in Italy.

⁸⁶ <https://www.filippopolistena.it/le-nostre-composizioni/fiori-piante-corone-floreali-anche-a-domicilio/> (accessed 16 November 2018).

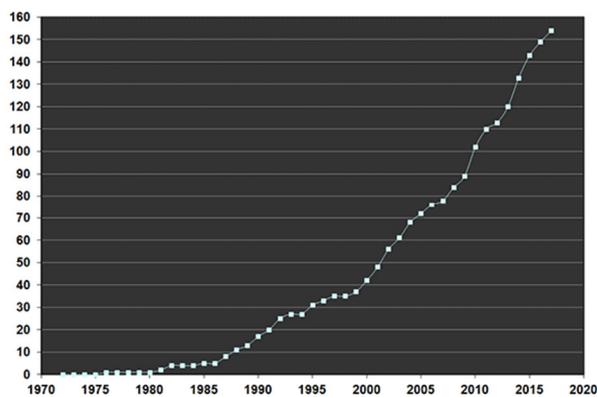
⁸⁷ <http://www.cryonics-uk.org/faq.html> (accessed 16 November 2018).

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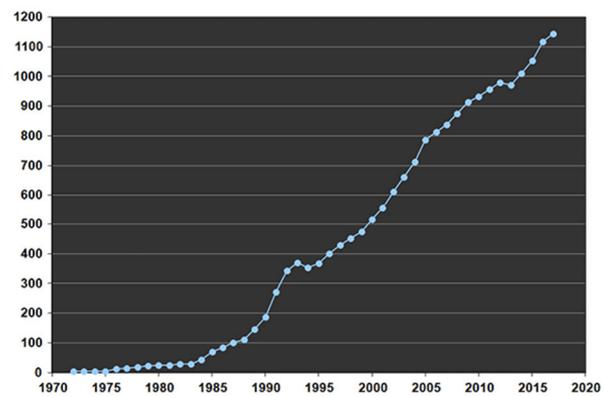
body to be cryopreserved after the clinical death. The Cryonics UK, as opposed to Polistena Human Criopreservation, cooperates not with Kryoruss, but rather with all others American cryonic companies.

Ultimately, the condition of the Italian cryonic patient has surely improved compared to the past thanks to the foresight of the Italian businessman Filippo Polistena. However, one wonders if this is enough.

If in the past one could understand the reluctance of the legislator to pay attention to the phenomenon of cryonics, today, in view of the ascent of the latter, it can be understood less. For instance, the number of people who choose to be cryopreserved rather than being buried or cremated is steadily increasing. In April 2017, the Cryonics Institute⁸⁸ had as many as 151 cryonic patients and 1384⁸⁹ members⁹⁰. Moreover, wanting to rely on more recent data, in July 2018 Alcor counts 159 patients and 1198⁹¹ members; numbers undoubtedly on the rise as it is shown in the graphs published on Alcor's website and reports below.



a) patients



b) members

In the view of the above, there can be no denying that cryonics has become a reality, for better or worse. Admittedly, in Italy there have not yet been any striking cases such as those in India and in the United Kingdom, but this does not mean that in the near future cryonics related cases could not arrive in the Italian courtrooms. Thus, why wait for an Italian judge to urge the lawmaker to take action on the matter? The same question recurs in all (or nearly) the previous chapters.

⁸⁸ The Cryonics Institute is one of the most important American companies who deals with cryonics.

⁸⁹ <http://www.cryonics.org/the-ci-advantage/> (accessed 16 November 2018).

⁹⁰ The members are people who have completed full legal and financial arrangements for cryopreservation with one the cryonic companies.

⁹¹ <https://alcor.org/AboutAlcor/membershipstats.html> (accessed 16 November 2018).

7.1 A possible starting-point for a future regulation: the criteria of legal death

Efforts have been made to pick out a point from which the legislator could start to outline a discipline on cryonics. The redefinition of the concept of death could be one advisable starting-point to overcome the legislative scarcity. On the strength of the fact that the state of advancement of medical science and technology influences the definition of death, the latter must be adapted from time to time.

Indeed, as has already been said several times in this work, the death is a process and as such it does not change; conversely, what changes is the phase in which this process becomes irreversible. In this regard, the Italian Constitutional Court in the judgement no. 414 of 1995 underlined that death's process passes from a situation relative to the individual, namely the reversible and then irreversible cessation of the superior functions of the heart, lungs and brain, to a situation of absolute cessation of life of the whole organism. If, on the one hand, this last situation that constitutes the conclusive moment of the death process is a given objective, on the other the first is not⁹². Nowadays two are the main criteria that are used to determine the decisive moment to consider the human person as extinct: the cardiopulmonary criterion and that of cerebral death.

Both, as already explained, do not fit with the cryonics science. For this reason, Ralph Merkle has developed the information theoretic criterion on the base of which a person can be declared dead when the brain's structures that encode memory and personality have been so disrupted that it is no longer possible to recover them⁹³. The information theoretic criterion could help to look at cryonics in the right way, namely as a kind of medical life-extension technology. In fact, as already explained in the previous chapters, applying this criterion shows that cryonic patients do not necessarily have to be considered dead.

Hence, the Merkle's insight could be a starting-point to draft a discipline on cryonics, but at the same time it should not lead to a complete abandonment of the other criteria. But if it is, how can be selected the criterion to apply? In this regard, important sources of inspiration are the solutions adopted in Japan and New Jersey. On the one hand, in Japan the cardiocirculatory arrest criterion applies, but any person has the possibility to request that their death be ascertained according to the criterion of brain death. On the other hand, in New Jersey the criterion of brain death is applied by law, but even here any subject can opt for a different criterion⁹⁴.

⁹² The Italian Constitutional Court, judgement no. 414 of 1995.

⁹³ R. C. MERKLE, *The technical feasibility of cryonics*, *Medical Hypotheses*, 39, 1992, p. 9.

⁹⁴ CARLO CASONATO, *Introduzione al biodiritto*, 2012, Turin, p. 24-27.

Moreover, also the Italian solution can be held up as an example. The Italian lawmaker has defined death as the irreversible cessation of all brain functions and has established that the criterion to verify death can be both cardiopulmonary and neurological⁹⁵.

All these cases show that not necessarily one criterion must exclude the others, but the coexistence between them is possible in many different ways. Therefore, based on the previous examples, a possible option would be to leave each subject free to choose whether one criterion is applied rather than the others to determine one's death. Such a decision will obviously be conditioned by the post-mortem treatment also left to the free choice of each subject.

Furthermore, another crucial question that the lawmaker has to face is the one about the rights of cryonic patients. As Ettinger pointed out: «Not only the bodies of the frozen must be protected, but also their property; and not only their property, but also their rights»⁹⁶. Even though it is not yet clear when, there is rebuttable presumption that, at some point, cryonics will be able to awaken its patients who, therefore, cannot be left unprotected.

Moreover, the cost of storage and of pre-mortem treatment should not be borne by the State, but by the patients. Indeed, the life-insurance and trusts system already works effectively because it allows the less well-off to be able to access the treatment. However, a problem remains unresolved: what if cryonics succeeds in its purpose of reversing the death process and reviving cryonic patients? The legislator should prevent insurance insurers from wanting their money back.

In addition, it would be certainly useful that within each hospital the medical staff (both nurses and doctors) is willing to collaborate with those who are instructed to make all the necessary arrangements for the cryopreservation of the body, prior the shipping to the chosen cryonic company. Such a collaboration allows the patient to have all the necessary assistance from the medical and cryonic point of view, right from the first moment after the legal declaration of death.

On the note of these good intentions, it is worth noting that the choice to regulate cryonics is just one of the alternatives that the legislator can opt for. Indeed, the other chance entails the avoidance of cryopreservation. First and foremost, such a choice could be connected by precautionary reasons. Indeed, it should never be forgotten that cryonics is a science whose goal is based on a technology that does not yet exist; in other words, cryonics is still surrounded by a veil of uncertainty and, for this reason, the lawmaker

⁹⁵ CARLO CASONATO, *Introduzione al biodiritto*, 2012, Turin, p. 22.

⁹⁶ ROBERT C. W. ETTINGER, *"The prospect of immortality"*, 1962, p. 92.

would be more than legitimate to prohibit cryonics for reasons of prevention, as well as for ethical reasons already mentioned in the previous chapter.

Due to the finite space here, many other problems concerned cryonics were not investigated. Hopefully, however, the analysis carried out may constitute a starting point for the legislator as originally proposed.

In conclusion, it is worth emphasizing that regardless of the choice that the legislator will make, what really matters is that the legislator takes a position concerning the growing phenomenon of cryonics.

9. Conclusions

Hopefully, at this point, the reader is more aware of what cryonics and its purposes entail, as well as its presence in the real world. As a matter of fact, cryonics is undoubtedly a growing real phenomenon as also shown by the above-provided data of the two American companies. Indeed, although cryonics is based on a controversial and speculative scientific theory, today ever more people choose to place their trust in it and, consequently, to be cryopreserved rather than being buried or cremated. On the strength of this, the lawmakers have been called repeatedly in the course of this work to recognize the rise of cryonics science and to take a position on it.

In this regard, it should be recalled that not one, but two High Courts of two different continents (both the English High Court and the Indian High Court) pointed out the needed of a regulation about cryonics.

What is most surprising, however, is that even in America where almost all the cryonic companies are located there is no legislation that is concerned with regulating cryonics. As has already been clarified, the lack of a regulation raises too delicate issues to be overlooked by the lawmaker.

In conclusion, in the light of the above, it can be inferred that for better or for worse cryonics has become real and concrete to such an extent that it should no longer be ignored by the lawmaker who must therefore make a choice that could be either regulating or banning it.