

Genetic Manipulation: Frankenstein's New Monster in the Cinema

Francisco Javier de Prada Pérez

Centro Psicogeriátrico San Francisco Javier de Pamplona Navarra (Spain).

Correspondence: Francisco Javier de Prada Pérez. Pueblo Viejo 16. 31010 Barañáin. Navarra (Spain).

e-mail: javier.deprada.perez@cfnavarra.es

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Summary

On many occasions the cinema has been concerned with launching the questions raised by scientific progress and its repercussions on the lives of human beings. Not in vain is science fiction a genre dedicated to this task, that of attempting to predict where humanity is going thanks to the application of new discoveries. Genetic manipulation, because of its extraordinary range of possibilities, could not escape scripts that try to glimpse how society might apply it in the near future.

This article analyses three representative titles, *The Boys from Brazil* (1978), *Godsend* (2004) and *The Island* (2005), to show how the cinema has not abandoned the narrative model begun by James Whale's *Frankenstein* (1931), which in turn takes the Greek myth of Prometheus to show the terrible consequences undergone by those who dare to emulate God, the only creator of life.

Finally, a more detailed analysis of *Gattaca* (1997) by Andrew Niccol makes it possible to abandon this sensationalist model and, with an almost prophetic script which today is more science than fiction, call attention to the current fears of jurists, experts in bioethics and bodies such as the UNESCO regarding genetic privacy and the presumed determinism of the human genome.

Keywords: Cloning, Genetic Discrimination, Genetic Manipulation, Human Genome Project, Genes, Freedom, Determinism.

Introduction

Over seventy years have passed since the release of *Frankenstein* (1931). Nevertheless, the analysis of several films that deal with progress in genetic engineering shows how the film industry, with the occasional honourable exception, has not abandoned the model embarked on by James Whale, the director of that unforgettable work. The Greek myth of Prometheus¹ still prevails for preparing scripts relating to the alteration of nature owing to human intervention.

This article does not seek to puzzle out the reasons for the persistence of this myth, since ideological slants, the interests of religious circles, the need for sensationalism, or perhaps such prosaic reasons as the pure and simple business of entertainment are greatly interwoven in them. Perhaps now, as then with *Frankenstein's* monster, the aim is to attract the spectator with the promise of causing suspense and terror.

The films analysed are: *Frankenstein* (1931) by James Whale, *The Boys from Brazil* (1978) by Franklin J. Schaffner, *Godsend* (2004) by Nick Hamm, *The Island* (2005) by Michael Bay, and *Gattaca* (1997) by Andrew Niccol. The last one is a praiseworthy attempt to see the dangers of the future towards which progress in genetic engineering may lead and hence requires a more detailed analysis in order to perceive the richness of its approach.

A Monster as Model of Scientific Progress: *Frankenstein* (1931)

Frankenstein, a film directed by James Whale, fits into the terror genre and is far removed from the line that Mary Shelley, the author of the novel on which it is based², undoubtedly desired to mark. The presence of the memorable Boris Karloff as "the monster" is one of the icons of the seventh art in the 20th century (figure 1).

The film begins with the speech of a presenter



Figure 1: Dr. Frankenstein's monster (Boris Karloff)

communicating the intention of a man of science to create a being without counting on God, and offers the image of the doctor as a megalomaniac who has lost his mind. Henry Frankenstein (Colin Clive), after making the monster, says that the body was never alive, he had created it with his own hands. The application of atmospheric electricity to the monster's inert body gave rise to the impressive, now legendary, scene, in which the doctor sees the monster's hand move and shouts *It's alive! I know what it feels like to be God!*

The film ends with the famous scene in which the monster captures his creator and seeks refuge in a windmill while a crowd pursues them brandishing torches. The creature has killed a girl by drowning her in a lake. Finally, he pushes the doctor off of the top of the windmill and dies in the flames. Creator and creature die. Prometheus is punished for having competed with the gods.

The Association of Nazism and Genetics: *The Boys from Brazil* (1978)

The Boys from Brazil, based on the novel of the same name by Ira Levin, was directed by Franklin J. Schaffner, with Gregory Peck playing the role of Dr. Josef Mengele (figure 2).

The plot is based on a true event, the flight of Josef Mengele, head doctor of the Auschwitz extermination camp, to South America at the end of the Second World War. In Levin's novel, Mengele has a

plan to produce clones of Adolf Hitler. After the implanting of the embryos and their subsequent birth, the boys are sent secretly to adoptive families in an attempt to reproduce the family structure that surrounded the dictator's childhood. Ezra Lieberman, a Jew, hunter of war criminals, discovers the Machiavellian plan and prepares to stop it.

The film has the virtue of making visually credible the hypothesis that a regime such as the Nazi regime should seek, thanks to genetic engineering, to undertake forbidden experiments in honour of the blossoming of the IV Reich. All the historical experience that had been coming to light over the years and, especially, eugenic and experimentation practices in extermination camps, made it feasible that an ideology such as the Nazi one should make abject use of scientific progress, despite

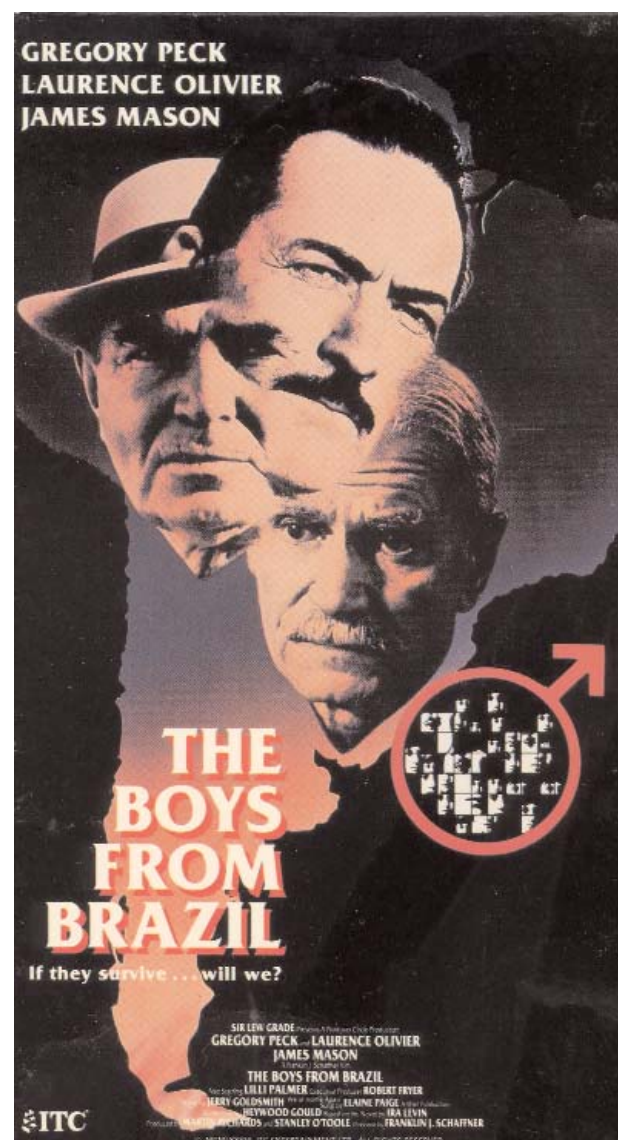


Figure 2: In foreground, Dr. Joseph Mengele (Gregory Peck), the main character in *The Boys from Brazil*

the signing of the Nuremberg Code in 1947. This Code, signed after the trial of the leading Nazis, was intended to be a protection against the experimentation, carried out by Mengele himself, which had shaken the world.

What is most interesting for our analysis is the conversation that the Nazi-hunter, Ezra Lieberman (Laurence Olivier) has with Professor Bruckner (Bruno Ganz). In it he tells of his findings and, on comparing them with the theory handled by the scientist, reaches the conclusion that Mengele has indeed cloned Adolf Hitler himself. The Jew Lieberman is grieved and shaken. However, it is the reaction of the scientist that is surprising since, far from being horrified about it, he speaks of the world becoming filled with “Mozarts and Picassos” and says that he would love to be able to study one of those boys.

The conclusion that any viewer can make is that not only the madness of a sadist like Mengele is capable of such folly, but that the supposedly democratic scientist marvels at scientific progress and is captivated by the possibilities of the discovery. To sum up, there is no contrast between the Nazi and the doctor, between outrage and respect for the dignity that should preside over science at the service of the human being.

The approach of the script has a virtue versus the topic of genetic determinism which will be seen in other examples. The experiment is not limited to the cloning of Hitler, thanks to the extraction of blood, but also recreates the family surroundings of his early years. This, no matter how extravagant it may seem, provides a nuance that the discourse of some predictors seems to forget. Not everything lies in the genes and the mere cloning of Hitler or John Lennon would not necessarily lead to the possibility of establishing the IV Reich or re-founding the Beatles.

Prometheus could be Mengele this time and, the same as in the myth, his entrails will be devoured by dogs urged on by one of the boys who has found out that the doctor killed his father.

At the end of the film the ingenuous position of ‘genomania’ is challenged, when it is Lieberman himself who opposes eliminating all the boys created by the experiment.

Despite all, Ira Levin’s approach was not so preposterous as it may seem at first glance. The

“Lebensborn” project, sponsored by the Nazi leader Heinrich Himmler, sought to create a superior race through the insemination of German women of certain characteristics by SS officers. Between eight thousand and twenty thousand children were born from that experiment³.

Cloning as Defiance of Death: *Godsend* (2004)

Godsend, directed by Nick Hamm, has a series of idiosyncrasies, such as the proposition of a cloning made by a scientist without scruples, Richard Wells (Robert De Niro), to a family that has just lost their eight-year-old son in an accident (figure 3).

It is not necessary to make a very detailed analysis in order to reveal the weaknesses of the plot, which repeats the line taken in *The Boys from Brazil* of associating genetics with terrain that borders on the diabolic and forbidden. Richard Wells asks about a single scientific advance that had not gone beyond social taboos and says: *Do you think you can just open Pandora’s Box and then just close it again?* Once again

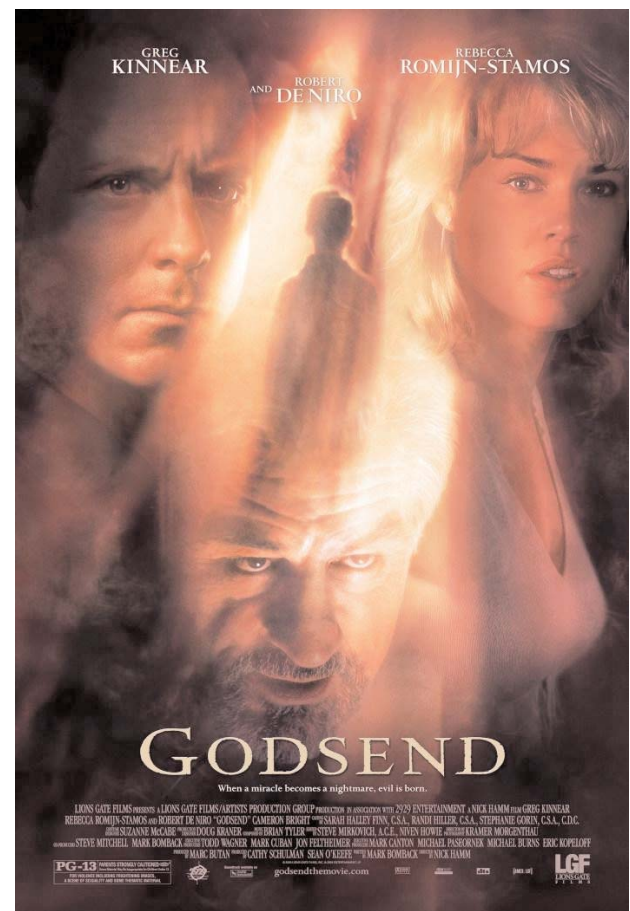


Figure 3: All the characters are in the poster, with Dr Richard Wells (Robert de Niro) I the foreground

Prometheus has played with the secret of giving life, of equating himself with God and of having to bear the terrible consequences. The characters do not doubt the illegality of the approach but the scientist wonders: Is it immoral?

Private Enterprise Escapes Social Controls: *The Island* (2005)

The Island, directed by Michael Bay, tells how, in 2019, Lincoln Six Echo (Ewan McGregor) and Jordan Two Delta (Scarlett Johansson) (figure 4) find themselves among hundreds of residents in a closed complex. The same as all the other inhabitants in this environment, their life is carefully controlled, apparently for their own good. The only way out and hope, which they all share, is to be chosen to go to “The Island”, the last uncontaminated corner that remains in the world after an ecological disaster, which, according to what is said, took the lives of all the inhabitants of the planet except theirs. Lincoln increasingly questions the restrictions to which they are subjected. This leads him to the terrible discovery

that everything about their existence is a lie. He finds out that all the inhabitants of the complex are created and then eliminated to extract the organs in their bodies needed to solve the health problems of their sponsors in the outside world - that is the donors of the cells from which they come. The reminiscences of *Brave New World* by Huxley⁴ are deliberate, even in the technique of hypnopaedia, conditioned learning while sleeping.

The intention of the aesthetics of the film is not dissimulated when the clones are shown incubated in capsules that are very similar to a womb, waiting to be taken out of that sticky, amniotic liquid to serve the end for which they were created. A clear parallelism could be made for those who describe children conceived in order to save a sick sibling as “designer babies”⁵. Over the argument there looms the idea that the creation of a human being as a whole is essential in order to be able to achieve the repair of damaged parts. However, once again the myth of Prometheus, the creature acquires awareness of its own creation and its condition of being created by utilitarianism.

The predominance of private enterprise appears strongly in the film. The *Merrick Biotech* is in charge of making the dreams of the upper class of society come true, the class that can pay for this type of technology. This announcement, and hence, this fear, has already been established in everything related to genetic engineering. The race towards the sequencing of the Human Genome in which the *Celera Genomics* company took part is just an example of the financial interests behind a project of this magnitude. There are authors who announce that the future of the application of this progress will be conditioned by the economic level of the user ready to pay for it⁶.

In *The Island* an aeronautics designer and a top model, among many others, are those who have invested in this dream and they are the “progenitors” of Lincoln and Jordan, the main characters. *This is the new American dream, to live for ever*, is what is proclaimed at one moment during the film. It is striking how for the first time “the eugenics laws of 2015” are named, that is, legislation has already forbidden these practices, but private companies, in which men of science are incorporated, fail to observe this knowingly. A message from the scriptwriter is that even the President of the United States has a clone in the company. Seen from another point of view, the idea of a

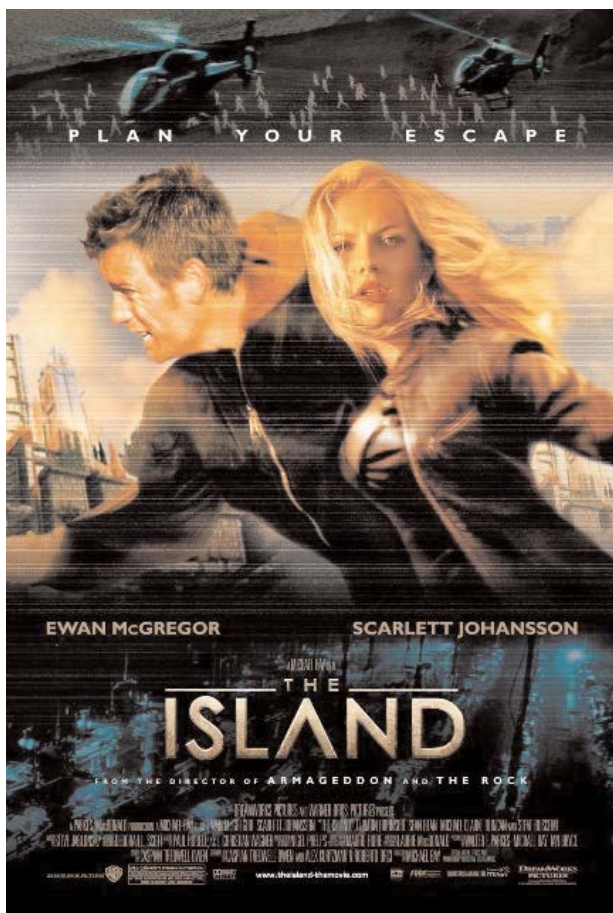


Figure 4: Lincoln Six Echo (Ewan McGregor) and Jordan Two Delta (Scarlett Johanson) the characters in *The Island*

private company that escapes democratic controls, even deceiving the maximum representative of the sovereignty of the country, is disturbing.

The message agrees that the progress of science cannot be stopped and that it has no ethical scruples when offering its findings to the world. This time it is Dr. Merrick (Sean Bean) who takes the role of the new Dr. Frankenstein and says *I give life* and he will also be punished. The main character, the creature, will return to its place of origin to put an end to its creator and free the captives who were unaware of their condition.

Discrimination and Determinism Questioned: *Gattaca* (1997)

Gattaca is, without the slightest doubt, the exception among the films analysed. Its main character is Vincent Freeman (as an adult Ethan Hawke) (figure 5), and the screenplay is by its director, the New Zealander Andrew Niccol, who also wrote the screenplay of the very well-constructed *The Truman Show* (1998).

The plot poses the experience of Vincent, a person conceived naturally, i.e., without the intervention of the possibilities offered by genetic engineering in this hypothetical future society.

The voice in off of the main character refers to the fact that his parents conceived him naturally and he does not understand why they wanted to leave in the hands of God what could have been in the hands of their geneticist. James Watson, Nobel Prize for the discovery of the double helix in DNA, would agree with this when he stated that it is difficult to find a good argument against the idea of making better human beings⁷.

The geneticist in fiction has an interesting conversation with Vincent's parents when they decide to have a second child. The geneticist doctor offers them the option not only of choosing the sex but also the colour of the eyes, skin tone, hair... The liberty is even taken of preventing *some imperfections*, such as baldness, obesity, propensity to violence. The father asks if it is not better to leave some things to chance. The geneticist rejects this idea and convinces them by saying that the child will have "*the best of you*", but with traits that would not be achieved in a thousand natural attempts to conceive. From this controlled insemination Anton will be born (as an adult Loren Dean).

Reference is made to the prohibition of discrimination by laws, but a body sample left in even the tiniest corner can give rise to an analysis that may lead to the sequencing of an apparently correct future. Selection at work is evident, with the corresponding situation of Vincent on the lowest step of that society, those in charge of cleaning the offices.

This genetic discrimination at work is beginning to be a worrying reality and there are authors who even postulate in its defence, since it protects the worker liable to specific contamination from the work environment. This is the provocative argument of John Harris⁸. In order to join the firm *Gattaca* Vincent is subjected to a control and he asks, *and the interview?* The doctor answers *That was it*. A simple urine analysis determines the potentialities of the new member of the company.

Vincent is an 'in-valid'. He was born with a 99% genetic predisposition to die of heart disease and has a life expectancy of under 30 years, which means that he has no possibility of getting an insurance policy; this is a current concern also. The companies that evaluate risks in order to obtain benefits seek to con-

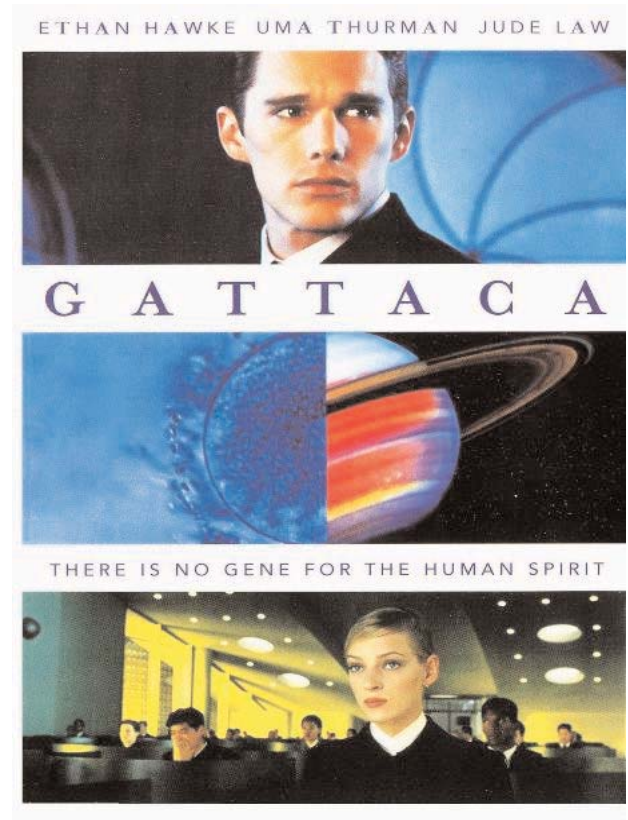


Figure 5: Vincent Freeman (Ethan Hawks), the main character in *Gattaca*

trol these eventualities associated with predictable diseases so as to increase their profits. The American private system for health coverage is a fertile field for discrimination according to this genetic code that announces a complicated disease or premature death⁹. The possibility is posed of genetic discrimination displacing other types of segregation for reasons of race or nation.

Vincent finds himself obliged to pass as someone who was conceived with all the blessings of science; he will purchase the identity of a “vitro” with a perfect genetic load.

At a certain time the main female character, Irene Cassini (Uma Thurman), goes to a sequencing lab with one of Vincent’s hairs and asks for the complete sequence. At this point one wonders about the possibility of a future with firms that perform this sort of task without the prior consent of the person involved. This is a constant concern in all the legislation and declarations on the genome in the UNESCO^{10,11}, the protection of the privacy of these data as an unquestionable part of respect for the dignity of the person.

Determinism, that blind trust in genes, the “genoism” mentioned in the film, is evident when Vincent manages to outwit all the controls imposed and achieve the dream reserved only for the new caste of the genetically modified. His brother Anton, who is merely a humble policeman, reproaches him when he uncovers the deception: *I have a right to be here, you don’t.*

When they were children, Vincent and Anton used to compete to see who could swim farthest out to sea. The day that Vincent had to rescue his brother he realised that destiny is not written in the genes. The indefinite horizon outlined by the sea is a symbol in the film of the infinite possibilities that the human being has of changing the apparently inevitable prediction. Swimming out to sea implies overcoming the discrimination imposed by a society that only takes into account one’s genetic make-up.

In this respect the UNESCO proclaimed in its International Declaration of Human Genetic Data in Paris: *Nevertheless, a person’s identity should not be reduced to genetic characteristics, since it involves complex educational, environmental and personal factors and emotional, social, spiritual and cultural bonds with others and implies a dimension of freedom*¹¹.

The man of science is in this case a doctor who, in the final scene shows us his more human profile. The same as Vincent, he is rebelling against this destiny marked by others: *Did I ever tell you about my son ... my son’s not all they promised.* The doctor admits the impossibility of conditioning expectations and desires for the mere reason of not fulfilling what is established by certain genetic parameters. Finally he allows Vincent to travel, despite having discovered his secret.

The scientist is reconciled to his own condition of person capable of weighing more important elements, such as freedom and self-determination, in short, the dignity of the person. As Blázquez recalls: “Techno-science and legal system cannot move as if they were two split realities”¹².

The film ends with the culmination of Vincent’s purpose, which is none other than to fly into space, and in turn, with the suicide of the person who lent him his genetic identity. Once again the unhappy creature perishes in the flames, the same as Frankenstein’s monster, but with all the nuances that have been told here.

Conclusions

Since that far-off 1931 when Frankenstein’s monster terrified the audience, the cinema has repeated the idea of supernatural punishment for whoever dares to intervene in what is considered natural order. Comparing a supernatural being and the creator will entail divine retribution, just as Zeus punished Prometheus. It is interesting to recall that Dr. Barnard was accused of being a new Dr. Frankenstein when he performed the first heart transplant in history in 1967.

It is not a matter of heading for a naïve scientific optimism only comparable with the innocence of the girl who approached the monster without assessing the consequences. That would be more suited to the Enlightenment than to societies that have also experienced undesirable and dangerous consequences of that blind faith in progress. Nevertheless, over the films analysed there hovers the idea that man’s intervention will cause greater evils than those sought to be remedied. The progressive strengthening of western democracies on the basis of tolerance, freedom, and the dignity of the human being is the best antidote for the fear of the rumbling of drums and swastikas to which these films usually make reference.

The cinematographic approach of firms moved by purely financial interest is a constant theme in more recent films and they are not lacking in a certain credibility. The power of financial corporations that can speak on an equal financial plane with the governments of many developed countries, not to mention with those of poorer countries, should not be disdained. Neither should we forget the race in the sphere of public and private capital towards the sequencing of the genome, one of the issues with major ethical implications in research over recent years. John Sulston refers to this very graphically when differentiating a discovery of an invention, saying that if we patent discovery a monopoly is automatically generated. Insofar as knowledge is privatised, research will give priority to problems that affect the sectors with greater purchasing power¹³.

There are authors, such as Lee M. Silver with his book *Remaking Eden*, who pose as a future hypothesis the prevailing of capital over state control. Silver is of the opinion that, contrary to what Aldous Huxley advocated in his book, it will not be socialism, but capitalism that will destroy humanity⁶.

Finally it is worthwhile looking at the hypothesis posed by *Gattaca* concerning the dangers of this unbridled "genomania" which impregnates the announcements of new discoveries: the homosexuality gene, the antisocial behaviour gene, the gene responsible for cancer of one type or another. Currently, the aims of medicine are becoming broadened to go beyond prevention, cure and rehabilitation. We are witnessing the predominance of prediction as a magic wand that will anticipate the appearance of diseases.

Watson once again saw this clearly when setting up the ELSI programme to *combat the social injustice deriving from a bad throw of the genetic dice*⁷. In *Gattaca*, the main character is the proof of these bad numbers that have been his lot, but it is shown how it is possible to overcome this determinism.

In light of the above, perhaps the job of the cinema should be to alert us to the dangers of a dictatorship of the genes and make us aware that individual rights cannot be violated after prior and consented permission has been obtained from someone to have his or her DNA analysed. This is reflected perfectly by the UNESCO Declaration in 2003: *It is ethically imperative that clear, balanced, adequate and appropriate information shall be provided to the person whose prior, free, informed and express consent is sought. Such information shall, alongside with*

*providing other necessary details, specify the purpose for which human genetic data and human proteomic data are being derived from biological samples, and are used and stored*¹¹.

To sum up, it should be stressed that, save very honourable exceptions, the cinema does not seem to contribute to the establishing of serious reflection on the challenges entailed in scientific progress. The scripts forget that dogmatic and totalitarian experiences are precisely those that have conditioned the progress of science in benefit of humanity. It is good that they warn of some dangers linked to the financial and commercial exploitation of genetic data, but they should emphasise, as Kelsen recalls: The correlation existing between freedom and democracy, tolerance and science. Only in a climate of genuine freedom can research prosper¹⁴.

José Antonio Marina also mentions the myth of Prometheus¹⁵ with two ends. One version says that Pandora's Box held all the evils and misfortunes that would be scattered throughout the world. Another version speaks of an amphora that held all good things. When it was opened, all these good things went to heaven. All except one: hope.

It is preferable to remain with the hope given at the end of *Gattaca*, when the person "not fit" for society outwits his genetic destiny and ascends in search of a freedom that others seek to restrict. This statement of dignity is reflected in the UNESCO Declaration in article 2: *Everyone has a right to respect for their dignity and for their rights regardless of their genetic characteristics and that dignity makes it imperative not to reduce individuals to their genetic characteristics and to respect their uniqueness and diversity*¹⁰.

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