

CINEMA AND SCIENCE: THE HYBRID BODY

Cinema e Ciência: O Corpo Híbrido

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Resumo

A relação entre ciência e cinema nem sempre tem sido pacífica. Se o cinema foi fundamental para o progresso científico e tecnológico graças ao registo do movimento, quando o cinema integrou-a na ficção, interessou-se por histórias literárias de cientistas loucos que optaram por transgredir os códigos éticos do seu campo em nome da criação de uma humanidade perfeita. Os laboratórios de criação genética artificial são hoje uma realidade próxima de nós, com a inserção de células humanas em embriões animais. Do Dr. Moreau à investigação contemporânea, o imaginário cinematográfico permite-nos analisar as fantasias de onnipotência que facilmente se apoderam dos cientistas, e confrontá-los com as consequências destrutivas da sua megalomania.

Palavras-chave: Cinema. Ciência. Híbrido.

Abstract

The relationship between science and cinema has not always been peaceful. If film has been fundamental to scientific and technological progress thanks to the register of movement, when cinema took over fiction, it became interested in the literary stories of mad scientists, who chose to transgress the ethical codes of their field in the name of creating a perfect humanity. Artificial genetic creation laboratories are a reality close to home today, with the insertion of human cells into animal embryos. From Dr. Moreau to contemporary research, the cinematic imagination allows us to examine the fantasies of omnipotence that easily seize researchers, and confront them with the destructive consequences of their megalomania.

Key words: Film. Science. Hybrid.

Resumen

La relación entre la ciencia y el cine no siempre ha sido pacífica. Si el cine ha sido fundamental para el progreso científico y tecnológico gracias al registro del movimiento, cuando el cine se apoderó de la ficción, se interesó por las historias literarias de científicos locos que deciden transgredir los códigos éticos de su campo en nombre de la creación de una humanidad perfecta. Los laboratorios de creación genética artificial son hoy una realidad

cercana a nosotros, con la inserción de células humanas en embriones animales. Desde el Dr. Moreau hasta la investigación contemporánea, la imaginación cinematográfica nos permite examinar las fantasías de omnipotencia que se apoderan fácilmente de los investigadores, y confrontarlos con las consecuencias destructivas de su megalomanía.

Palabras clave: Cine. Ciencia. Híbrido.

The relation between science and film started at the same time as the birth of cinema with the experiences of Jules Janssen when he created the “photographic” or “astronomic revolver” and registered in 1974 the passing of Venus planet in front of the sun. Later Etienne Jules Marey and Eadweard Muybridge serial photographs to study the human and animal locomotion were crucial to determine the different steps in the process of movement. In the beginning of the XX century, Lucien Bull used the technique of slow motion to study the burst of a soap bubble and the wing-beat of a dragonfly. But when Dr Louis Doyen separated in 1902 the Orissa twins who were link by the thorax, the operation was filmed and the cinematographic technique obliged the surgeon to speed up the chirurgic intervention in order to get the whole process registered on film. The sisters didn’t survive a long time after, probably because of the procedure’s hurry they were fragilized and contracted pneumonia. For the first time, the documentary image had been not only a reproduction of the real but also the construction of a reality, as a spectacular show (without the pressure of time filming, the operation may have been more successful). Even if it isn’t a direct consequence of this event, with the evolution of the cinematographic language, science has also been a strong theme for the fiction film, and a pretext to put the ethics of the scientific research at stake. It is from the reality of the horror of the First World War that the expression of fear in cinema develops and amplifies. Film has been a perfect medium to represent the ambiguity of science as the future of mankind, through biological manipulations or other imaginary experiences. How do directors represent science and scientists in their films? At what point does the scientist no longer have control over his or her experience? Why is science in film often associated with the forbidden imaginary – the pleasure and the dangers of the impossible genetic manipulations?

Often the representation of science is confronted with that of religion and the social context. The fascination and the fear about science and technology progresses have been very present since cinema’s creation. Contemporary science refers to the writings of 18th century fantasy literature, which was adapted to the screen as soon as cinema was discovered. Even if

scientific research and its outcomes in films don't have their truth in the real world, fictional cinema does not pretend to explain scientific phenomena but tries to put science at the heart of human reflection and limitation. It is therefore more a philosophical, political and theological concern than an entertaining one that is interwoven into the narrative discourse. The fantasy of omnipotence, of being able to control the course of life and death beyond nature itself, and of fabricating the human from the non-human, is found in many film productions, such as *Frankenstein*, *The Island of Dr Moreau* or *Dr Jekyll and Mr Hyde*, often redirected into contemporary remakes based on the original story.

Science in film is often linked to the Science Fiction or Fantastic film genre, but what is relevant here overpasses a simple style formula. The question is about humanity's thirst of infinite phantasy to originate life in order to feel as powerful as, we can say, the figure of creation, that would be "God". In every film proposed in this analysis, there is a shift from the historical to the allegorical, from the action to the symbolistic expression, that raise the following question: is human longing for transcendence a strength or a weakness?

The Island of Dr Moreau written by H.G. Wells in 1896, adapted to the screen many times since the silent era, allows to discuss the relation between science and cinema, since it raises evident questions about bioethics. The story is about a scientist, Dr Moreau, who lives in a very remote island in the middle of the ocean. He practices forbidden experiments to turn animals into human in order to create "the perfect human being", and uses the technique of vivisection. The creatures obtained in laboratory, end up to be *in-between*, part animal, part human. Moreau controls them through what he calls "The Law" to induce the human in them: Not to go on all four, Not to eat fish or flesh, Not to chase other men. Transgressions are punished in the "House of Pain", that is the laboratory where he practices his horrible experiments.

The 1932 film adaptation *The Island of Lost Souls* directed by Erle C. Kenton, with Charles Laughton as Dr Moreau's character, is particularly interesting because it belongs to a serial of film productions about crazy scientific researchers as *Frankenstein* or *Fu Manchu* and many others, that forecast the horror of experiments in the Nazi and Japanese camps. In *The Island of Lost Souls* what is at stake is the moral and the physical violence that exists intrinsically in the human being. It is also about the high price to pay for the science progress that involves the unavoidable suffering of other living beings. Dr Moreau is part of the "inhuman rationalist" scientists category as Roslynn Haynes proposed in her analysis of the film (Haynes, 1994). For Moreau, there are no moral issues in the scientific experiment. The

goal justifies the means. He ends up killed, having lost control over his creations. The violation of the social contract by the mad scientist causes the regression of the hybrid bodies to the original bodies, i.e. the animal takes over.

In most films on genetic manipulation, there is a will to transcend human limitations and reach the eternity to avoid death. The films that explore the theme of genetic manipulation all end up proving that this type of scientific research has nothing to do with the advancement of knowledge through science. On the contrary, the experiments prove that humanity must respect its limits in order not to destroy itself. Through its forms and languages, cinema is able to cross sciences with imaginary, and the scientific progress is naturally actualized through the new technologies and biotechnology. In his essay *Le Clonage Humain*, Marc Augé states:

The development of technologies induces questions of mythical order, which resurface today much more strongly than at the beginning of the development of techniques. Now, with the development of technologies, we ask questions that mythical thought - not to call it symbolic - that which is expressed in myths, presymbolic in a way, used to put into shape. The pleasant or banal version of the thing is the science fiction films. Many people can only imagine the technological future in the form of the most archaic things (AUGÉ, 1999, p. 170).

In the case of the genetic experiments, the regression to the animal condition leads to a need to reach an almost divine nature, as a perfect human being. What is important is not so much the representation of a possible reality, than the problematic it raises, as a reflection on the stakes of scientific progress, which starts from a desire and is confronted with questions that are necessarily moral.

As Olivier Rachid Grim stated in his essay *Corps extrêmes et figures de l'entre-deux dans le cinéma hollywoodien 1931-1935*, the beings in Moreau's world are figures of the in-between constitute two privileged categories of representations of "sub-humanity" and "super-humanity". As an interactive system, the "super-humanity" shapes or mistreats the "sub-humanity", close to animality. Through Moreau's characters, cinema expresses the human's desire to feel omnipotent through his control of life and death. The creatures resulting from the scientific manipulation of Dr Moreau's experiences are twice artificial children: artificial children of a mad scientist and artificial children of the cinematographic necessity of special effects (Grim, 2004). When cinema sets science at the core of the film plot, it also involves strong feelings and emotions. In the 1996 version with Marlon Brando,

the scientific imaginary turned into a spectacular figurability leading to an oversized universe of hybrid and hyper-emotional beings.

To reinforce the idea that Dr Moreau had been considered a researcher for the well-being of mankind, in the 1996 version we understand that he had won the Nobel Prize. In a slightly different style but with the same perspective of dominating the power of life, Dr. Frankenstein is a young researcher with a promising future. Why did they choose to go against what the future promised them? In the name of the scientific cause, researchers allow themselves illicit acts. If Moreau manipulates the original genetics, Dr Frankenstein steals dead bodies from cemeteries and organs from medical faculties. As with Dr. Moreau, there is an atmosphere of moral breakdown that weighs and extends into the space of the narrative.

It was in the 1920s that German expressionist cinema produced for the first time a series of films about mad scientists, such as Dr. Caligari in 1919 (Robert Wiene) and Dr. Mabuse in 1922 (Fritz Lang), which moved away from the constructive position of nineteenth-century science, a negative vision that was reinforced by the First World War. Adapted from Mary Shelley 1818 novel, Frankenstein inherited the aesthetics of German expressionism, with its Manichean form of positioning its protagonists between light and dark according to the nature of their personality. The world of the researcher is in the darkness of night and death, while that of the village joins life with its bright light and turns out to be a metaphor between the luminous reason of the scientist and the shade of his madness. Only the electric light illuminates his scientific practice, electricity also responsible for setting in motion the resulting monster, being itself a divine spark. One of the attributes of the researcher, which can also be found in Frankenstein, is the notebook which allows the stages of an experiment to be recorded, without ever writing down the end. The body of Frankenstein's monster has also become the main space of the film, on which the fantasies of human horror are crystallized. The expressionistic settings that host the shadow of Frankenstein's creature are opposed to the enchanting spaces of the exteriors and interiors of the day. It is Frankenstein's fall from grace that contrasts with the rest of the world, in the beauty of the everyday life simplicity. In her novel, Mary Shelley compares Dr. Frankenstein's gesture to that of Prometheus who steals the sacred fire and offers it to humanity. She presents a fantasy of the human being in an infinite longing for controlling the present and creating the future. In the film, when his creature manifests life, the mad scientist says the sacrilegious sentence: "I know now what it is to be God". The film was censored until 1985 and its exhibition forbidden in England during 25 years.

Dr Frankenstein's artificial creation of life heralds the progress of science and its phantasmatic possibilities. The monster is a man/machine hybrid born of death that expresses the human anguish of its condition of finitude. Allied to technology, science aimed to dominate natural events (such as life and death) in order to overcome them and create an artificial *nature*. The scientist puts himself in the place of the Creator of the world. From social transgression, Frankenstein moves on to transgress the law of life.

As Florent Montclair writes in his essay *Le médecin dans la littérature fantastique*:

Nature is a fundamental element that is intrinsically linked to scientific research and is found in the discourse of the characters. This nature, which has always governed the world and whose laws are being developed by scientists, embodies the limits of medical knowledge. Frankenstein, Moreau (...) overturn the historically established rational rules in order to get closer and closer to the true potential of natural forces. They try to show through their studies the feasibility of as yet incomprehensible phenomena, by unleashing and mastering the power of life and the world (MONTCLAIR, 1998, p.209).

Moreau represents the scientific researcher who is a victim of his own madness and no longer distinguishes between megalomania and benefit to humanity. For Frankenstein, it is the same thing. The supernatural is the result of their experiments beyond reality.

As for Dr Moreau, scientific obsession is put forward to justify the results obtained. In 2009, through the film *Splice*, the desire to control life without taking into account the ethical implications of the experiments is also at stake. A couple of scientists decide to inject human DNA into an already transgenic animal cell. The result is a hybrid female half animal half human. The script is original, written by the director Vincenzo Natali.

Splice dared to mate a human hybrid with a man. Cinema represents the dangers of science progresses which confronts us almost daily with profound questions of bioethics, and is getting closer and closer to us, being more real than the realm of fantasy or science fiction it used to belong. Last April, the French broadcast France Culture, proposed the following debate: “Human-animal chimeras: are we crossing ethical boundaries? March 2018, human-sheep chimeras in California; December 2019, monkey-pig chimeras in China; May 2020 half-mouse/half-human embryos; March 2021, monkey-human chimeras in France and China” (2021, 27-04). Human cells are introduced into animal embryos for the good of humanity. The research based on genetic manipulation has an ethical code and a deontology that oblige the scientist to limit himself to the claimed objectives, such as the creation of organs compatible with the human metabolism. However, we all know that the temptation to

go further is great and that science does not control everything that is done in laboratories. *Splice* is a good example of this, and despite the fragilities of the plot and the quality of the film itself, it offers us the opportunity to consider the contemporary dangers of science and warns us about our passions that can blind us. We are facing the uncanny body that is really the notion for these *in-between* bodies. The term “uncanny” is taken from 1919 Freud's definition, namely: “These are momentarily perceiving an inanimate object to be alive and, conversely, momentarily perceiving a living thing to be inanimate” (Freud, 1955).

The Fly, directed by David Cronenberg in 1986 (remake of the 1958 version), is a good example of the destiny of a *counter science*. The film features Jeff Goldblum as the protagonist (Seth) and is based on a short story written by Georges Langelaan. A scientist creates a teletransportation device and while experimenting his new invention, a fly mixes up with his molecules. The result is the creation of a living being half human half fly.

It is really about losing control of one self. The scientist did not cause the genetic mutation, he is its victim. Based on a human-animal hybrid, the regression is no longer from man to animal – as it was for Moreau's creatures - but it starts from man-matter and ends to formlessness. The researcher body dissolves into formless matter and loses his humanity. Here again we have a supernatural experience (tele transposition) that turns against its author. The dissolution of the body is irreversible and leads to its death. The result is so realistic that the viewer finds it difficult to keep his eyes open looking at the dripping flesh and organs. *The Fly* is a good example of a hybrid body that metamorphoses over time (and reminds us of Kafka's *Metamorphosis*) and questions the relationship of the body to sexuality. The protagonist, whose body was originally sculpted and very seductive, as the characteristics of the fly take over completely loses the erotic human sensuality that was his characteristic.

The flesh is here tangible material that deteriorates and disintegrates when the metabolism is manipulated. The difference between outside and inside the body disappears, there is only a layer that is ready to dissolve itself. It can express the society fear to go beyond the flesh, underneath, inside the body. The inner body doesn't exist in the conscious mind that is why it can also be a metaphor of the unconscious image of the body we have. It is a universal fear as it touches vulnerability, the loss of control, our innards image, suffering, mortality and how alien can be our body to us.

Based on the gothic romance *Strange case of Dr Jekyll and Mr Hyde* written in 1886 by Robert Louis Stevenson, the adaptation for film by Victor Fleming in 1941 show a relationship between researchers and science that is obsessive and transgressive: while Dr

Jekyll talks about it with theories of his own, Hyde embodies scientific practice and the application of his deepest fantasies. But in his arguments, Jekyll already introduces the great ethical problems of science: he implies that a human being who goes “mad” is no longer a human being, and is more on the animal side. But above all, by insisting that evil exists in all of us, he puts at stake what he will also become: the expression of that evil. In Fleming's film, Dr Jekyll's transformation takes place before the viewer's eyes, with faces superimposed on each other as the transfiguration process unfolds. Hyde spaces are no longer the spaces of reality but the emotional territories of the character that express the incarnation of science. It is a reflection on the dehumanised man, a metaphor of the inner monster through the physical transformation.

Sexuality is very much present in the film as a repressed desire because of social conventions. He lives his sexuality through Hyde, who turns out to be perverse and sadistic. The burning desire in the scene between (Ivy) Ingrid Bergman and (Jekyll) Spencer Tracy turns to terror when Hyde forces and violates her. The scientist can only experience sexuality by transgressing himself through Hyde, who represents man at his most crude, impulsive, and human lessness condition.

Genetic manipulation between humans and animals is a theme that is perfectly suited to cinema, as it brings into play the desire and fear of omnipotence that exists in our deepest fantasies. Moreover, the hybrid figures represented in the film allow us to project our terrors into the film while at the same time safeguarding our familiar space. The space of convergence of scientific research and experience is found in the bodies of those who are its victims. This space of the body becomes the space of the film. A body always in the process of becoming (which includes regression), matter firm or dissolving (like that of *The Fly*), the body is shown close to us, calling on us to take sides, whatever it may be.

There are two main points that separate films that use concrete special effects from productions with virtual visual effects. Firstly, the writing of the narrative: adaptations of the novels of Mary Shelley, Stevenson or Wells are developed around the construction of the characters as David Bordwell points out (Bordwell, 2006, p.104). We can add that as visual effects are spectacular, they take the place of importance and narrative quality. The dialogues and situations that allow the story to move forward and the characters to be built up no longer exist except as a function of the visual effects, which take the first place in the production of the work. This is what happens with *Splice*, *Hollow*, 2015's *Vitor Frankenstein* and many others. But it is what we are left with that is perhaps the strongest, even if the message is

stereotypical: when science seeks competition with the divine, it loses and will always be punished.

Hybrid beings created against nature will never become human and will always remain anchored to their original animality. Or, as in *The Fly*, when animality takes over, there is no turning back. This animality is shown through close-ups of their bodies, such as the hand of the young woman who becomes a panther again (*The Island of Lost Souls*, 1932). However, in all cases, the creatures have a conscience not being a human, even if in the case of Dr Moreau, his Law forces them to integrate that they have to be human. The surgical machines represented in *Frankenstein* project a futurism that resembles that of *Metropolis*, a world that transforms man into a machine or returns him to an imperfect origin - that of the fragmented being that does not know the organisation of unity. Cinema becomes a cathartic possibility for the projection of deep fears of the unknown.

The hybrid body is not only our physical body but also our mental and emotional body. Through the creation of monsters, there is an anticipation of fear to give birth to monsters that escape our understanding and that will have their three bodies separated. It is therefore a very complex question that the cinema of hybrid bodies proposes to us. There is still a lot to do: another than the living matter of the body, the cinema explores the body-machine, a hybrid that conveys many other matters than the organic one of the body. In her essay about “monsters”, Ieda Tucherman wrote about *Frankenstein*:

The monster had appeared in the Promethean euphoria of the young scientist. It represented the overcoming by technique of the enigma of life. However, he becomes the sign of death, which allows us to think that Mary Shelley anticipated the image of the victory of technique producing the crisis of reference from the technical intervention in the body, the relativisation of subject/object boundaries and the man-machine hybridisation as the loss of traditional identities and cultural affections (TUCHERMAN, 1999, p.136)

But at last, the intention of the man's transformation is the same: to no longer be limited by our human condition. Is this the future of mankind we really want?

REFERÊNCIAS

Atlan, H., Augé M., Fresco N., Droit R-P., Delmas-Marty M., (1999). *Le Clonage Humain*. Paris: Seuil. p.170.

Bordwell, D. (2006). *The Way Hollywood tells it*, CA: University Of California Press.

Freud, S. (1919). The Uncanny. *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. 17, 1955), p. 226.

Grim, O. (2004). Corps extrêmes et figures de l'entre-deux dans le cinéma fantastique hollywoodien, 1931-1935. *Champ psychosomatique*, 35, 75-87.

<https://www.cairn.info/revue-champ-psychosomatique-2004-3-page-75.htm?ref=doi>

Haynes, D. R. (1994), *From Faust to Strangelove. Representation of the Scientist in Western Literature*. Baltimore : The Johns Hopkins University Press.

Moine, R. (2005). Les créatures du docteur Moreau à l'écran : vertiges de la science et vertiges de la loi. *Tumultes*, 2(2), 133-146. <https://www.cairn.info/revue-tumultes-2005-2-page-133.htm>

Montclair, F. (2000). Le médecin dans la littérature fantastique. *Littérature et médecine*. Besançon : Presses universitaires de Franche-Comté.
<https://doi.org/10.4000/books.pufc.1282>.

Tucherman, I. (1999). Breve história do corpo e de seus monstros. Lisboa: Vega.

France Culture <https://www.franceculture.fr/emissions/le-temps-du-debat/le-temps-du-debat-emission-du-mardi-27-avril-2021>

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