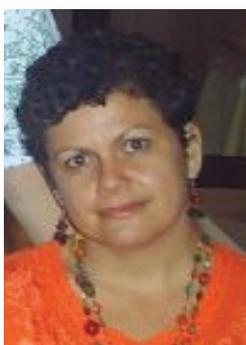


# Non-scientific information about science in the dynamics of information and memory

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## Abstract

This paper raises issues related to specific cultural products – science fiction movies - and analyzes them in the light of the field of information science. It questions the role of science in the context of fiction and information. It intends to establish the status of a piece of fictional information about science. We believe that the dynamics of the memory of the genre is related to the very dynamics of *non-scientific information about science*. We analyze movie remakes, and take each movie as a moment of a major narrative about the subject science. The approach of knowledge from the point of view of fictional creation, considering information as a structuring element of a discursive phenomenon of the movie culture, is analyzed in the context of cultural dynamics and a praxis of memory. We assume that remakes, by presenting different versions of the same fictional narrative, reorganize facts that had been presented in the first version, aiming at achieving a balance between new and already seen. We present the analyses that have been performed for two movies: *Time Machine* (1960, 2002) and *War of the Worlds* (1952, 2005) taking science and the actor as reference, and we highlight some features of this type of information.

## Keywords

Information; non-scientific information; remake; memory; science-fiction

## Introduction

The aim of this research is to outline, in the field of information science, a type of information we called “non-scientific information about science”, based on the work with specific cultural products, science fiction movies, which enable us to analyze fictional texts about science. These issues approach the problem of a discourse based on movie language, in the imposition with the issues of memory *of* and *for* science and their potential for dissemination. Accordingly, we have worked with representation in two senses. The first relates to the

image of science and its players, in the environment of fiction. The second concerns the representation of information. These levels or directions are what we initially call *representation at the fictional level* and *representation at the informational level*, respectively, and we believe that there is mutual increment between them.

This work aims to establish the status of fictional information about science based on these cultural products, indicating the action of genre memory (M. Bakhtin) in the construction, circulation and consumption of sci-fi movies. This is the main issue of our research and we

believe the dynamics of this memory of genre is related to the very dynamics of this type of information we attempt to establish.

Finally, we intended to point out the potentiality of such information from the perspective of the popularization of science, considering the circulation process in the context of a mass culture, in fictional discursive forms of scientific thought, that is, in a fictionalized way that takes shape in the sci-fi movie genre and that encompasses elements of the techno-machinic imaginary.

We work with productions that are characterized by being remakes, and we consider each movie as a moment of a great narrative about the science subject. In the cinema context the word remake identifies movie productions that develop the story of a script of a previously produced movie. The approach of knowledge based on fictional creation, considering information as the structuring element of a phenomenon (remake) of the movie culture is taken based on cultural dynamics and on a praxis of memory. We assume that remakes, by presenting different versions of the same fictional narrative, generate a transfer that reorganizes facts that had been presented in the first version, attempting to ensure that each script presents a balance between the new and the already recognized, between information and redundancy, which leads to recognition and curiosity. We present the analyses already carried out based on two sets of movies, comprised of the first version and its remake: *Time Machine* (1960, 2002) and *War of the Worlds* (1952, 2005) taking science and its actor, the scientist, as reference, as points through which non-scientific information assumes its role in the plots.

## The fictional narratives of science

Science fiction movies are the fictional expressions of science this paper deals with. And yet the mythic elements that they articulate, as well as the scientific questions that they pose, are common to other formats such as literary narratives. What interests us is the correlation between science and fiction and the dynamics of fictionalized information that also informs about science.

This discussion contains much about the science and myth binomial, especially the perspective of the myths that sustain or promote certain wishes for scientific research. The so-called dynamic myths of Abraham Moles (*apud* LEGROS et al., 2007), are appropriate examples of these motors of scientific doings. Dynamic myths could be an “organizing trend that modulates the flow of discoveries, unconsciously guiding personal undertaking” (GABRIEL, 2002, p.107). Among them one can highlight: the myth of Icarus (encourages man to get rid of the weight; applications are aeronautics; astronautics); the myth of Gyges (invisible observer spying upon the lives of his contemporary fellows; we have hidden cameras); the myth of the ubiquitous man (thanks to technique one can be in several places simultaneously; the Internet); the myth of Babel (drives the search for a universal language; for example, we have the translation engines); the myth of the philosopher’s stone (the search

for the power to transmute matter; this is reflected in the atomic domain); the myth of the recreation of the identical (through countless studies, from high-fidelity to cloning); the myth of the Golem (creation of artificial beings, robots, artificial intelligence, etc.). Legros et al. (2007) mention others, such as the panacea (universal medicine); the journey through time; the telepathic communication; the communication with animals; the encounter with aliens, etc.

With regards to fictionalization, we have addressed elements that present feasibilities in the field of science, and that feed the positive or negative view of the future of mankind.

Our field of analysis is sci-fi movie remakes, whose first production is mostly, marked by the spirit of the post World War II and Cold War periods.

According to Siclier and Labarte,

Fourteen years after the Great Universal Exhibition, the faith that the world had in science became a bitter disappointment. In the war that swept Europe, inventions originally created for progress were often used for destruction. The airplane, which conquered the air, started to drop bombs. Airships became hostile machines. Suffocating gases make more victims than rifles and if automobiles, with the taxis of Marne, are used to defend France against an invasion, their direct by-product, the tank, exterminates men. The German cannon, which bombards Paris from afar, has something akin to those of Mèlies that take astronauts to the Moon Suddenly the ill-omened side of a science at the service of the spirit of conquest and barbarism is revealed. A defeated Germany will carry, for a long time, when compared to its closest neighbors, the burden of a curse that it will welcome with a masochist guilt complex (SICLIER & LABARTE, 1958, p.19).

Mysticism and magic were hidden forces to which mid-war Germans surrendered with complacency, and which bloomed in the face of death in the battlefields. “The ghosts that once haunted the German romanticism come back to life, like the shadows of Hades after drinking blood” (SICLIER & LABARTE, 1958, p. 19).

In this context, the authors present the effervescence of German expressionist cinema, and the consolidation of certain myths such as the artificial man, through the pictures of golum, of the robot, etc. that already existed in abundance in German literature. *Homunculus* (1916; Otto Rippert), showed a scientist creating an artificial man and “thus fulfilling the old alchemical dream that was dear to Paracelsus” (SICLIER & LABARTE, 1958, p. 20). The Golem of the Jewish tradition appears in two productions: *Der Golem (The Golem, 1914*<sup>1</sup>; Paul Wegener and Henrik Galeen) and *Der Golem wie er in die Welt kam, (1920; Paul Wegener*<sup>2</sup>). *Les mains d’Orlac* (1924; Robert Wiene) describes a strange case of a pianist who loses his two hands in an accident and, after receiving the hands of a murderer as implants, starts having homicidal desires.

According to the authors the German movie industry of that period tends to exaggerate the other half of human nature, represented so well by the homunculus,

by the Golem, or by Orlac's hands. Accordingly, expressionism follows a path opposite to that of surrealism, by strengthening the psychic scission, whereas the latter sought reconciliation between man and himself.

After the World War II the new social-political-ideological context seems to determine the changes in the representations that populate the techno-machinic imaginary and the perception of the future of scientific development for mankind.

An event that took place on June 24, 1947, introduced new elements that fed, along with the North American paranoia about a Communist invasion, the imaginary picture that began to take shape.

Kenneth Arnold, a U.S. businessman, decided to take a ride on his private plane. During a circumvention of Mount Raime, in the state of Washington, he saw disc-shaped flying objects. The mysterious objects gave rise to several comments and assumptions by the press about their origin. "The public opinion, influenced by the press, started to assign the mysterious phenomena to a well-defined origin" (SICILIER & LABARTE, 1958, p.56). The idea that the objects were built and sent by Soviet labs to spy on the U.S. territory began to emerge. An atmosphere of hysteria started to build up, reaching the State Secretary of Defense, James Forrestal, who threw himself from a window on April 11, 1949, believing that the red army would come down from the heavens in flying saucers.

The hysteria did not spread across Europe, for the countries of that continent were more concerned about recovering from war. Europeans regarded those facts more as another type of American propaganda than as a real threat. After all, if Americans were the first to test the atomic bomb, after a secret project, they could very well continue with such research and develop new artifacts. "Anyway, danger comes from the sky and the appearance of flying saucers marks, in fact, the first symptoms of the cold war that affect [...] the two most powerful economic and military blocs in the world." (SICILIER & LABARTE, 1958, p.56)

The authors claim that these events populate, with new colors, the imaginary that science-fiction strengthens in the relationship between science and fantasy. After all, if the atomic bomb - something until then unimaginable in terms of destruction power - became a reality, what other wonders could science materialize? In the sci-fi field turning scientific fantasy into something concrete is a possibility, which is related to the very dynamics of the genre. Accordingly, in our study we make a correlation between the bhaktinian thought, where the genre emerges as a unifying power of elements from tradition and from the social-cultural context, organizing them in the work.

## Genre and memory

Diving into the Mikhail Bakhtin's universe requires a restructuring of the concepts constructed in the sphere of literature, since it constantly asks us to consider the strength of the social-ideological context in the construc-

tion of the different genres existing in a given society / culture. Therefore, the exploration of the genre concept under this perspective creates the possibility to discuss events that, before the appearance of movements that considered the "low cultures", were not considered as cultural, as this concept was tied to the standards of the intellectual elite.

The combination of bhaktinian perspectives with movies is one of Roert Stam's lines of study. In his book, "*Bakhtin: from literary theory to a mass culture*" Stam highlights the wealth of a cross-linguistic approach to the genres of discourse in movies, combining the primary and secondary genres.

Thus, when discussing the concept of genre in the context of movie production, we attempt to identify the specificity of the science-fiction genre as an ideological element of a discursive memory of the role of science, whose representations are strongly linked to the issues emerging from the scientific field intertwined with the mythic aspects already discussed.

In his theories based on the analysis of Dostoevsky's work, Bakhtin built a genre concept that goes beyond the literary field. In *The aesthetics of verbal creation* he shows us how the wealth and variety of discourse genres leads us to question the impossibility of a common field for their study. He proposes, however, in the face of this heterogeneity, an approach based on the distinction between primary and secondary genre. The former is simpler and related to the everyday environment, comprising circumstances of spontaneous verbal communication, such as a response or a letter. The latter, more complex (or why not to say more hybrid), absorbs and transmutes the verbal products of primary genre and deterritorializes them in the process, making them lose "their immediate relation with the existing reality and the reality of other individuals' statements" (BAKHTIN, 1997, p.281). The secondary genre encompasses the novels, the scientific discourse, the theater, the ideological discourse; in short, products of "circumstances of a cultural communication, more complex and relatively more evolved, mostly written: artistic, scientific, socio-political" (BAKHTIN, 1997, p.281).

It is important to highlight that this concept of genre is the result of Bakhtin's long reflection about the novel. In his work *Questions of Aesthetics and Literature: the theory of the novel*, Bakhtin undertakes a robust analysis of the elements of the novel, taking as the main example the work of Dostoevsky and other genres, for comparison purposes. According to the note of the Russian edition, the texts compiled in that work were written by Bakhtin in different periods, which may account for some conceptual and even terminological variation between the studies. In reflection on the nature of this genre, the Russian theorist articulates issues that culminate with a historic, social and ideological concept of the voices included in the novel. Let us look at the case of multilingualism, a term used by Bakhtin to indicate the set of languages that make up the discourse of the prosaist-novelist. He states that social multilingualism is a consequence of the

diversity of the languages of the world and society (these languages drive the theme of the novel) and he enters the novel as impersonal stylizations (which deal with other languages: professional, social, of other genres, etc.) or personified images of the conventional author.

Accordingly, for Bakhtin the different languages of society are materialized in the novel by means of the pictures of people who speak, by the special resonance of the direct discourse of the novel. There is the case of impersonal parodic stylizations, which can be like the parodies by English and German humorists; or may they appear under the aspect of interpolated genres (poetry; historical narrative) assigned to other alleged authors; or by the author's unquestionable discourse – whether it is controversial or apologetic. All these manifestations / languages, when not incarnate in a character, are made real at a more or less objectified social and historical level. Hence there is a historical and ideological level at which the character speaks and acts and lives, and for Bakhtin the core problem of the style of the novel is that of language image; the problem of **literary representation of language**. We then have a social and historically constructed language whose representation in another textual product necessarily implies a transformation, and this representation is at the basis of their concept of genre. The genre reflects social changes and, retroactively, when a new literary genre emerges, it tries to “teach” a new way of looking at the aspects of reality (MORSON & EMERSON, 1990, p.277).

The genre, as an agent of elements of a memory for a particular cultural field is extremely rich and complex, as it assumes the role of an organizer of characteristics, features or manifestations of a social nature, and allows them to condensate in any type of cultural material (novels, movies, paintings, etc.).

From Bakhtin's theories it is possible to perceive that his idea of genre is more related to how the forms of discourse socially produced are materialized in a specific cultural product than to a set of features that characterize a work. Otherwise: with Bakhtin's study, genre becomes an important element for understanding social-ideological forms of cultural products.

Science-fiction movies are cultural products ideologically marked by the movie industry, which generates movie scripts, and by the ideological representations of science that have characterized the Western civilization since the scientific revolution.

In this sense, the term *movie genre* should be understood from the perspective of the production context of the filmic product, the movie industry, which in turn builds their textual products with a language hybrid in nature, which in its origin mixed sound, moving pictures and literary genres. This is how usually the literary, movie, science, etc. genres are referred to, each one produced in a specific system, which organizes the social and ideological features that characterize their productions.

With regard to science-fiction, I go to one of the most renowned writers and theorists of the genre, Isaac

Asimov, for the elements necessary to understand its foundations, both in the literary and in the cinema fields.

Asimov is a scientist within the concept that Scientific Revolution has given us. His academic background in biochemistry led him to teach and his passion for science-fiction stories turned him into a renowned writer, and also in a theorist that attempted to define some issues for an area that was not respected by critics.

Science-fiction (or s.f., the acronym used by Asimov), in his opinion, only had the opportunity to emerge with the advent of modern science, for only from that time onwards, was it possible to conceive the relationship between social and technical-scientific changes, and also was it possible to think about making up a plot based on scientific theories and propositions. Their definitions of science-fiction are spread throughout countless reviews and articles he wrote for specialized magazines. These articles demonstrate his concern about differentiating the genre from older ones, such as fantastic, surrealistic, horror and adventure literature. The most distinctive characteristic in the case of s.f. is the connection with scientifically proven facts that occur during the production period, and the interrelation of scientific and technological advances with the changes that occur in the universe created within the story. Thus, in one of his definitions he attempts to distinguish s.f. from other narratives, stating that

*the supra-real events of history in science fiction can be conceivably derived from our own social environment with appropriate changes at the science and technology levels. These changes will represent a step forward, such as the establishment of a colony on Mars, or the successful interpretation of signals sent by extraterrestrial life-forms. They will be a step backwards, such as a study on the annihilation of our technological civilization caused by a nuclear or ecological disaster. Once a liberal interpretation of the concept of the scientific progress that can be achieved is accepted, one may properly include in science less likely subjects such as time travel, speeds faster than light, and so on (ASIMOV, 1984, p. 16).*

He emphasizes that the speed of changes that affect the lives of the men only started to be perceived in the course of a lifetime after this technological advance. That was crucial, too, for a transformation of the concept of future.

With this concept of s.f., Asimov established differences in vocabulary (robots, androids, automatons, monsters, etc.) and typology (the scientist as a villain has different characteristics: there are the presumptuous, the insane, the wicked, the arrogant, etc.), in addition to outlining issues more characteristic of the genre, which he calls the **dreams of science fiction** (time travel, effects on clones; mass transfers; global village; global government, evolution control; bionic beings, robots, permanent sources of energy).

His concern with the pedagogic nature of s.f. led him to classify, with extreme rigor, the works of the genre, considering the potential that s.f. stories can have on scientific dissemination. Hence is not surprising that s.f. is understood in its relation with science: “the term

science fiction refers to those stories that are limited by science” (ASIMOV, 1984, p.26-27).

The rigor with which he viewed the genre led him to not consider science fiction movies as examples of the same importance of those of the literary genre. To him, s.f. movies used too many special effects to make up for poor plots.

It is important to bear in mind that movies operate on a different system of symbolic production and affect not another layer of the public, but another area of consumption: the s.f. reader is also a potential viewer of s.f. movies, but the forms of consumption and the relationship with these two types of cultural texts can be differentiated.

The emergence of movies, as well as of written texts, gives rise to a new form of reading and production of meanings. The combination of some factors allowed the filmic text to be produced and marketed as a product, whereas it did not lose its ideological-cultural character in this process. What may have been omitted were the consequences of their circulation through different cultural and ideological environments.

Science fiction was already established as a genre when it “arrived” in the movie production field. Its potential for movement is then increased due to the very characteristic of the movie industry. However, the dissemination and consumption of different cultural products generates economic and social consequences that, in my work, are enhanced by the remake phenomenon, which, by producing again movies that have already been produced, acts upon the dynamics of the new and the old: it rearranges elements of the old production and introduces new elements in this context.

In the specific case of this study, science-fiction movies are typically connected to the historical and ideological context of the production. Remakes ensure a new discussion of old themes in social contexts with new concerns, which may indicate a continuation and adaptation of the image of modern science, as formed and consolidated with the Scientific Revolution, or a critical stance about the consequences that their vision of the world implemented. Accordingly, the discussion puts the project of modernity at stake, and also the formation of a memory, which I currently discursive-cinematographic.

## The non-scientific information on science

The analysis of non-scientific information on science was initially based on, or borrowed its theoretic foundations from, the properties of scientific information, as defined by Mikhailov, Chernyi, Gilliarevskii, especially those more connected to our type of information: *the importance of scientific information, the social nature of scientific information, and the dissemination of scientific information*. These and the remaining properties were established in the context of the scientific field, whereas our type of information should consider two fields: the

scientific and the fictional. Our choice was, rather than considering these dimensions, to understand the relationship that occurs between them; among elements of the fictional and scientific fields. How they feed the images that are built and provide support for the dissemination of scientific theories amalgamated in a techno-machinic imaginary. In this sense, we placed in the fictional field the constitution of a scientific imaginary that works with mythical and fantastic elements that already inhabit the western human imagination, whereas in the scientific field the elements of knowledge production and circulation are already defined.

Initially, both scientific and non-scientific are not to be confused with the elements that comprise them. To Mikhailov, a scientific document is a quantum of scientific information. Thus, one of sci-fi movie can be seen as part of a non-scientific information about science, whose elements are organized both in the science and drama fields to *reflect* (in the sense the authors understand the term *reflection*, as a Marxist-Leninist theory), in a specific materiality, a message associated with a context of a certain period.

By looking at the property authors consider to be the most important, *the value of information*, we can establish that the value of non-scientific information lies, in principle, in its potential for the popularization of science, as it sets the conditions for the existence of spaces for public discussion based on the analysis of the establishment of a scientific imaginary based on the problems arising from an inconsequent scientific progress, and since it brings new dimensions to the discussions about information in the cultural field. By influencing the process of establishment of informational-filmic narratives, this type of information indicates, in the horizons of memory, how the representations about science form, transform and maintain views of the world. Consequently, the value of information that is non-scientific, but rather that provides information about science, originates in the reorganization of learning environments and content: knowledge is built from other experiences than those experienced in the formal spaces of education and other narratives than those of scientific rationality.

Another property outlined by the authors, *social nature of scientific information*, is linked to human and societal cognition, to communication and the space that comprises a repertoire of symbolic elements, one which is common to all individuals and which feeds our representations, and also, to the desire for accumulation and preservation of information in a set of materiality that constitutes the “treasure of human knowledge.” The social feature of non-scientific information about science is marked by its circulation and consumption in the cultural system, as well as by its symbolic load that goes into the construction of representations about science and the repertoire scientific memory. This memory seems to be sustained by the principle that governs the memory of the genre, a bakhtinian notion that defines the role of the genre as an organ of memory, by bringing

the vital components for the birth of a work within a given production line or reference.

By considering another property established by Russian theorists, the *dispersal of scientific information*, we expand the field of possibilities, because the ideas, statements, hypotheses, concepts, etc. that comprise the semantic units of scientific information are being processed and reprocessed in our fiction texts, in line with the action of the permanence-novelty binomial. In sci-fi remakes, the “new life” (cf. Mikhailov) they acquire is connected to these dynamics.

Based on this assumption, and considering all the tests performed (especially on filmic materialities, but also on reviews) we can say that the properties of non-scientific information about science are mainly established on what we call their dual nature: scientific and fictional. Because of this dual nature, non-scientific information about science is characterized by the amalgam of scientific information with elements generally related to the field of myth and imagination. Therefore, we can state that such properties are located in a dynamics that involves the dissemination of scientific knowledge and the reference to cultural elements. Because of its scientific nature, it also presents some of the properties that Mikhailov, Chernyi and Gilliarevskii had established for scientific information.

The filmic texts that comprise a family of remakes have their meanings narrowly constructed on the relations that they establish between themselves and with the contexts of production, whereas information is the element of socio-cultural nature that sustains such relations. Within the sphere of production and reception, information that enable the elaboration and understanding of the remakes trigger the meanings related to various instances, among which we can mention the one that generates them and narrative diegesis. Non-scientific information is, therefore, in transit between different signification poles, albeit connected in meaning, just as information is defined in its relation with knowledge, as

“it is linked to visions about knowledge whereas it influences and changes them” (BRESCHER & CAFÉ, 2008, p.4). In this relationship, our type of information has the potential to impact on the alteration of knowledge, which, in turn, is of dynamic nature, with information being a material form of its existence (BRESCHER & CAFÉ, 2008). We believe our type of information to be in line with this approach.

The analysis included the development of an analytical tool that comprises three major dimensions: the textual / narrative dimension, which requires outlining the movie as text and narrative; the documentary dimension, which implies the perception of the movie as an informational document; the contextual dimension, which places the movie as the product of a specific production context. Besides these three dimensions, it contains an initial part, called **identification**, which contains descriptions of the information related to the production of the filmic text. Information is reorganized on the basis of reference and of the characters of the sci-fi narratives, so as to highlight the changes and similarities between versions. In this paper we present the analyses of two movie families (Table 1).

**Table 1 – Family of movies analyzed**

War of the Worlds Family	The War of the Worlds (Byron Haskin, 1952)
	War of the Worlds (Steven Spielberg, 2005)
The time machine Family	The time machine (George Pal, 1960)
	The time machine (Simon Wells, 2002)

Here, we present the table that indicates, based on the analyses performed, the elements of permanence and change, considering both the information represented at the fictional level and that which is represented at the informational level (Table 2).

**Table 2 – Family of the *War of the Worlds* and *The Time Machine* movies**

Movie	Character	Science
<b>War of the Worlds</b> (Byron Haskin, 1953)	The main character is Clayton Forrester, an astrophysicist who presents plausible explanations for all events, and indicates the limits of human technology in the fight against a superior extraterrestrial power. Forrester is also facing a threat he is able to explain, and he understands that the Planet can only be helped by more research on only more research on war applications.	Science is a true and logical discourse, which makes the one who masters it a central piece in the plot. It is also the basis of military-technical development, which can provide man with a solution to the problem of invasion.

Cont.

**War of the Worlds**  
(Steven Spielberg, 2005)

The main character is Ray Ferrier, an average North American man, worker, divorced. Along with hundreds of other individuals he perceives the destructive power of the invaders. He masters a specialized technical knowledge, which comes from his professional background (as we can infer from the economic narrative) and is enough to provide means for his survival along the journey.

There is no scientific discourse or practice. Science is not mentioned, not even as a field that may offer a possible solution, or to try to explain the events.

**Change:** The main change between the two versions stems from the profile of the main character, which seems to be a determinant of the decrease in the role of science in the second movie as opposed to the first version. Without a scientist, science also loses its ground. The first version focuses on the actions of scientists and the possibilities, in terms of weaponry, that originate in nuclear research. Well-defined groups are represented: religious, military and scientific. They are in joint action, but with different points of view about the invader. The second version offers a different picture of the invasion, from the singular perspective of a common individual. Not discussing why and whence they come and how to fight them, the second version focuses on the struggle for survival, where common knowledge emerges as an important element of the process.

**Similarities:** Despite the different profile of the main characters and their action in the plot, human impotence in the face of an invasion is maintained, as well as the final solution: aliens die due to bacteriological contamination.

**The Time Machine**  
(George Pal, 1960)

The main character, George, is a scientist at the end of the nineteenth century. Its main feature is the belief in science, in its potential to develop a better and more enlightened society. He develops the time machine to prove his idea that the advances of science will provide mankind with a better future.

Science is an unlimited and potentially positive field. It allowed for the development of the time machine, and in the future it could help rescue a lost mankind.

**The Time Machine**  
(Simon Wells, 2002)

Alexander Hartdegen is scientist and university professor. He develops the time machine to try to solve a personal problem: the murder of the woman he loves. His trips are not successful and he begins to question himself about the impossibility of changing the future from the past.

Science is a field of knowledge that allows for informational-technological development, but provides no answers to certain types of questions, especially the existential ones. However, it is this very loss of the knowledge accumulated by mankind that determines a gloomy future for the human civilization.

**Change:** George and Alexander are driven by different interests. The first attempts to prove a hypothesis; the second wants to find the solution to an issue concerning the fate of mankind and time. This change also provides for a different view of science. In the first version it is celebrated; whereas in the second, it is an important chance to seek solutions for some problems. In the second version, certain aspects of the scientific activity are more highlighted, especially those concerning scientific information.

**Similarities:** The future of mankind is degradation. Two groups struggle for human survival: one is hunting the other. This is not about a social-economic domain. The *morlock* are cannibals and the *eloi* are the prey. In both versions, the scientist decides not to return to his time and to live in the future, trying to free the Eloi from this condition. The female figure is one of the factors that keep the scientist in the future.

In theory, the nature of non-scientific information about science is determined by changes in the images of science and scientist. The latter seems to follow the decline or the glory of the former, which is more evident in the case of *War of the Worlds*. The absence of the scientist as a protagonist and of science as referential discourse leads to a sci-fi without science, which may be a paradox. Such changes indicate a dispersion that is linked to the social-historical and ideological context of science itself: from its status in the past to the reevaluation of its role and its importance as a major field of knowledge in the contemporary world.

However, considering all the analyses performed, we could establish that besides this dual nature, the analysis of non-scientific information about science, especially at the representational level, has a strong relationship with the social, cultural and historical context of the produc-

tion period of the analyzed filmic text. At the informational level, mainly comprised by the **identification** field, and partly by the textual/narrative dimension, it is possible to affirm that there are links between the various filmic-informational productions. Accordingly, the dual nature determines how it produces itself, circulates, and affects those who "consume" it. Furthermore, it informs about scientific issues that only become feasible, or likely, by means of fictionalization, which increases its potential in the field of popularization of science. This brings us closer to one of the properties of the mentioned Russian authors, the importance of scientific information.

In this sense, its social feature is marked not only by its role in the circulation of images impregnated with meaning about science, but also by its potential to sustain, through its elements, a memory *of* and *for* science. This memory seems to be sustained by the principle that

governs the memory of the genre, a bakhtinian notion that defines the role of the genre as an organ of memory, by bringing the vital components for the birth of a work within a given production line or reference.

The strong relationship of fictional works with the production context determines that non-scientific information about science has its properties analyzed, in view of its condition of cultural mass product of sci-fi movie narratives. Furthermore, another determinant that needs to be considered when outlining these properties is the delicate balance existing in these narratives between the scientific issues explored as possibilities and fictionalization, which feeds on the techno-machinic imaginary built along the trajectory of science itself throughout our history.

## Notes

1. There is disagreement about this date. The Internet Movie Data Base (IMDB) shows 1915.

2. The IMDB has another director along with him: Carl Boese.

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