In het laboratorium van de science fiction film: technowetenschap in vooroorlogse Hollywood films

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Technology and science are vital to our daily existence. However, it remains difficult for most of us to fathom and understand them. Science fiction is one of the few domains where the place of techno-science in daily life can still be scrutinized, criticized and analysed. It offers viewers an opportunity to make sense of the techno-scientific culture in which they live. It is precisely because science fiction cannot literally be considered as a medical, technical, chemical or bio-technological laboratory, that it can fulfil this function. In this environment, Einstein's theory of relativity becomes as erudite or bizarre as the act of measuring speed in warps.

Most people experience technology and science as external fate: processes that precede their realization remain obscure and hidden. While techno-science is such an intrinsic part of our daily existence, it seems impossible to figure out how techno-science actually ended up there. Only a few experts who work in small centres where technology and science are produced have the opportunity to follow such prior processes. The relationship between these production centres and the spaces that don't have any direct access to these powerful centres can therefore be described as asymmetrical. This asymmetry can be addressed in science fiction. Science fiction could be considered as a twilight zone, an area in which divisions between scientific knowledge and belief, between layperson and connoisseur, are not always tenable.

In this book, I have analysed three Hollywood films as such twilight zones: THE EXPLOITS OF ELAINE (1914-15), THE LAST MAN ON EARTH (1924) and ISLAND OF LOST SOULS (1932). By analysing how techno-scientific matters are produced, presented and treated in these films, I have shed light on ways in which films can make sense of the problematic and ambiguous position of techno-science in daily life.
The question at issue in this dissertation can be summarised as follows: How do these films function as cultural fields of tension or spaces of negotiation, where imaginable techno-scientific developments can be related to social questions of purity and order? Special attention has been given to social issues of gender, class and ethnicity.

Two intertwining ways of analysis have been used to answer this question. The theories of Bruno Latour, the French anthropologist of science, have been applied so as to explore the social changeability of the above-mentioned dynamic. The British cultural anthropologist Mary Douglas, has offered a view on rituals of purity and order which has been used to understand the way in which such relationships are expressed according to certain ritual patterns.

Latour has lucidly formulated how the asymmetry in our western world, between places where techno-science is produced and where techno-science is lived and experienced, can be understood and analysed. Extending his approach to science fiction, I have treated the films as cultural laboratories where one can discern how frictions or asymmetries between both domains are played out. I have discussed the films as fields of tension where such asymmetries are addressed, but also where attempts are made to overcome such tensions. The viewer becomes part of a network in which the interplay between scientific production centres and spaces outside such fortresses can be imagined, and in which belief or knowledge don’t have to be ascribed exclusively to one of these domains. Thus my hypothesis is that in science fiction the asymmetrical relation between these domains can be effectively expressed: I offer opportunities to consider ways of overcoming this asymmetry.

Mary Douglas’ work has been used to understand how this social dynamic is ritually expressed in science fiction films. Douglas states that what is considered impure within a culture includes everything that is denied a legitimate place and is not in line with the dominant views of what constitutes social order. Yet placed in the periphery, such ambiguous and unnameable matters remain an imminent and constant threat to the intrinsically unstable social order. Rituals of purification are used to tackle this ever-impending danger of disruption, and to bring order to culture, which is inherently messy and changeable. As a structural anthropologist, Douglas focuses on the more
universal structure of such rituals. However, she does see a difference between such rituals in non-western and western cultures, a difference that is closely allied to the techno-scientific character of western cultures. According to Douglas, since the 19th century, they have tended to express fears of impurity in terms of contamination through bacteriological diseases. If someone or something is considered contagious, this could be read as an attempt to formulate a cultural order. At the same time, the way in which such infectious matters are treated tells us something about the prevailing cultural order’s fear of change, since culture is an intrinsically unstable principle in itself. Thus fear of pollution points to a fear of change as it is already taking place. The films that are the main focus of this book have been analysed as such rituals of purity and danger.

While Latour’s theories have been used to map the techno-scientific network of the films, Douglas’ insights have been utilized to understand this question in ritual terms. Latourian perspectives have enabled me to describe in detail how laboratories in the films are defined and circumscribed, how they are related to one another, and what frictions there are between such areas. By exploring where pollution and order were placed and which solutions were applied to realise a social order, I have analysed this network as a ritual of purification. I have understood the execution of this ritual as a safe way to express and designate fears, ambiguities and changes in the thinking about techno-science and social order.

Using the actor-network theory as my main method, I have analysed the films as techno-scientific networks. Strong centres in these networks are the places in the films where techno-science is produced. Domains where such direct power of production is lacking have been considered as weak links. To be able to analyse the dynamic between these different areas, I have made use of Latour’s concept of mediation. Mediation or translation is an important principle of the actor-network theory, since it allows for an analysis that does not deny that asymmetrical power relationships exist, but at the same time, offers a counterbalance by concentrating methodologically on ever-changeable translations, which shape techno-scientific networks.

Techno-scientific networks should be conceived of as areas of tension, which shift and shape themselves during a constant process of mediation. Latour states that asymmetrical relations such as those between faith and
science, fiction and fact, text and context or even between different academic disciplines are paradoxes, because one can only think in such oppositions by simultaneously presuming that the two sides of such dichotomies have something in common. Opposition thus entails translation. When such translations are not acknowledged, mediations become monsters. But when one takes such translations as a starting point, a different picture emerges and categories come into being via such mediations. The actor-network theory aims precisely at this by taking these hybrids as the central principle of the method. In line with this approach, techno-scientific practices in the films have been researched as webs in which categories are changeable and fluid and have no pre-given meaning. This approach also has consequences for the way in which the relation between techno-scientific processes and gender, class and ethnicity have been approached. These three social identities have been considered in the locality of their production. Thus, ideological presuppositions about their meaning and demarcation have been shunned. By using a method that steers clear of presuppositions about the meaning of categories, different pictures of techno-science emerge in which gender, ethnicity and class become fluid, interactive and changeable.

The films that have been explored in this research are mostly not mentioned in studies of science fiction film. As the film scholar Rick Altman has stated, such omissions often occur, due to a current assumption that genres only come into existence when they have an established and clear label. Since these films stem from a period when such a label did not exist, they have escaped academic attention. Another reason for their exclusion may be that a consideration of science fiction film as a techno-scientific realm has not often been theorized. A prevailing strong interest in psychoanalysis and science fiction film has lead to a highlighting of certain films, while others have not been considered as part of the genre. I agree with Altman that there is nothing wrong with the acknowledgment that I, as a researcher, create my own genre. Such recognition is pivotal to the way this research has been conducted. As an academic, I am not an objective neutral force, but a mediator and a player myself.

In accordance with this self-recognition that the researcher makes a genre, and with the symmetrical method of research used, reflexive ethnography plays an important part in this research. Ethnography can be
summarized as a discipline that collects data about human practices through fieldwork; this is a practice that results most often in descriptive analyses. Reflexivity has become such an important principle in this field, because an involvement between the researcher and their material is unavoidable. It is impossible to be an objective observer and to separate one's own history and social-cultural circumstances from the way in which the field is visited and mapped. Reflexive ethnography employs the theory that the researcher should be aware of this position and should consider and show how much he or she is part of what is researched. It thus implicates simultaneously proximity and distance. I have used this principle by visiting the films as techno-scientific locations, which I have mapped and configured through my personally motivated and defined interest in techno-science, gender, ethnicity and class.

By analysing and describing the three films as techno-scientific networks, a heterogeneous impression of techno-science comes to the surface. These films depict different relationships between production centres of science and the 'outer world'. In \textit{The Exploits of Elaine}, the film series that is analysed in chapter 2, there are two opposing male parties which use technological artefacts and scientific knowledge, namely Professor Craig Kennedy and \textit{The Clutching Hand}. The private laboratory of Prof. Craig Kennedy functions as the central point of techno-science in the web. Kennedy has the exclusive right to a laboratory, which is related in the film to his social-cultural background. As a late Victorian male from a privileged class he possesses pure and original thought. Although he is the only person who has direct access to a laboratory, he is not the only one who can make use of techno-science. His enemy, the notorious criminal \textit{The Clutching Hand}, does so as well, but is only able to use instruments and knowledge that are produced by others. This opposing party seems to be from a less wealthy background and a more foreign (be it white) origin. Both parties seem to have a great arsenal of artefacts at their disposal; as \textit{deus ex machinae}, they merge with their wishes and desires to possess or protect Elaine, the female character in the film.

Although Elaine doesn't seem to have any hands-on connection with techno-science, she is an important mediator and maker of the network: the male parties define their definition of techno-science and gender \textit{via} her. In \textit{The Exploits of Elaine}, the female character functions as the catalyst and
mediator in a ritual that is concerned with two definitions of masculinity and techno-science. Kennedy represents purity and cleanliness. He employs techno-science in such a way that physical contact with Elaine is always avoided. According to a eugenic idea, he represents a Victorian male class, which is supposed to be biologically and scientifically superior, and is able to sublimate its sexual energies into scientific thought. Sources of contamination can be traced in the criminal circles of The Clutching Hand. These figures are often physically deformed, are frequently seen in gutters and cellars, spreading contagious diseases. They pose a threat to Kennedy's masculinity by trying to steal 'his' woman, using their knowledge of technology and science. With their ever-threatening presence they not only express a fear of change in the relation between gender, class and techno-science, they also articulate that his change is already taking place. After all, Kennedy's rescues of Elaine at the end of each episode are only just on time.

In the burlesque film The Last Man on Earth, which I have discussed in the third chapter, another techno-scientific network is spun. As in The Exploits of Elaine the laboratory is the indisputable production centre of order and the scientist can be typified as from a higher white class. But the scientist who runs this laboratory doesn't create a vast array of different instrument and scientific application. Dr. Prodwell runs a specialized workplace where a remedy is being developed against the microbiological disease Masculitis that is killing every male human being above the age of 14. Another importantly difference from the former film is that the laboratory is in this case managed by a woman. I have argued that, although this is undoubtedly the logical consequence of the lack of a male scientist, the female scientist in the film is so invincible and heroic that one can state that she presents a legitimised relationship between techno-science and femininity. The knowledge and professional conduct of this microbiologist are beyond all doubt.

This classical image of the rational production of knowledge is further accentuated by contrasting Prodwell's practice with the surrounding diseased world, which maintains very weak ties with science. The film uses comedy as a tool to depict this world as lacking in order, while science remains free of such ridicule. This fits an opinion that dogmatically maintains that scientists possess knowledge while other people are led by vague ideas and belief. The
dynamic between laboratory and outer world can be understood as a ritual of purity and danger. Prodwell's own engagement with domains outside her workplace is regarded as necessary to restore social order and purity. In the manner of a eugenic and hygienist argument, the scientist Prodwell can heal the morally diseased outer-world. However, an opposite movement is considered as dangerous and as a threat to the order.

A strong 'actor' in this ritual is Prodwell's daughter, the young 'flapper' Paula. By trying to break into her mother's space and attempting to seduce the last man, who has found safe shelter there once he is discovered, she tries to violate the strict boundary between science and the outer world. As a representative of the female world and youth culture, which have come into existence without the presence of men, she is characterised as a threat to procreation. While the film holds a supposed promiscuous female youth culture, from an Anglo-Saxon background, responsible for the lack of procreation and a confusion of gender definitions, it also points a finger to young men. After all, these creatures have virtually disappeared from the earth, thanks to a mysterious biological disease that causes a flaw in their ability to live and give life. They are proven biologically unfit.

Both high-class scientists in THE EXPLOITS OF ELAINE and THE LAST MAN ON EARTH run laboratories that generate order and purity in 'outside' places. Unlike Lulu Prodwell or Craig Kennedy, the bio-anthropologist in the last film studied, ISLAND OF LOST SOULS, has no such intention. Dr. Moreau's scientific island is portrayed as a threat to social order. The experiments he conducts are described as impure and dangerous, and he is criticised for his attempts to flee moral responsibility by literally turning his back on the mainland. In this film, the scientific production centre is accused of having too much power and of avoiding outside control.

In this case visitors from the mainland figure as a purifying force, while Moreau's island figures as a locus of contagion. However, one cannot simply make such a distinction either. The evolutionary experiments that are conducted by Moreau, on the one hand, are aimed at amalgamation and the hybridisation of humans and animals. On the other hand, Moreau's experiment are based on the presumption that hierarchies between high and low, human and animal, or Godly and primitive can be easily made. As an evolutionary theorist Moreau explores the development and the order of
species, a paradoxical enterprise that implicates at the same time translation and purification.

I have shown that the insular location of Moreaus’ practice is in itself a paradox. By situating his island in the remote Pacific Ocean, a multitude of possibilities are created to discuss scientific issues that may otherwise come uncomfortably close. The island is therefore characterised as different, un-American and remote from civilization, thus offering a safe locus for discussing frictions that are at the heart of American techno-scientific culture. Accordingly, the American visitor to the island, Parker, who seems to have been stranded accidentally in this tropical hell, has more to do with Moreau than he can suspect. It is his mission to decontaminate the scientific practice. Parker mediates between two atmospheres and hence questions about the boundaries of evolutionary science are discussed and a judgement is made about what science should mean.

One of his mediating functions comes to the foreground in his relationship with “Panther woman” Lota. He feels a strong ‘primitive’ urge to make love to this female hybrid and thus acknowledges that differences between men and animal or nature and culture, are not tenable. His moral superiority, though, enables him to counter this urge. Despite the film differing from the previously analysed films by showing this urge to be part of white masculinity, it does proclaim that such tendencies are undesirable and create biological impurities.

The male hybrids that are created by Moreau are the strongest manifestation of impurity and danger. Their mediation is monstrous. As a group both heterogeneous in appearance as in behaviour, they pose a threat to the homogeneity of the white Anglo-Saxons on the island, while simultaneously offering them a possibility to define that homogeneity. These hybrids are a volatile mixture of different - and often quite contradictory - identities; alternately, they are from a lower class, animal – which sometimes merges with non-western and being sexually untamed – and have different genealogical trees. As hybrids, they threaten to undermine the idea of a biologically pure and higher American race, while at the same time representing the American melting pot, that seems to be that culture in optima forma.

The films give ample and rich impressions of techno-science and its
various social implications. Different scientific disciplines are shown -
evolution theory, microbiology, surgery - , vast amounts of means are used -
medicines, weapons, medical tools, microscopes, surgical instruments, and
sound machines - and different relationships between techno-scientific
production centres and other domains - underworld, shantytowns, political
arena, and youth culture - are being discussed. It is partly due to the
ethnographic analysis of the films that one can see how multilateral and
intelligent the contribution of science fiction films to cultural debates on
 techno-science can be. The films have indeed proven to be cultural
laboratories in which relations between techno-scientific development and
questions of social order and purity can be addressed.

How greatly the issues that are dealt with may differ from one film to
another, conservative notions of masculinity and ethnicity triumph in the
closure of the performed ritual. This last vestige of white Anglo-Saxon
masculinity is just about able to survive. The American Adam has just resisted
the temptation of being lured away from paradise. The resulting picture of
femininity and techno-science has many more shades. Independent behaviour
is not always disputed by scientific arguments. Both Prodwell and Parker's
fiancée come to the rescue, precisely because they are independently minded.
But what they rescue is a scientific idea of white supremacy, and what they
ensure is its guarantee of reproduction.

I have shown how science fiction films can express the problems
surrounding techno-scientific developments in their relation with shifting
ideas about culture. The films offer the viewer a space in which to take part in
a dynamic game where the asymmetry between techno-scientific laboratories
and the world around them can be discussed in constructive ways. When this
game has been executed, a closure follows in which an order is suggested,
which seems to resemble the old dominant order. In a safe manner, questions
about alterations in the relationship between techno-scientific developments
and dominant social patterns can be broached, analysed and processed.