

SCIENCE IN TV DRAMA

Science as a part of the story

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*Nessuno vi conosce come noi:
voi ci seguite perché noi vi seguiamo
(Nobody knows you better than we do:
you follows us because we follow you)
RAI promotional campaign, 2004*

Introduction

TV drama (TV movie, serial, series, soaps, fictions, etc.) can be both a strategic point of observation for understanding public attitudes toward science and technology, and a strategic tool to engage the public in scientific culture. Among the TV genres, fiction satisfies the collective need of storytelling, a function formerly belonging to oral tales and then to the popular narrative. Like any form of narration, TV tales select, re-elaborate and comment on themes of the private and social lives, and therefore they are part of those interpretative practices through which a society expresses its vision of the world (Buonanno, 2002).

It is interesting to verify whether TV drama can provide useful insights on the way society sees science. In this sense, drama is much more powerful than documentary or other forms of presenting science in TV. We identify 5 reasons for this (Merzagora, 2004):

- 1)TV drama can only describe science within its social context;
- 2)Risks and controversies, which have become central in contemporary science communication, are intrinsic to the language of fiction;
- 3)TV dramas allow to value non-expert knowledge;
- 4)TV dramas address a large and unselected audience;
- 5)Successful authors, directors and producers are by definition experts on public attitudes and interests.

In the following, we will try to elaborate on each of these assertions, following them as

points on a map.

We will base our discussion mainly on examples drawn from the EuroPAWS Science & TV Drama festivals and the action research ASSEND¹. Full details of the TV dramas discussed, including synopses of the films, can be found on the Europaws website (www.europaws.org). Although obviously not exhaustive, we believe that these films represent a large enough sample of recent TV drama drawing on science and technology, allowing for some general conclusions. (It should be noted that in our analysis we have not considered the science fiction series, as they represent a genre in themselves. They are also somehow remote from our scopes, as they often follow largely independent narrative tracks rather than deriving them from an interpretation of current science or current public feelings.)

However, we are talking about films which often have a very strong and original individuality. A statistical analysis would therefore produce only very limited and short-sighted results. Our conclusions are rather consciously biased by some basic assumptions on the nature and the evolution of science communication. We will summarise these assumptions in four quotes in chronological order. We will use these quotes as directions between the five points stated above, and will come back later to discuss their usefulness for our purposes.

Traditional forms of science popularisation are mostly ineffective [...], probably because they have been confined to a necessary but not sufficient aspect: the transmission of knowledge.

Jean-Marc Lévy-Leblond, *La pierre de touche*, 1996

For citizens who want to take part in the democratic process of technological society, all science they need to know about is controversial.

Harry Collins and Trevor Pinch, *The Golem*, 1998

The debate over climate change (BSE, etc.) [...] cannot really avoid developing in conformity to the principles of the social environment, rather than those of the scientific

¹ The **International Science & TV Drama festival** is organised by **EuroPAWS (European Public Awareness of Science)**. General editions of the festival were held in Paris in 2001 and 2003 in collaboration with CNRS Images/Média, and in Ljubljana in 2005 in collaboration with the Slovenian Science Foundation. Thematic editions were held in Milan in 2002 in collaboration with Conscientia (on history of science) and in Lisbon in 2004 in collaboration with Ciencia Viva (on women scientists). **ASSEND – Associating Science and Technology in European New Drama** was a project funded by the EC, DG Research, FP5 under the Raising Public Awareness (RPA) Programme in 2001-2003. An action research activity was carried out within this project: the full report is available on-line at www.europaws.org (Merzagora, 2004).

world where it was conceived.

John Ziman, *Social Epistemology*, 2000

Before reading a textbook or a popular science magazine, a citizen builds its own image of science and of scientists by smelling it out, more or less consciously, in soap operas, films, visual art, music. Studying scientific culture involves studying also these paths, and these contradictions: embarrassing and terribly interesting.

Yurij Castelfranchi, *Jcom* 2003.

Fact or fiction?

The genre of docu-fiction or docu-drama has increasingly gained in popularity in recent years, also in the field of science programmes. It usually refers to the combined use of documentary and fiction, the latter being subordinated to the former, as a tool to add emotional value, to re-enact scenes that could have happen in the past, or to allow the exploration of possible futures. We are interested here in a more implicit, but we believe more powerful, form of convergence, which has determined the presence of a documentaristic *approach* in clearly fictional productions (it sufficient to follow the evolution of a long lasting movie series such as James Bond, to verify how naturalistic and ethnographical sequences, as well as descriptions of real or realistic technological tools, buildings, organisational structures, geographical landscapes, etc have increasingly gained space) and a fictional *approach* in documentary (the narratives characterising naturalistic documentaries, or spy-story mechanisms, have been extensively applied to the portrayal of scientific research on screen).

Drawing a boundary between TV documentary and drama is very difficult, as it would imply a clear-cut definition of the boundary between fact and fiction (Görke, 2003). Obviously, saying that facts talks about reality and fiction about imagined situations is a simplistic definition, in a world where imagined worlds are fundamental elements of reality. To clarify the complexity of the issue – and to justify the fact that we will not propose any solution - it is worth quoting five examples where boundaries are difficult to draw.

In *The Seven Wonders of the Industrial World* (BBC, 2003) – a series of classical biopics of great scientists and engineers of the past - historical characters with a part in the plot sometimes address the viewer directly, giving their point of view on the events. Their lines are

mostly drawn from original documents, and thus strictly factual in a re-enacted context, and with a factual approach within a fictional style.

The French blockbuster *L'odyssée de l'espèce* (France 3, 2003) presents a clear documentaristic approach in describing the origin of modern humans. But lacking visual documents, it reconstructs our ancestors partly with actors and partly - as it goes back in time - with digital characters moulded on (soundly based) hypotheses on the traits of Lucy and its relatives. In this sense, it is a documentary including a "third level fiction", that is, hypothetical digital actors.

In the beautifully written *Les enfants du miracle* – clearly a pure drama in style – the writer Brigitte Peskine has decided to be strictly accurate in the scientific reconstruction of the first *in vitro* fertilization in France, but almost entirely fictional about the private lives of the scientists that made it possible. Here fact and fiction are clearly separated ingredients, remixed in a continuum where each flavour is nonetheless clearly identifiable.

In the controversial mockumentary *Smallpox 2002 – silent weapon* (BBC, 2002) the outbreak of a smallpox pandemic is narrated in the classical style of reconstruction documentary; although it talks about events that could possibly have taken place, but have not. Scientists interviewed are sometimes actors, sometimes scientists re-enacting themselves. We are thus confronted with a fictional production dressed in documentary: both an investigation of the present as seen from the future, and an investigation of the future as seen from the present. (The same approach has later been adopted by the series *IF*, some episodes of which were and will be on science-related topics). Although the "confidence trick" played in the film raised several criticisms, *Smallpox 2002* had the intuition of vividly depicting that which can only be considered as fact, whether real or politically driven: the fear of bio-terrorism.

Virus au paradis (France 2, 2003), which had 24% share on prime time on France 2, was also purely fictional, but so well documented that it described in detail an epidemic stunningly similar to the SARS and avian flu crises which occurred a few months after the shooting of the film. Thanks to the right choice of scientific consultants and to the quality of their job, a fictional programme thus became the best documentation of an event still to come. (For a more general discussion on the role of science consultant, see the works of D. Kirby, 2003).

The above list tends to confirm the opinion expressed by Rosestone (Rosestone *et al.*, 2003) that "there is a false dichotomy between fact and fiction. [...] In dealing with historical films I no longer talk about the truth or falsity of any particular moments in the film, but look rather for the extent to which historical film actually intersects with the larger discourse of history".

We adopt this point of view also in the case of science.

Although it is clear that any attempt to define a clear-cut frontier between documentary and fiction will soon run into trouble, one criterion is nevertheless helpful for our purposes. A documentary tends to clearly define the object of its investigation, its content is well framed, the source of information clearly identifiable. In a feature film or TV drama, boundaries are blurred, as any content is necessarily immersed in a wider stage: society, the world. In other words, in a scientific documentary we always find a clear (albeit often implicit) definition of what science is or is not, or of which knowledge is relevant and who is entitled to provide information, opinions, emotions about it (this is true also of documentaries dealing with the impact of science on society at large: it is always clear what has impact on what). In fiction everything is mixed up, no dividing line can be drawn between science and society, they share the same actors, the same plot, the same spectators.

In Simon Singh's *Fermat's last theorem* we see a deep and intelligent exploration of Andrew Wiles' psychology, but we never see him in contact with anybody but the community in which he operates. In *The Geneva event*, by Andrew Millington we see Carlo Rubbia and his colleagues partying in the Geneva's restaurants, we can recognise them as men (and a few women): their life is social, but their work remains confined in a world apart. The various attempts to immerse interviews with scientists in a wider socio-environmental context mostly appear unnatural: examples are the inevitable bicycle ride on the hill surrounding the Roslin Institute and Ian Wilmut's house in Scotland, or the magic desert landscapes where the gurus of the Santa Fe Institute always stroll while talking about complexity, or the innumerable crossings of the courts of Oxbridge colleges.

It is not, of course, a matter of lack of imagination of the authors: it is the very grammar of a documentary that imposes the need to precisely identify the subject of the investigation, and therefore its boundaries. The frontier between science and society is often crossed – we see many documentaries on ethical or political aspects – but it almost never dissolves.

As clearly stated by John Ziman in the above quotation, in contemporary democratic society the debates on scientific topics "cannot avoid developing in conformity to the principles of

the social environment, rather than those of the scientific world where it was conceived".

Similarly – and we have come to the first point on our map - *TV drama can only describe science within its social context.*

Going back to the assumptions stated in the beginning, Collins and Pinch points out how most relevant science-based issues for the knowledge-based citizen are by nature controversial. This leads us to the second point of our discussion: the evolving role of science communication in the post-academic era of science (Ziman, 2000a; Greco, 2001; Miller *et al.*, 2002; Pitrelli, 2003) has brought the impact of science on society to the core, and no longer to the periphery, of science communication. When talking about the impact of science on society, we are naturally focusing on all those aspects of science which are controversial or potentially conflictual, whose potential benefits are high, but whose final outcomes are still unclear. At the centre of these, we find potential, imagined, perceived (we will not discuss the issue here) risks. More generally, the current evolution of the science-society relationship points to a model where science and technology pose controversial issues (or open up new – and as such naturally controversial – possibilities), which should be dealt with through the instrument of social negotiation (it is worth stressing that that this *is not* equivalent to saying that all relevant scientific achievements are controversial!).

Turning to TV, any TV drama has among its key elements the fact of a) concentrating on some sort of conflict, b) dealing with emotional reactions to situation characterised by uncertainty and risk and c) being necessarily set in a social environment. Thus many elements that have to be attained with much effort in a non-fiction science communication program, i.e. expressing conflicts, involving the public emotionally and analysing the impacts on society, are *intrinsic* in the language of fiction.

It is therefore not surprising that scientific topics are more and more entering TV dramas (and feature films), and that TV dramas often decide to focus on those aspects of science which are directly related with risk.

Non-expert knowledge

A third element to be considered is the valorisation of non-expert knowledge. This is considered a key issue in the process of democratisation of society (Novotny *et al.*, 2001, Wynne 1992), and more specifically in the science-society relationship. However, for intrinsic reasons, this is hardly taken into account in TV news or documentaries: the need to transfer information obliges to concentrate the communication strategy on the expert. The portrayal and

the inclusion of non-expert knowledge is on the contrary easily attainable, or even mandatory, in a drama, where the main characters are often people with whom the public must identify. In virtually all non-historical TV dramas, the attention is mostly focused on the reactions of a common person to an event steered by science or technology. Even when there is a scientist at the centre of the plot, he/she usually appears as a complex character, exhibiting "expert" characteristics, but also the usual set of human feelings used in a drama (love, envy, altruism, greed, etc.).

Unintentional science communication

Media studies and research works on public perception of science have mostly focused their attention to intentional science communication, that is, products or events which have among their goals to communicate science. It remains to be demonstrated that the channels through which a citizen builds his or her perception of science is indeed formed by this type of products. As stated by Castelfranchi in the above quotation, citizens "build their own image of scientist and the scientists" also by "absorbing them in soap operas, visual arts, music, etc." The paths of public perception of science follow a very complex system of channels, most of them implicit and/or unintentional.

The TV drama channel plays a central role in these side routes, both because of its function of social storytelling and because its dissemination power. This leads us to the fourth point of our map: TV drama is able to reach a large and undifferentiated audience.

Taking a US example distributed all over Europe, it is unlikely that many people will *choose to watch* CSI - Crime Scene Investigation simply because Gil Grissom is a biologist and the other characters are physicists or chemists, or in order to get new information about scientific topics; but many will certainly *appreciate* CSI for the way science and technology fits into the story and gives it additional thrilling elements. Beside any judgement on the quality of this or other programmes, it is clear that drama has a greater potential than other formats to reach an audience not already sensitised to scientific topics. Among this audience, a key element are teenagers, the main concern of most educational projects because of their generalised refusal of any authoritative statement: it has been observed that the presence of an HIV infected character in the soap East Enders, probably the most popular series in the UK, had a greater effect in informing them about the means of infection than many *ad hoc* programs. Several other examples of soap operas used as a tool to disseminate health related information can be found in India, Brazil, and also in developing countries, where health and environmental information is a urgent necessity (for an overview, see Marconi, 2004).

Taken all together, these considerations turn on TV drama as a challenging new channel of science communication.

Science in fiction, fiction in science

In the second part of our discussion, we will investigate some examples and some recurrent topics in recent TV drama.

Firstly, we can identify a series of reasons for drama to enter science programmes, and for science documentary approaches to enter drama (for a more detailed discussion on this topic, see Merzagora *et al.*, 2004):

In TV Drama, science enters fiction:

- To provide a dramatic stage to the story (in this case it mostly concerns catastrophic events such as plagues, or medical problems determining strong human involvement);
- In that it embodies many human and psychological challenges which have just entered the concerns of present times (a good example is genetic testing, that has given us a new power for which we still lack strong interpretative tools: see for example *La vie comme elle vient*, 2003);
- In that it embodies means of destruction and means of salvation (as is the case of spy movies, where science and technology often appear both as the cause and the solution of a conflict or a war);
- As there are still many interesting biographies of great scientists of the past to be told.

On the other side, fiction enters science communication:

- As a reconstruction and historical illustration in docu-dramas, providing an image of the life and work of scientists of the past;
- As a way to portray the imagination of the scientist (visualising what is going on in the scientists' minds);
- To provide an emotional engagement and a dramatic pace;
- To strengthen the identification of the viewer with the characters;
- To represent in an emotional way conflicts generated by scientific development;
- To include the point of view of the common people when approaching scientific and technological topics;
- To provide a representation of possible future scenarios;

- To explore "the man and the woman behind the science";

The plots

Many valuable works have been devoted to a general discussion of the archetypal stories and representation of scientists on the large screen (see for example Prédal, 1994, Haynes, 1994, 2003; Martinet, 1994; Weingart et al, 2003).

Unlike feature films, where science fiction dominates the scene of science related topics (Weingart et al., 2003), TV movies rarely describe future worlds or extremely exceptional situations (the case of series is somehow different, with long lasting specialised science fiction series such as *Star Trek*: these appear in any case to have lost relevance in recent years, and they are mostly confined in the US and the UK). Most dramas are based in the past (in the case of biopics) or in the present (mostly dealing with health or environmental issues). Future scenarios are often portrayed, but are always set in a very near and familiar future: that is, in TV drama the future is mostly another possible present (the above mentioned *Smallpox 2002* and *Virus au paradis*, the German *Gefährliche Naehel und du Ahnst nichts* or the Dutch *Necrocam* are clear examples, synopses can be found at www.europaws.org).

While saving the individual originality of each film, it is possible to identify 4 main typologies of TV drama dealing with science:

-The biography of great scientists of the past

The typical plot is obviously moulded on historical reconstruction. However, in this type of film the scientist is mostly depicted as a benefactor, fighting against a blind establishment unable to understand and accept novelties. (For a detailed overview of scientific biographies on screen, see Elena, 1993; Testa, 2003 and 2004).

-The medical centre

Although it might be questionable if *E.R. – emergency room* and its clones developed in most European countries can be called "science based", they are truly a genre, which beside conquering the interest of a huge public, has dictated the public image of a hospital as much as *Space Odyssey* or *Blade Runner* have dictated the aesthetic of science fiction.

-The forensic science

A genre which has for long been popular mostly in Britain (*Waking the dead*, *Silent witness*,...) , has now conquered a wider public through the worldwide success of *CSI*,

Crime Scene Investigation: most European countries have recently developed national versions of the same idea (such as *RIS – delitti imperfetti* in Italy).

-Risk & power

Among the TV dramas not belonging to the above categories, by far the most common plot in recent productions involves the ties between science, risk and power. We will analyse it in some detail in the following paragraph.

Science, risk and power: the master plot

Four main characters are on scene: A) the knowledge driven scientist; B) the money driven scientist, C) the obstinate, truth seeking, lay person; D) the hub character, linked with A and/or B, and C. Basically the plot follows the eye-opening process of D, driven by C. In the first part of the story, A appears to be the culprit of an environmental or medical emergency, but we soon discover that he/she is (consciously or not) manipulated by B.

Several recent productions follows very closely this scheme (*Fields of gold*, *Taggart – New life*, *Vertige – la peur au ventre*, *Gefaerliche Naehe Und Du Ahnst Nichts*, *Eaux troubles*, to quote but a few). The specificity of each relates to the type of hazard, the social roles of the characters and the relationships (sentimental and/or familial) among them.

This persistent plot involving the classical archetype of the scientist losing control of his or her work allows several considerations. Indeed, it reflects very closely data on public perception of science emerging from most national or international surveys (see for example Eurobarometer 55.2 and Special Eurobarometer 224 and 225). In these surveys, as in the above-mentioned films, science is perceived as a positive, potentially beneficial activity and scientists are trustworthy professionals (character A), but also potentially dangerous because subject to strong economical pressures (character B). There is therefore a demand of a strong social control, and environmental and civil society organisations are also necessary and trustworthy (character C).

The categories into which the "scientist on screen" has traditionally been classified (Martinet, 1994), and more generally the "scientist in fiction" definitions (Haynes 1994, 2003), do not fully apply to contemporary TV drama, where scientists are mostly portrayed as "normal people" caught in the complex tension between love, ethics, money and power.

It is interesting to note, for example, that very often the "mad scientist" has taken off his laboratory coat (which is kept on by the "noble scientist") to wear the business suit: he/she is

usually in the payroll of big multinationals (pharmaceutical or biotech) or of the military. Once again, this reflects the outcome of the Eurobarometer, which shows how European public sees privately funded research as potentially more dangerous than publicly funded research.

The parallelism between surveys' results and science TV drama plots (which involve also specific themes, e.g., the shift of the embodiment of the "invisible enemy" archetype from radiation to viruses and biotechnology; we thank A. Allansdottir for first pointing out this theme) leads us to the last point of our analysis: successful authors, directors and producers are by definition experts on public attitudes, interests and concerns.

As Jean-Marc Lévy-Leblond proposed several years ago (Lévy-Leblond, 1996): "If science communication is so ineffective, couldn't it be because it answers questions that were never expressed by the 'public', instead of grasping the real ones - even if their meaning may be confused and mostly implied?" To turn this provocative question into a proactive one: how can we bring these submersed demands to the surface?

While scientists, sociologists or journalists (the figures traditionally undertaking science communication studies) have each a specific viewpoint - and thus specific blind spots - authors and producers *professionally* need to understand the public: authors, since they need to know what people will like in order to make their careers successful; TV producers, since they need to know what people will buy in order to survive in a tough and competitive environment. A better understanding of authors' and producers' points of view - i.e., borrowing their observation skills and tools - could be extremely useful for improving the level of the scientific understanding of the public.

It is important not to confuse these elements with the widespread and incorrect idea that scientists in fiction are a reflection of the public image of the scientists. In an inspired talk at the 1999 AAAS meeting subsequently published in the Science magazine, while discussing criticism to the common portrayal of scientists in feature films (including its own) Michael Crichton argued (Crichton, 1999): "Don't these movies images provide some insight into the attitudes of the wider society? Don't they reflect society in some way"? His conclusion was clear: "No, they do not". We agree on this. However, if it is true that Alan Grant in Jurassic Park is not necessarily the projection of the public image of a scientist, Crichton choice of having the whole plot sparking from a genetic engineering laboratory (and more recently in a nanotechnology lab) was based on his skills of story-seller: that is, on his always bright intuitions about what raises interest and concerns in the public. TV authors and producers are

alike.

Two examples: *Smallpox 2002* and *Virus of paradis*

As a conclusion, it can be interesting to provide a short analysis of two particularly interesting films (a deeper discussion can be found in Scandola, 2005), *Smallpox 2002 – silent weapon*, produced by Wall to wall for BBC and the Learning Channel, and *Virus of paradis*, produced by CIPANGO for France 2 in 2003. Most of the elements discussed above can be traced in these films.

They both centre the plot around an epidemic outbreak: in *Virus au paradis*, the epidemic is due to natural factors (we will discover that migratory birds are the vector of the disease), in *Smallpox 2002* to a bioterrorist, probably an isolated maniac. Both films deal with the management of a crisis situation, with specific attention to the role of science and scientists and their relationships with decision makers (and the media).

The two films are very different in style: *Virus* is a classical drama, relying on good storytelling and excellent actors (as Richard Bohringer in the role of the experienced scientist); it concentrates on the human feelings in a crisis situation and on a careful description of the scientific collaborative/competitive environment. *Smallpox* is a mockumentary: it is presented as a retrospective documentary, although most of the scientists, politicians and lay persons interviewed are actors. It is focused on the reconstruction of responsibilities and on how organisational mistakes impacted on the population. It tends to raise a sentiment of fear and insecurity.

Both films are extremely accurate in their scientific content, and made extensive use of scientific consultants. Thank to this and to an experienced journalistic work, the films centred around key issues. The authors of *Smallpox 2002* clearly identified the growing fear of bioterrorism (the film was written before the Anthrax US cases, it was shot in 2001, and thus presented in a very hot moment, so hot in fact that the Learning channel, who co-produced it, eventually decided not to show it in the US...). The epidemic and the emergency management depicted in *Virus of paradis* show many similarities with the avian flu and SARS, but it was produced before the real events: the accuracy of the anticipation of facts was astonishing. The capability of grasping a hot issue through a journalistic work, and to touch emotional keys through well informed screenwriting work, probably determined their success.

The point of view of the common person is highly valued, and becomes a central element of the plot in both cases. *Smallpox 2002* introduces a very powerful narrative device through one of the characters, the boy with the TV camera. The boy was a victim of the epidemic, but before dying he kept a daily video diary of the outbreak, the emergency, the intervention of

the authorities, etc. His tapes are shown in the films, giving a dramatic element to the story, but also explicitly portraying the facts through the eyes of a lay person, in this case also a victim ("interviews" – we recall that everything is fiction - with the mother, who survived, add additional emotional weight).

In both films the interactions between science, politics and the media is a key element of the story. In *Virus au Paradis*, the media are used by the scientist as a threat to convince the politicians to act ("If you don't act, I will be obliged to call the media", says professor Charpentier, who identified the virus), but also are an element of conflict between the "old fashioned" French professor (who does not like the media: "I don't fear them. It is just a question of points of view. They tend to simplify and declare certitudes. And is not to become famous that I do this job" or again "the priority is the virus, not TV") and the young "modern" Swedish researcher ("Scientists needs the media"). Although indirectly, it will be the eagerness to appear on TV that will expose the young researcher to the virus that will eventually kill him.

In their description of the interactions between scientists and decision makers, the two films clearly spot a very critical element of the current debate on science and society. What is the role of science in the face of risk? Is the scientific community prepared and capable to interact with the decision makers? Are decision makers prepared and capable to listen to the scientists?

These are key questions: it is not by chance that also a very high budget film such as *The day after tomorrow* begins (after the special effect teaser) with the report of a scientist in front of the political community.

TV dramas, as those quoted in this short overview, have correctly identified the focal point of public attitudes toward science (and of the contemporary role of science communication) in the relationship between scientific knowledge and the economical and political apparatus governing it.

This is the same conclusion attained by several researchers from a sociological perspective (Bucchi, 2003). Indeed, TV drama can be both a strategic point of observation for understanding public attitudes toward science and technology, and a strategic tool to engage the public in scientific culture.

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Quoted TV drama and documentaries

CSI – crime scene investigation, USA, CBS, 2000 – running in 2005. Series created by Anthony E. Zuiker

Eaux troubles, France, France 3, 2004 (2 x 90'). Produced by Simone Halberstadt Harari (Téléimage).

Les enfants du miracle, France, France 2, 2003 (2 x 90'). Written by Brigitte Peskine, produced by Fabienne Servan-Schreiber (CinéTévé). Winner of Midas prize 2003.

E.R. – emergency room, USA, 1994-running. Series created by Michael Crichton.

Fermat's last theorem, UK, BBC, 1997 (Horizon)

Fields of gold, UK, BBC, 2002 (2x90'). www.bbc.co.uk/drama/fields_of_gold.shtml

Gefaerliche Naeh und du Ahnst nichts, Germany, ZDF / ARTE, 2002, (2 x 90'). Written by Hartmut Schoen, producerd by Dagmar Rosenbauer, Jetz Cinecentrum.

The Geneva event, UK, BBC, 1993.

Hospital central, Spain, Telcinco, 2000. Produced by Videomedia s.a.

L'odyssée de l'espèce, France, France 3, 2003 (90', also other versions produced). A film by Jacques Malaterre.

RIS - delitti imperfetti, Italy, Mediaset, 2004 – running in 2005. Produced by Taodue.

Seven wonders industrial world, UK, BBC, 2003. Series created by Deborah Cadbury.

Silent witnesses, UK, BBC, running in 2005.

Smallpox 2002: Silent Weapon, UK, BBC, 2002 (90'). Written by Simon Chinn, Daniel Percival. Produced by Simon Chinn (Wall to wall).

Sophie Rousseau, la vie avant tout, France, TF1, 2001 (91'), written by Eric Kristy, produced by François Bertheau-Guillet. Winner of Midas prize 2001.

Taggart – New life, UK, ITV, 2003 (52'), Written by Rob Fraser, produced by Graeme Gordon (SMG productions).

La vie comme elle vient, Belgium/France, RTBF / FRANCE 2, 2003 (88'). Written by Nathalie Vailloud and André Graal, produced by Simone Halberstadt-Harari (Télé Images Création).

Virus au paradis, France, France 2, 2003 (2 x 90'), written by Philippe Dussau, produced by Jacques Dercourt (Cipango). Winner of Midas prize 2003.

Waking the dead, UK, BBC1, 2000-running in 2005 (57'). Series created by Barbara Machin.

Vertige - La peur au ventre, France, M6, 2000 (97'). Written by Yves Lamonet, Thierry Depambour, produced by Son et Lumière.