Techno-Nationalist Tales of Glory and Failure: Writing the History of Inventions in Early Film and Television

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According to Norbert Wiener, invention is a complex process, which not only requires the elaboration of an idea by an individual, but in which also the technical, cultural, social, and economic climate intervene.[1] The human agent – the inventor – is thus but one factor in this process, even though it is the one normally foregrounded in the various accounts relating the coming into being of a specific device, technology, machine, or procedure. Moreover, the inventor as well as less successful competitors then becomes almost automatically the hero (or heroine) of a narrative relating the way he (or she) arrived – or failed to arrive, arrived too late, arrived without receiving credit etc., – at whatever the object of invention was. Similar to the different legends of the artist discussed in 1934 by Ernst Kris and Otto Kurz,[2] these stories of glory and failure present a series of recurrent *topoi*, which will be the focus of this paper with regard to the moving images of film and television.

It is not our purpose here to argue in favor of anyone's "priority", nor to save some unacknowledged inventor from unjust oblivion. In fact, most film and television historians tend to treat this question as an academic one, sometimes quoting Louis Lumière himself saying that, in fact, the idea "was in the air".[3] Nevertheless, especially where questions of national pride are involved, this point resurfaces in different ways in the "legends of the inventor" which we will discuss. Taking seriously the concept of narration, we try to analyze these histories of invention and innovation as a serial technological drama. As the American broadcast historian Erik Barnouw has put it, "the process of inventing television (…) became a long-running serial drama full of twist and turns that often seemed to reach its climax only to confront us with the message "to be continued"".[4] When we look at the international saga of the invention of film and television, we can identify several recurring episodes, topoi or patterns in the accounts given by the inventors themselves: journalists, biographers or historians etc. Referring to Hayden White, one could even identify here specific rhetorical styles or narrative genres, such as romantic, tragic or (melo)-dramatic stories of lonely inventors, powerful industrial players and unrecognized genius. In historicizing these narratives of "inventions of traditions", we will try to emphasize the techno-nationalist dimension of the political or cultural instrumentalization of technology in four different countries: USA, France, Great Britain, and Germany.

Competing Stories

Since technological devices permitting cinematography and television appear in different places and around roughly the same time ("parallel inventions"), accounts discussing the priority of inventions appear in the face of the institutionalization of these technologies, or in other words, those moments when radical inventions turned into successful innovations. Both film and television can be described as so called systems technologies. This means that the

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[1] Norbert Wiener, *Invention. The Care and Feeding of Ideas*. Cambridge, Mass., London: The MIT Press, 1993, pp. 7-9.
[2] See Ernst Kris, Otto Kurz, *Die Legende vom Künstler*. Frankfurt/Main: Suhrkamp, 1980 (first edition Krystall Verlag: Wien, 1934).
[3] See for instance Bernard Chardère, *Lumières sur Lumière*. Lyon: Institut Lumière, Presses Universitaires de Lyon, 1987, p. 152, where Chardère quotes Lumière declaring: "*Qu'ai je fait? C'était dans l'air.*"
[4] Erik Barnouw: Foreword, in: Albert Abramson: Zworykin – Pioneer of television, University of Illinois Press, Chicago / Urbana 1995, p. 1.

technological essence of neither cinema nor television consists of one single technical artifact, but they are the result of a complex interplay between various technological devices on both the production and the reception side. As various innovation studies in the field of history of technology have shown, the successful implementation of a large technological system (LTS) depends on a broad range of factors largely transcending strictly technical or technological parameters. Following Thomas P. Hughes, the evolution of large technological systems is a complex process of development, characterized by several "phases": the act of invention, the development of a technical prototype, the phase of technological innovation, followed by a phase of technology transfer and style, finally leading to a phase of market competition and battle for standardization.[5] Having this complex model of an evolutionary innovation process in mind, in which lonely inventors, scientific and technical experts, industrial entrepreneurs, marketing strategies, political pressure groups and national economic interests form an interdependent actor network, the idea of the single inventor of such a complex systems technology as film or television becomes obsolete.

As Erik Barnouw declared: "No one country enjoyed the monopoly on the process, in fact, several countries had two, perhaps three outstanding 'favorite sons'."[6] In this paper, we focus on eight inventors of film and television technology in four different countries, all involved in the process of film and television invention at different phases of their development. They all were more or less important players in the complex actor-network of the innovation process, and – as we will see – they all tried to claim their part of the radical invention of the new technologies by either ignoring other important inventions or inventors or by minimizing the importance of earlier developments and ideas. But the ego-documents of the inventors were only the first source in the narrative process of "invention of tradition"[7]. They were followed by popular and scientific (historical) discourses about the invention of film and television that emerged and developed at different places and times. While in this paper, we focus only on the early narrations surrounding the act of invention and on more or less critical historical studies on the subject, it would be more than interesting to have a closer look at the different phases of re-telling these stories in different media. A study of the images of national technical heroes in comics, radio features, television and film productions – and – very interesting for the popular shaping of historical meaning: the Internet – could certainly contribute to an enlightening study in the field of histories of ideas and popular imagination.

In the field of cinema, the main "competitors" on which we shall concentrate are Thomas Alva Edison, inventor of the Kinetograph camera and the Kinetoscope, a device permitting a single viewer to watch a short scene, Louis and Auguste Lumière, creators of the Cinématographe, a camera/projection apparatus, Max Skladanowsky, inventor of the Bioskop, a projector working with two strips of film, and William Friese-Greene, an English photographer working on a camera/projection device, which never was commercially exploited.

In the field of television, we focus our attention on two of the central actors active on the field of electro-mechanical television, first Paul Nipkow, who put a patent on a scanning-disc for the electro-mechanical production and reproduction of an image, than on John Logie Baird, being the first to successfully realize a public electro-mechanical television demonstration. As

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[5] Thomas P. Hughes: The evolution of large technological systems, in: Bijker, Wiebe / Hughes, Thomas / Pinch, Trevor (eds.): The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology, MIT Press, Cambridge / London 1987, p. 51-82.
[6] Barnouw, foreword in: Abramson (1995), p. 1.
[7] See Eric Hobsbawn / Terence Ranger (eds.): The invention of tradition, Cambridge University Press, Cambridge 1983.

representatives of the all-electronic television era, we will highlight the role of Philo T. Farnsworth, developer of an all-electronic (camera and receiver) television device, and Henri de France, the French television pioneer who both developed the French black-and-white 819-line standard and the SECAM colour television system.

In comparing the ego-documents[8], biographical studies[9] and chronological surveys of all the eight "favourite sons" which each other, we discovered several recurrent patterns of narration, evidencing similar rhetorical styles and genres, but referring to unexpected geographical or national characteristics.

1) As a first narrative pattern we can identify a certain mystical transfiguration of the creative act of invention in nearly all of the case studies. The preferred rhetorical device to describe these moments of sudden enlightenment is the metaphor.

2) But two other narrative patterns also show up at regular intervals: the first one could be described as the story of the clever inventor as entrepreneur, who managed – mostly with the help of powerful allies – to make his invention a successful innovation, while the second one can be read as the other side of the coin, emphasizing the tragedy of the isolated genius-tinker, a modern Don Quichote, fighting against the bureaucratic mills of patent offices and the power of giant corporations and trusts. (Example of 1: Edison; Sarnoff/Zworykin; 2: Friese-Green, Farnsworth, Baird)

3) Finally, we think that certain political environments have given birth to what Gabrielle Hecht has called "techno-political regimes". These techno-political regimes not only have the power and the political will to shape the development of technologies themselves, but also do create the discursive frame for techno-nationalist tales of genius inventors and successful innovations.[10]

1) The mythical transfiguration of the act of invention

Lynn White has put our attention to the fact that the notion of "genius" is in itself an ideological construction that dates from the Renaissance when painters, sculptors, and architects were trying to raise their social status above that of craftsmen.[11] As Thomas P.

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[8] For the pre-history of television see André Lange: The history of television through the Internet: A few notes on the project www.histv.net, in: Graham Roberts / Philip Taylor (eds.): The Historian, Television and Television History, University of Luton Press, Luton 2001, p. 39-44. Our historical research on these inventors is not limited to published material, but also founded on archival research. The unpublished memoirs of Walter Bruch, a thousand pages manuscript with entitled „Eines Menschen Leben" (A man's life) (Archives of the Hochschule Mittweida / Sachsony (G)) as well as the unpublished memoirs of Henri de France (Archives of the Comité d'Histoire de la Télévision at Bry-sur-Marne (F)) have provided us with interesting new material for the early television history. The memoirs of John Logie Baird have been published post mortem by the Royal Television Society as "Television and me. The Memoirs of John Logie Baird, London 1990. A third revised and expanded version has been published by Malcolm Baird in 2004 (Mercat Press Ltd. / Edinburgh).

[9] Russel W. Burns: John Logie Baird: television pioneer, London 2000; Albert Abramson: Zworykin. Pioneer of Television, University of Illinois Press, Urbana / Chicago 1995; Amoudry, Michel (1997) René Barthélemy ou la grande aventure de la télévision française. Grenoble: Presses Universitaires de Grenoble; Godfrey, Donald G. (2001) Philo T. Fransworth: The Father of Television, University of Utah Press; Ray Allister: Friese-Greene: Close-up of an Inventor, Marsland Publications Ltd., London 1948; Paul Schatzkin: The boy who invented television. A Story of Inspiration, Persistence and Quiet Passion, TeamCom Books, Silver Spring 2002;

[10] Gabrielle Hecht: The Radiance of France. Nuclear Power and National Identity in France after WWII, MIT Press, Cambridge 1998. For the notion of "technological drama" see Bryan Pfaffenberger: Technological Dramas, in: Science, Technology & Human Values, Vol. 17 (1992) Nr.3, p. 282-312.

[11] See Lynn White: The act of invention: Causes, contexts, continuities, and consequences, in: Technology & Culture, Vol. 3 (1962) No. 3, p. 486-500. For a systematic analysis of the invention-development-innovation

Hughes has shown, the metaphor is maybe the most favorite rhetorical style in narrations about invention. The metaphor itself is a creative linguistic invention, and therefore especially adequate to scenarize the moment of a technological or scientific invention. "The metaphor is like a bridge, enabling the inventor to make a link between his discovery or invention and the world of the unknown."[12] The history of the beginnings of wireless telegraphy, film, radio and television is rich on these kinds of metaphors, as the examples of Edison, the Lumière brothers, Philo T. Farnsworth and Paul Nipkow do show.

According to one of Edison's closest collaborators, William Kennedy Laurie Dickson, who, together with his sister Antonia, in 1895 already published a *History of the Kinetograpf, Kinetoscope and Kineto-Phonograph*, the idea of a moving picture machine came to Edison in a phase of relative quietness after a series of successful accomplishments (electricity, incandescent light bulb, telephonic and telegraphic devices, and phonograph):

> *"In the year 1887 […] the inventor felt at liberty to indulge in a few secondary flights of fancy. It was then that he was struck by the idea of reproducing to the eye the effect of motion by means of a swift and graded succession of pictures and of linking these photographic impressions with the phonograph in one combination so as to complete to both senses synchronously the record of a given scene*."[13]

In the case of Louis Lumière[14] a similar narration can be observed. In his book on Louis Lumière, Georges Sadoul refers to a declaration by Auguste Lumière in 1935, in which he bears witness to the flash of genius the his brother Louis had one lonely night in 1894:

> *"[…] vers la fin 1894, je me rendis dans la chambre de mon frère qui, un peu souffrant, avait dû rester alité. Il m'apprit que, ne dormant pas, il avait, dans le calme de la nuit, précisé les conditions à remplir pour atteindre le but cherché et imaginé un mécanisme. […] Mon frère, en une nuit, venait d'inventer le cinématographe."*[15]

A similar tale is reported by the German journalist Eduard Rhein, who – in his book "Wonder of the waves" (published 1935) circumscribed the invention of television by Paul Nipkow. He writes:

> *"The man who offered mankind the technical solution of television was an unimposing 23 year old student from Lauenburg in Pomerania. At Christmas Eve of 1883, he was sitting in his student digs in Berlin when the most genius idea of his life came to his mind. […] He felt very lonesome having not been able to afford a train ticket to see his parents in Pomerania. Being able to be close to the parents and brothers and sisters – what a lovely imagination. At least being able to watch them celebrating Christmas. […] Tele-vision, just as one can tele-phone for years now. […] He sees the picture of his parent's living room with the Christmas tree on the table in blurred contours – like*

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process see John M. Staudenmaier: Technology's Storytellers. Reweaving the Human Fabric, MIT Press: Cambridge / London 1985. On the mythical transgression of the act of invention see especially chapter 2 "Emerging Technology and the Mystery of Creativity", pp. 35-82.

[12] Thomas P. Hughes: Die Erfindung Amerikas. Der technologische Aufstieg der USA seit 1870, Verlag C.H. Beck, München 1989, p. 85.

[13] William Kennedy Laurie and Antonia Dickson, *History of the Kinetograph, Kinetoscope and Kineto-Phonograph*, W. K. L. Dickson, 1895 (reprint New York: Museum of Modern Art, 2000), p. 6.

[14] For a very critical view on Lumière see the polemical and rigorously '*anti-lumiériste*', but well documented book by Léo Sauvage, *L'affaire Lumière. Enquête sur les origines du cinema*. Paris: Lherminier, 1985.

[15] Georges Sadoul, *Louis Lumière*, 1964, Paris: Seghers, p. 11

> *a mosaic observed from a distance. Mosaic – the magic word is thought and soft-spoken."*[16]

But the use of metaphors to describe the act of invention is not a narrative pattern limited to these early accounts. As several recently published books on the American television pioneer Philo T. Farnsworth show, the mythical transgression of the act of invention still nourishes the fantasy of the storytellers. In Paul Schatzkin's "The boy who invented television", the author of the "Farnsworth Chronicles" presents us an intimate portrayal of Farnsworth illumination:

> "*While the great minds of science, financed by the biggest companies in the world, wrestled with 19th century answers to a 20th century problem, the summer of 1921 found Philo T. Farnsworth, age fourteen, strapped to a horse-drawn disc-harrow, cultivating a potato field row by row, turning the soil and dreaming about television to relieve the monotony. As the open summer sun blazed down on him, he stopped for a moment and turned around to survey the afternoon's work. In one vivid moment, everything he had been thinking about and studying synthesized in a novel way, and a daring idea crystallized in this boy's mind. As he surveyed the field he had plowed one row at a time, he suddenly imagined trapping light in an empty jar and transmitting it one line at a time on a magnetically deflected beam of electrons. This principle still constitutes the heart of modern television. Though the essence of the idea is extraordinary simple, it had eluded the most prominent scientists of the day. Yet here it had taken root in the mind of a fourteen-year-old farm boy*". [17]

2) Stories of glory and failure

The second pair of narrative patterns we could identify in analyzing the stories of film and television inventions are those well known stories of glory and success one the one side, and tragedy and failure at the other. While Thomas Edison for film and the tandem Vladimir Zworykin and David Sarnoff for television are two of the most famous success story of the "American genesis", William Friese-Green (film) and John Logie Baird or Philo T. Farnsworth (television) represent the category of the tragic individual inventors, who became the victims of all-powerful industrial magnates or just have been overtaken by technological developments.

Edison

Thomas Alva Edison undoubtedly is *the* emblematic figure in the history of modern technical inventions, and by the same token also a personification of a model seen as profoundly American: here engineering, scientific experimentation, and the – sometimes quite aggressive – commercialization of the product, all come together in an efficiently run laboratory, characterized by its highly organized division of labor. And in fact, the practical realization of the Kinetograph and the Kinetoscope was due to the team effort of Edison's collaborators, especially William Kennedy Laurie Dickson. Edison's initial "flight of fancy" then lead to a systematic exploration, mainly conducted by the team of Edison's assistants: "It was then that a series of experiments was entered upon at the Orange Laboratory, extending over a period

[16] Eduard Rhein: Wunder der Wellen. Rundfunk und Fernsehen dargestellt für jedermann, Ullstein Verlag, Berlin 1935, p. 119f.
[17] Schatzkin: The boy who invented television, p. 17.

of six years."[18] Terry Ramsaye also insists on the almost casual way in which Edison turned his attention to moving pictures:

> "*Edison was working in this year 1886 in his laboratory in Newark […] The phonograph had been worked out rather to his liking in the late months of that year. While he had been tinkering along on it, the notion came to Edison that he would like to give it eyes as well as ears. He dallied with the idea of a machine which recorded and transmitted not only the sound but the sight. He felt it was a somewhat whimsical notion, but that, if it were done, it would be the completion of the phonograph*."[19]

Ramsaye quite probably based his account on Dickson's brochure, but his presentation underscores even more the fact that the Kinetoscope and Kinetograph were of minor importance to Edison: "This picture machine-photograph was something to be done when another playtime came."[20]

With regard to the role of the inventor, Edison plays an interesting part in this account: he is the one who fixes the goal to be attained ("giving the phonograph eyes as well as ears") and which then is pursued by his assistants. But by stressing at the same time that moving pictures were a pastime to Edison rather than a serious endeavor, Ramsaye implicitly also gives an explanation as to why the "wizard" did not bother to 'really invent' cinema. Thus in Ramsaye's account, Edison's genius is at the origin of everything, but he did not have the time to commit himself sufficiently to the idea to go through with it all the way. As for Dickson, for whom in 1895 the future development of moving pictures were not an issue, the same *topos*, serves a different purpose. His characterization of Edison's interest for moving pictures as "a flight of fancy" allows him to at least implicitly claim part of the credit for the results achieved, while Edison still is clearly identified as the one who can lay claim to the initial idea of what had to be done, and who also provided the conditions for this to happen.

The image of the inventor is an ambiguous one here: his being credited for the original idea is beyond any doubt, but at the same time this idea is presented as being of minor importance to him. So in the end it's rather the combined effort of his collaborator working under his command, which leads to a result. The inventor thus appears on the one hand as the necessary source of inspiration, the genius, whose ideas are at the origin of everything. But on the other hand it through patient experimentation executed by the team that a result is finally achieved. The process of invention, in other words, receives a democratic – and maybe even 'American' – dimension: however important the ideas of the genius inventor may be, they only can be concretized – under his guidance, of course – thanks to the joint efforts of his collaborators.

Freese-Green

The English inventor Friese-Greene provides us with the classical tale of a tragic – or maybe melodramatic – narrative. Taking out a patent in 1889 already for a series of photographs on a perforated filmstrip, which was transported intermittently behind a shutter, he was an early contender for the 'invention of cinema', but one who did not manage to go public with it. Presented as an isolated and prolific inventor who, by lack of a sense of business, often faced bankruptcy – which allegedly kept him from renewing his patent on the cinematographic

[18] Terry Ramsaye, *A Million and One Nights. A History of the Motion Picture through 1925.* New York: Simon & Schuster, 1926 (reprint Touchstone 1986), p. 8.
[19] Terry Ramsaye, *A Million and One Nights. A History of the Motion Picture through 1925.* New York: Simon & Schuster, 1926 (reprint Touchstone 1986), p. 51.
[20] Ibid., p. 52.

device – he turns into the tragic figure of the inventor who missed his chance for fame.[21] In the case of Friese-Greene, his death at a meeting of film moguls became nearly mythical. Dying with only about the money for the ticket to the movies in his pocket, this narrative pattern finds a bleak and somewhat absurd climax.

John Logie Baird

The story of the Scottish inventor John Logie Baird refers to a quite similar narrative structure. Baird, who made his first money as independent inventor with his famous "Baird Socks" during World War I, was constantly looking for investors in order to finance his experiments on electro-mechanical television.[22] Even though he managed to stage some sensational public demonstrations of his television apparatus called "Televisor" in 1925 and realized the first television broadcasting of Luigi Pirandello's play "The man with the flower in his mouth" in cooperation with the BBC in 1930, he became the tragic example of the lonely inventor who spend twenty years of his creative workforce in the development of a technology, which – at the very moment of its readiness for commercialization – has been overtaken by a new technology. Baird without doubt successfully improved electro-mechanical television based on the scanning-disc principle near to its technical perfection. But it was just his "pathological commitment" to this technological path (a very well known phenomenon in the history of innovations) that made him blind for new or alternative technological solutions, like the all-electronic television systems developed by Philo T. Farnsworth, Vladimir Zworykin or Manfred von Ardenne[23]. When the BBC in 1936 finally decided to start their regular television broadcasting, Baird's electro-mechanical television system was by some harsh critics already labeled as "archaic".

3) technopolitical regimes and technonationalist tales

The battle for the nationalistic claiming of technological inventions is of course a common phenomenon in the history inventions since the beginning of the industrial revolution. The French-British duo Louis-Jacques-Mandé Daguerre and William Henri Fox Talbot and their struggle for the invention of photography are a typical example of these early nationalistic rivalries![24] 6th of January 1839, an article was published in the newspaper "Gazette de France", in which Louis-Jacques-Mandé Daguerre was presented as the inventor of a new art of "catching the pictures of a camera obscura". On 19th of January, an English report of Daguerre's experiments presented at the Académie des Sciences was published, and only a few days later, on January 31, William Henry Fox Talbot in a vivid speech at the Royal Society reclaimed the invention of the "art of photographical drawing" for his name. In revenge, the Institut de France set the seal on the French creatorship of the invention of photography by reading out an official declaration, making Daguerre the father and eponym of the invention. The secretary of the Académie des Sciences, François Arago, declared:

[21] See Ray Allister: Friese-Greene: Close-up of an Inventor, Marsland Publications Ltd., London 1948.
[22] Malcolm Baird: Television.and Me. The Memoirs of John Logie Baird, Edinburgh 2004, p. 30ff.
[23] For Manfred von Ardenne see his autobiography Ardenne, Manfred von: Entstehen des Fernsehens: persönliche Erinnerungen an das Entstehen des heutigen Fernsehens mit Elektronenstrahlröhren, Verlag historischer Technikliteratur Freundlieb, Herten 1996 and Oskar Blumtritt: The flying-spot scanner, Manfred von Ardenne and the Telecinema, in: Bernard Finn (ed.): Presenting Pictures, Science Museum, London 2004, p. 84-115.
[24] See Boris von Brauchitsch Kleine Geschichte der Photographie, Reclam Verlag, Stuttgart 2002.

> *"France has proudly declared the invention its own and has – from the very beginning – invested all its proudness to generously offer this invention to the world".*[25]

As the examples of film and television do show, France or the French seems to be blessed with a certain sense of mission when it comes to the claiming of great inventions or scientific discoveries.

Lumière

If, from the 1920s on, Louis Lumière – or rather: the Lumière Brothers, even though Auguste's role in all this seems rather limited, as we have seen – was put forward in France as the inventor of cinematography, this claim is not uncontested. An anti-lumiériste opposition championed others such as Etienne Jules Marey, the chronophotographer, or Emile Reynaud with his animated moving images. In these discussions the issue of national glory does indeed play their part. Léo Sauvage quotes Georges Pontonniée intervening in the debates within the French Photographic Society about whom to honor on a commemorative plate to be put 14, Boulevard des Capucines, where the first public and commercial projection of Lumière films had taken place:

> *"Il [M. Pontonniée] exprime la crainte que l'Amérique, l'Angleterre, l'Allemagne, qui toutes trois revendiquent l'invention de la cinématographie, ne profitent de nos dissentiments pour refuser à notre pays le bénéfice de cette découverte et ne mettent en avant quelqu'un de leurs prétendus inventeurs. Il est fort à souhaiter que l'on arrive à se mettre d'accord en France sur une opinion commune."*[26]

This invocation of patriotism in order to defend the French claim to the invention of cinema tries to cut short any debate about other possible French competitors (about competitors *tout court*). Louis Lumière just is the strongest candidate, combining the intuitive inspiration of genius with systematic exploration, successful introduction into the market, and even an original myth, namely the alleged panic that befell the first spectators when watching the film of a train entering a station.[27]

The history of French television is nerved with examples of political instrumentalizations and nationalistic charging. The French were the first to restart with an experimental television service even before the end of the war in March 1945. They could profit from the television service established in Paris by the Germans during the war, the legendary "Fernsehsender Paris".[28] But the German legacy didn't last long. Already during the war, different French television pioneers worked on "high-definition" systems, always with the focus to optimise the picture quality by increasing the line-number (Rother 1994). In 1947, three systems were competing to be adopted as the new French television standard: the 1015-line-system of the Compagnie des Compteurs (C.d.C.), developed by the René Barthélemy, the 819-line-system of Henri de France from the corporation "Radio-Industries" in Lyon and the 729-line-system of Jean Delvaux and Yves Delbord from the "Compagnie Française Thomson-Houston"

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[25] Ibid., p. 31f.
[26] Léo Sauvage, *L'affaire Lumière. Enquête sur les origines du cinema*. Paris: Lherminier, 1985, p. 23.
[27] For a critical analysis of the "myth of the train film panic" see Martin Loiperdinger, "Lumières ANKUNFT DES ZUGS. Gründungsmythos eines neuen Mediums", in: *KINtop.Jahrbuch zur Erforschung des frühen Films*, 5, 1996, pp. 37-70, and Stephen Bottomore, "The Panicking Audience?: early cinema and the 'train effect'", in: *Historical Journal of Film, Radio and Television*, 19, 2, 1999, pp. 178-216.
[28] On the "Fernsehsender Paris" see Petra Truckendanner: Der Fernsehsender Paris. Deutsch-französisches Okkupationsfernsehen (1942-1944), Dissertation University of Salzburg / Austria 1998.

(CFTH).[29] The French minister of information, François Mitterand, finally took the decision in favour of the 819-line-system of De France in 1948. But the 4-year lasting debate about a black and white television standard in France had long-distance effects on the further television development. On the one hand, the uncertainty about the technical characteristics enabled the French television industry to invest in the large-scale production of television receivers, so that the French missed the bus to the other leading television nations as Great Britain and the United States (Pierre 1981). On the other hand, the politically motivated decision to adopt the 819-line-standard was taken exactly with the intention, to secure French television industry from foreign competition. In a note entitled "Summary report about the situation of French television and its possibilities of extension", the French Member of Parliament Max Brusset wrote:

> *It is the national interest in military defence as well as the protection of our industry that motivated the decision of the French Government and Parliament to choose a line-standard different from those chosen by other industrialized countries. This decision not taken by our Government and Parliament, the French market would have been the easy booty of the big foreign trusts, because of the retardation of our local industry caused by the destructions of war making any competition impossible (Brusset 1948).*[30]

During the industrial fair in Berlin in October 1950, Stéphane Mallein, technical director of the French television broadcasting R.T.F., tried to convince his West-German colleagues to adopt the French line standard. In a classical Cold War-rhetoric, Mallein argued that the French norm would be the best weapon to fend the Soviet propaganda invading the country from East-Germany. The norm-frontier as Iron Curtain – a technopolitical metaphor that emerged in exactly the same argumentation during the so called "colour television war" some fifteen years later![31] Under state supervision and with the prominent political and symbolic support of the French President Charles de Gaulle, the Franch colour television system SECAM was heavily promoted as a symbol of French modernity. As a "champion national", the SECAM-system perfectly symbolized the "politique de la grandeur" of the General de Gaulle, demonstrating the successful endeavours of the French policy of economic and industrial planification. In his matchless rhetorical talent, Charles de Gaulle declared on the 20th of April 1966 :

> *«Et enfin, il y avait une valeur de prestige, d'intérêt national, qui s'attachait à tout ça, notamment notre prestige auprès des pays du tiers-monde; il s'agit de montrer que notre pays, qui a la réputation d'être le pays des parfums, des fromages et de la mode, est aussi une grande nation scientifique et technique. [...] Le SECAM, c'est une carte de visite pour la France».*[32]

One could easily quote a lot of other examples, demonstrating this French sense of mission. The historical closeness of the French state with certain academic institutions (ENA, Ponts et

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[29] See Marc La télévision: hier, aujourd'hui et demain, Paris 1977; Andreas Fickers: National boundaries for an « imagined European community » ? The technopolitical frames of postwar television development in Europe, forthcoming in: Nothern Light (2005).

[30] Brusset, Max. 1948. „Exposé sommaire sur la situation de la télévision française et ses possibilités d'extension". *Archives Nationales*, signature F-41 / 2303.

[31] See Michael Rother: „Großtechnisches System und nationale Interessen: deutsches und französisches Fernsehen in der Auseinandersetzung um die europäische Norm 1948-1952". In *Bausteine III. Beiträge zur Ästhetik, Pragmatik und Geschichte der Bildschirmmedien*, edited by Helmut Kreuzer & Helmut Schanze, Edition Sigma, Siegen 1994, p. 147-154..

[32] See Alain Peyrefitte: C'était de Gaulle. Vol. 2 : La France reprend sa place dans le monde, Paris 1994, p. 544.

Chaussées), the dense network of favoured relationships between the political, industrial and cultural elites has – time and time again – facilitated the emergence of so-called "techno-political regimes", consisting of linked sets of people, engineering and industrial actors, politicians and public service authorities.[33]

Nipkow and NS-television

The Nazi-regime can certainly being subsumed as a very special form of techno-political regime. NS propaganda claimed the „miracle of television" a national engineering feat and dramatised it as a great achievement of German technology and science. The Berlin Olympic Games of 1936 were the first ones ever broadcast live by television: about 150.000 people in Berlin could attend a daily television programme up to eight hours in 28 so called "television halls", public viewing rooms for about 50 to 100 spectators.[34] Already one year before, the Reich Director of Broadcasting, Eugen Hadamovsky, had declared open the "first broadcasting in the world with regular television programming". In his speech from March 22nd 1935, Hadamovsky left no doubt about the cultural mission and first of all the political goals linked with the new technology: "Now, in this hour, broadcasting is called upon to fulfil its greatest and most sacred mission: to plant the image of the Führer indelibly in all German hearts".[35] As Monika Elsner and Thomas Müller have shown, the inauguration of a regular television service in Germany was part of the National Socialist eagerness to claim the superiority of German technology.[36] Nazi officials and technicians were driven by their ambitions to "beat" the British and to be the first nation on earth to start with a regular television service. It is worth noting that the real television service in the mid- and late thirties remained an experimental playground for a handful ambitious television engineers and writers, and – most important – a medium without a public.

But it is exactly the rhetorical stylization of television as a National Socialist technological myth and its political staging as a technology in the service of the nation that is of cultural importance for the analysis of the presentation of German television at the Paris World's Fair in 1937. What matters is the political vision of all three of the responsible institutions in the development of television – the Post Office, the Ministry of Propaganda and the German radio industry – to stage television as another force for the building or stabilization of the German "Volksgemeinschaft". In the concept of the National Socialist propaganda theory, the group reception of television in the television halls ensured a consistent interpretation and minimized aberrant negotiations of meaning. The collective act of viewing was an activity *shared* with others and therefore predestined to reinforce the cohesion of the German people.[37] It's within this double symbolic connotation that one has to interpret the promotion

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[33] See Gabrielle Hecht: The Radiance of France. Nuclear Power and National Identity in France after WWII, MIT Press, Cambridge 1998.

[34] On television at the Olympic Games in Berlin see Gerhard Goebel, Vor vierzig Jahren. Fernsehen während der XI. Olympischen Spiele in Berlin, in: *Fernsehinformationen*, Vol. 12, 13, 14 (1976), p. 264-67; 294-296; 313-314.

[35] Due to the initiative of William Uricchio, a special issue of the Historical Journal of Film, Radio and Television (Vol. 10 (1990), Issue 3) has been dedicated to early German television history. A German compendium with these texts was published one year later. See William Uricchio (ed.): Die Anfänge des deutschen Fernsehens. Kritische Annäherungen an die Entwicklung bis 1945, Tübingen 1991. For a deep-going historical overview see the dissertation by Klaus Winker: Fernsehen unterm Hakenkreuz. Organisation, Programm, Personal, Köln 1994.

[36] Monika Elsner, Thomas Müller: The early history of German television: the slow development of a fast medium, in: *Historical Journal of Film, Radi, and Television,* Vol. 10 (1990) Issue 3, p. ?

[37] See William Uricchio, Television as History: Representations of German Television Broadcasting 1935-1944, in: Bruce A. Murray / Christopher J. Wickham (eds.): Framing the Past. The Historiography of German Cinema and Television, Southern Illinois University Press, Carbondale / Edwardsville 1992, p. 167-196, here p. 171.

of German television in Paris: first to read television as nationally charged technology, and second to interpret it as a medium for the construction of the imagined German "Volkskörper" (body of nation). But television was not the only techno-nationalist tale invented by the Nazis. As the example of Max Skladanowsky shows, the film too was promoted as a "typical German" invention and harshly defended against French pretensions.

Skladanovsky and the German film

Max Skladanowsky managed to build a camera and a projector allowing him to present a film program in Berlin in November 1895, just a few weeks before the Lumière Cinématographe had its public première in Paris. He also is a more isolated figure. Coming out of a family of lanternists, he built is Bioskop as a projection device which would appear as a special attraction in a variety show, and not, contrary to Edison for instance, for future mass production (the complicated way in which his projector functioned would have formed a major obstacle). From the mid-1920s on, Skladanowsky (around the time when the 30th anniversary of the invention was to be celebrated) more and more insistently claimed that he was the first to have publicly projected life-size moving images, and thus challenged the Lumière's priority and led to a French-German dissent.

Since even in Germany there was quite some opposition to this claim, the discourse championing Skladanowsky concentrated on the idea that Skladanowsky had independently created his invention, a view presented in 1934 by a Professor of Theater Studies in Cologne, in his publication *Der "Film"- eine unabhängige deutsche Erfindung*, which again met with quite some resistance in Germany, especially since Oskar Messter was now put forward as having created a German film industry working exclusively with German machines. Messter had introduced the Maltese cross, also called "deutsche Schaltung" into film projection:

> *"Und so hat dann auch ein anderer Deutscher im Jahre 1896, zu einer Zeit, da Lumières Apparat noch geheimgehalten wurde, selbständig alle Voraussetzungen zum Aufbau einer ausschließlich mit deutschen Geräten arbeitenden Kinoindustrie erfüllt: Oskar Meßter."*[38]

Another aspect of the nationalist discourse surrounding Skladanowsky explicitly accuses the French to have boycotted the Bioskop's international career. Legend has it that the première of the Cinématographe made the Folies-Bergère cancel Skladanowsky's act:

> "*Wahrscheinlich war es nichts anderes als der berechtigte Nationalstolz der Franzosen, die am 1. Januar 1896 keinen Deutschen mehr auftreten lassen wollten, da vier Tage vorher die öffentliche Geburtsstunde des französischen 'Cinématographe' geschlagen hatte*."[39]

Conclusion

Looking at the various case studies shortly developed above, one can conclude that both the process of invention and innovation as well as its history seem to follow certain patterns of

[38] „At a time when the Lumière apparatus was still under secrecy, another German raised by himself in 1896 all the conditions for a film industry, working with exclusively German devices: Oskar Meßter". See Rudolf Oertel, *Filmspiegel. Ein Brevier aus der Welt des Films*. Wien: Wilhelm Frick Verlag, 1941, p. 67.

[39] „It was probably nothing but the justifiable French national pride that hindered the appearance of a German at the 1st of January 1896, because of the public announcement of the hour of birth of French "Cinématographie" four days before". Idem.

narration. We think that the international saga of invention and innovation of film and television can be read as a serial technological drama. Following Brayn Pfaffenberger, we argue that these narrative patterns do not only characterize the historical storytelling about acts of inventions and processes of innovation, but that the technological artefacts themselves implicitly have the momentum of shaping specific paths of development.

> "*To emphasize the metaphor of drama, too, is to employ a richer metaphor than text. It is to emphasize the performative nature of technological 'statements" and 'counterstatements', which involve the creation of scenes (contexts), in which actors (designers, artefacts, and users) play out their fabricated roles with regard to a set of envisioned purposes (and before an audience), and it is also to emphasize that the discourse involved is not the argumentative and academic discourse of a text but the symbolic media of myth (in which scepticism is suspended) and ritual (in which human actions are mythically patterned in controlled social spaces.*"[40]

The three recurring narrative patterns discovered in analyzing the history of invention and innovation of film and television - the metaphorical description of the of the act of invention, the (melo)dramatic accounts of glory and failure in the process of innovation, and the mythical charging of technology in techno-political regimes – perfectly demonstrate the "symbolic media of myth and ritual" and show the performative nature of the technological artefacts film and television. Finally, a google search on "inventor of film / television" reinforces the statement of Eric Barnouw quoted in the introduction, claiming that the process of film and television invention is a serial drama "that often seemed to reach its climax only to confront us with the message 'to be continued'".

[40] Brayn Pfaffenberger: Technological Dramas, p. 286.