Projected Cinema (A Hypothesis on the Cinema's Imagination)

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When one examines very different kinds of statements (*énoncés*) (scientific and technical documents, works of popularisation, legal, moral or political texts) written during the 19th and 20th centuries and not belonging to mainstream institutions or practices dealing with the technology involved in recording, reproducing and transmitting sounds and images, one finds a considerable literature devoted to the field – whether novels, tales, amusing or illustrated stories, sketches, and so on. They are peripheral in relation to the institutional field (covering invention, exploitation and spectacle) but 'exploit' the technical objects of communication within their own space – and their stories – and imagine new objects to suit their anticipatory nature and purpose.

Despite their apparently secondary or even futile place – one might think that they are reduced simply to quoting or using what science and technology have implemented – they nonetheless have their own worth, which, in the perspective I shall develop here, is comparable to that of the others.

In both newspaper articles and academic papers on the cinema and later on television, reference was quickly, and increasingly often, made to the most famous of them – Villiers de L'Isle Adam's *Tomorrow's Eve* – joined more recently by Jules Verne's *Carpathian Castle* and Adolfo Bioy Casares's *The Invention of Morel* – for their presentiment about 'the' or 'a' cinema to come.

But there are other works that have been catalogued within the genres of science fiction, or futuristic (anticipatory) and utopian works.[1]

When one looks anew at this sundry and multifarious set of works, one finds – when taking the widest possible perspective – at least two grounds for pursuing research: a) the texts do build up a diegetic universe – there is thus verisimilitude, capable of making the reader believe in the world put forward – which they fill with technological objects that are seen as everyday and ordinary, to be used by one and all and thus even commonplace; b) the anticipatory gap – sometimes of only a few years, sometimes a century – or the geographical distance (a mysterious island, another planet) underline certain characteristics of these objects whose functions and properties are 'prolonged' as they are developed and perfected in relation to the present moment (of the writing).

These two points merit further attention as they provide clues to the place occupied by these technical objects in everyday life of the period under consid-

eration, what is expected of them, and the way in which one may apprehend them – i.e., their intelligibility framework. On the one hand, by stripping them of their experimental and exceptional nature, they are inscribed in a technical imagination, linking them with general (i.e., intellectual, scientific or para-scientific, moral, etc.) categories that define their social dimension. On the other hand, it can be said that this literature provides technologies that are still maturing or on the drawing board with a space for experimentation, allowing unproved hypotheses or scientific facts to be linked together (astronomy and photography, for example).[2]

One may conjecture that thanks to these two aspects, 'futuristic' literature not only takes part in the genesis of the technical invention, but also determines some of the total number of directions and ways in which it may develop.

Henri Fescourt and Jean-Louis Bouquet noted in their pamphlet entitled 'I'Idée et l'Écran' that:

> at a time when the idea of the submarine had already been floated, Jules Verne drew up the plan of his *Nautilus*. It remains the work of a novelist, however ingenious we may find the description. It did not contribute so much as an iota to solving the problem, and in the end Gustave Zédé had the merit of realising it.
>
> You say that it is a period of precursors? It is above all a period of novelists.[3]

The authors are correct in their judgement that Verne did nothing to further the actual technology of the submarine, but they are wrong to underestimate the contribution of the novel and the invention 'on paper'.[4] Fictions and images give body to a hypothesis and fully develop its logic. Today's practices of 'projecting' data backed up by figures to construct 'models' (on climate evolution or the spread of cars in China), which, moreover, correspond to 'scenarios', belong to such a rationale.

In the most marked projects put forward in these works, the technical invention is a key element of the fiction. In less marked cases it is part of the diegetic universe, one of the series of paradoxical clues embodying the impression of reality of the future. The two can be found in the same work – in the first part of *Tomorrow's Eve* (1878-1886), we see Edison in his everyday life with the commonplace usage to which he puts the voice transmission devices or writing apparatuses that he has invented.[5] Then one reaches his sensational invention – the android – which outstrips these 'gadgets' from every point of view.

It is instructive to examine a less well-known novel by Jules Verne – *l'Île à hélice* (*Propeller Island*, published in 1895) – that has attracted less critical interest than his most famous books. Unlike his *Paris au XXe siècle* (*Paris in the 20th Century*, published posthumously but written before 1863), the fiction is only projected forward in a near future a few years hence. Moreover, the key issues have nothing to with communication or sound and image reproduction, which

are omnipresent in the world of this island of the future and its capital, Milliard City, where everything works by electricity. There are three communication devices: the *teleautograph*, which carries writing in the way that the telephone carries speech;[6] the *kinetograph*, which records movements; and the *telephote*, which reproduces images. In addition, thanks to the *theatrophone,* one can communicate with the theatres of America and Europe, and music – a 'therapeutic agent … exercising a reflex action on the nervous centres' and the effect of whose 'harmonious vibrations dilates the arterial vessels, influence the circulation, increasing or diminishing it' – is transmitted to people's homes by *telephone* from 'musical energy stations'. *Libraries* contain 'book-phonographs' that one does not need to read: 'one presses a button and hears the voice of an excellent storyteller who reads'. *Newspapers* are printed on an edible mixture with chocolate ink – 'once read, one eats them for breakfast' – and the 'news' is 'displayed' *telautographically* on facades.[7] Among other objects, one finds 'a talking watch, a phonographic watch', and all the inhabitants are equipped with a device enabling them to keep track of

> [their] constitution, [their] muscular strength measured with a dynamometer, [their] lung capacity measured with a spirometer, the force of contraction of [their] hearts measured with a sphygmometer … [their] degree of vital strength measured by a magnetometer …

Most of the technical objects mentioned above can be related either to existing devices (the theatrophone invented by Clément Ader in 1881, Edison's kinetograph dating from 1890) or planned (the teleautograph) or imagined apparatuses (the telephote, an imaginary machine introduced by du Montel in his *Microphone, radiophone et phonographe* of 1882) – and, of course, the instruments for measuring the body, all of which were borrowed from Marey – and it can be noted that they all function on the basis of *transfers* and *montage* between technical objects. Thus, adapting the words of Edison ('do for the eye what the phonograph does for the ear'), the kinetograph is described as doing for the image what the phonograph does for sound; similarly, the transmission of images and writing uses telephone technology which here – with the example of music at home – takes the place of radio. The other process introduced is the *hybridization* of technical objects. Verne was quick to introduce the technology of the 'theatrophone', but his friend Albert Robida, in *Le Vingtième Siècle* (*Paris in the 20th century,* 1882), developed a 'new' transmission technology with the *telephonoscope*, capable of directly transmitting a spectacle, the image of a correspondent, or an event by combining the theatrophone, photograph and the projection lantern.[8] And Didier de Chousy went one better in the following year (1883) by dreaming up the *telechromophotophonotetroscope*, which 'electrically' reproduces 'the face, speech and gestures of an absent person'.[9]

All these existing, projected or imagined devices have in common technical and technological means that people wished to see realised or generalised.

Fifteen years after Verne, Octave Béliard evoked 'La Journée d'un Parisien au XXIe siècle' – 1 December 2010 – in *Lectures pour Tous*,[10] where Edison's devices were multiplied and generalised: a 'phonograph-alarm', a microphone in a bed-side table for ordering breakfast, the morning papers that one 'listens to'. All houses are connected to an information centre providing news from the world over at all hours (night dispatches, general news items, political and commercial information, scientific articles, literature in serial form, critical pieces). At work, everything functions by telephone, and workers' movements are reproduced by a 'dynamometer-recorder' that calculates the hours worked. The portrait of a suspect is projected on screens in the streets and transmitted to all points of the globe by wireless telegraphy. The screens are refreshed. One character says: 'I am stunned to think that at this very moment, the same infinitely multiplied traits are being imprinted on millions of sensitive plates … No man is too small not to be connected to the universe by the telephone, the telegraph and even the *telephote* – which is wireless of course'.

Béliard's contemporary, Guillaume Apollinaire, speaks of Louis II of Bavaria in his *Roi-lune* (*The Moon King*, 1916) – of which more will be said later – who uses 'giant copper pinnae [sticking out] of the wall' to listen to nothing less than the murmuring of the world thanks to microphones connected to it. With the help of a device equipped with a keyboard, the monarch can press on whatever key he chooses and hear the sounds transmitted from the whole world (Papeete, Rio de Janeiro, New Zealand, America, China, Chicago, New York, Bonn …): in Tripolitaine, 'around a bivouac fire, Marinetti practised speaking pidgin while the troops of the House of Savoy surrounded him in soldierly manner, ready to defend him in the improbable event of an aggression, firing a few onomatopoeic salvos, and clarion calls echoed around the camp' … One can go on 'a tour of the auricular world – while remaining immobile'.[11]

In a parody of Villiers's novel, *Josuah Electricmann*, written in 1883 by Ernest d'Hervilly, a generalised system of connections of worldwide information was extrapolated from the telephone and telegraph, with a 'network of conducting wires corresponding to all the telegraphic stations of the globe combined with a "scribograph", "mechanical secretary"', etc.[12]

René Barjavel, in his 1941 novel *Ravage* (translated as *Ashes, ashes*), provides us with a third example, as does science fiction written in the 1950s (Philip K. Dick, Pierre Boulle, Ray Bradbury, etc.) up to the present time – the observations one can make would be similar, even if the technical references have evolved along with technological developments.

Whatever the futuristic framework of such novels, there are a certain number of 'convictions', beliefs, values or fears that are consistently present. The voice

taking over from the written word, for example, is one of the most widespread ideas, going back at least as far as Cyrano de Bergerac in his journeys to the moon.[13] To which one can add the general distribution of music, instant news from the world over, services available at home, etc., all 'values' that the Internet has borrowed from the end of the 19th century and multiplied. Finally, one may note the idea of generalised surveillance – thanks to the preservation of images by light (Flammarion), by means of observation by optical devices and finally by dint of various means of diffusion.

These examples clearly show that the division between different media and technologies – such as has been established and developed (to the point where scholars have theorised on the processes of *remediation* or today envisage new distributions with regard to the new digital technology and what it allows) – has not been 'respected' by the authors of these writings, as they systematically widen the functions given to these technical objects, just as they do not 'respect' their 'specificity' but cross their characteristics, turning them into hybrid technical objects. This provides us with precious clues about the world of technical imagination, the conceptual and social frameworks (categories and ideologies) that were prevalent when such techniques were 'imagined' – which, on the basis of specialisation developed later, we tend to believe were created within the restricted, autonomous and specialised framework that has become, or is to become, their own.

We shall come back to this 'turnaround' in the theory and historiography of the cinema and other communication media (television, Internet …), for the hypothesis of envisaging a '1900 episteme' proceeds from the conviction that, contrary to the ever narrower focusing on the 'specificity' of a medium, it is useful to widen the domain it belongs to, to consider it within a broader framework, in a way to 'dissolve' it in accordance with the categories that pass through it and that link it to other categories.

Turning now to fictional texts that 'invent' new technologies more vividly than the previous ones, one can classify them according to several trends – the visualisation of the past, direct transmission (ubiquity), the virtual image, and 'audiovisual' cloning.

The audio-visualisation of the past is clearly the dominant fantasy produced first by photography and then phonography. Since today we can fix, i.e., make fast, the appearance of the present – which tomorrow will belong to the past – could one not fix a past that happened before the arrival of photography and phonography? Villiers's Edison deplores the fact that he has 'arrived too late'.

The fixing of images and sounds and their free repetition transform the relation to time, making possible a claim, which is made possible by the contemporary discoveries in astronomy and their effects on the understanding of the nature of light.[14] Camille Flammarion was the dominant figure in the field of

scientific popularisation, but also its extensions towards science fiction and even parapsychology.

In the 1860s, Flammarion became interested in the question of the 'delay caused in our observations of aspects of stars by the time that luminous rays take to come to us' and, consequently, in the fact that these rays 'tell us the ancient history of these stars' – as Arago put it.[15]

One of the conclusions that Flammarion drew from the observation of this 'delay' and the 'journey' of luminous images was the persistence of these images of phenomena 'in the cosmos': 'nothing is destroyed,' 'at the moment when [an] act has been accomplished, light seizes it and carries it into space at lightening speed. It is incorporated with a ray of light; becoming eternal, it eternally be transmitted in the infinite'.[16] But Flammarion was above all fascinated by his hypotheses on 'the plurality of inhabited worlds' – he wanted to take off from earth and favoured the intersidereal voyage. In *Lumen* (1884), his speculations about retrospective vision incorporated the movement of the observer, who goes back in time faster than the speed of light, whereas synchronising the speed with the speed of light allows him to isolate a picture. Flammarion thus does not speculate on the means of capturing and recording the images that surround us. This, however, is the case of the many stories dealing with the question of the capturing device or developer screen allowing one to visualise and then record these itinerant images.

In the majority of these stories, the narrator is the scientist who provides scientific explanations of the phenomena that happen (theory) and of the apparatus he has designed to observe and fix them (technology). These characters and their discourses are constructed by adapting what was being said at the time in scientific circles – as can be seen by the appearance of Edison 'in person' in some of these stories, or the repeated references to him ('the French Edison'). There again, as in the case of the 'Nautilus', rather than looking at the explanations, inventions and discoveries of these scientists, it was more important to link them to the concepts making them possible – thus with less emphasis on the *solutions* and more on the *questions* from which they stem.

In the examples examined here, these scientists belong respectively – or simultaneously – to the fields of chemistry, astronomy and physics.

When reasoning is developed on the basis of the theory that analyses images as a reflection of the light of a body, we have noted that it is astronomy that provides the hypothesis of capturing images of the past by means of the time gap between the emission and reception of the light emitted by far-off stars.[17] Then physics is required to design devices to observe and capture images, and chemistry necessary to find sensitive supports on which these emissions of light may be developed and recorded.

The reasoning behind these stories was summarised in exemplary fashion by Maurice Renard, who had undoubtedly read Flammarion:

> The past exists always in the order of light and the optical; but up to now, our past, that of the inhabitants of the Earth, has not been available to our own eyes. That does not prevent it from going on and on visually, like all pasts where light reigns. Thus when we observe the stars, it is their past that we see. For, despite its speed of 3,000 kilometres per second, it takes light years to come to us from the nearest star, in other words to send us the image of that star. Consequently, in the firmament we only see the stars such as they shone ten, twenty, fifty or one hundred years ago, according to the distance separating us from them, and not such as they shine at the moment when we contemplate them.[18]

Clearly, the problematic of the *instantaneous image* that arises in photography, causing the very definition of photography to be redefined[19] (particularly in relation to Niepce's first experiments where the exposure time records the passing of time – or later those of Nègre), is correlative to that of the *gap*, the delay made possible in the imaginary world of image capturing of what is no longer present at the same time as the camera, whereas on the contrary, the instantaneous image exacerbates this simultaneity of existence in the guise of immediacy.

For further examples of the problematic of the audio-visualisation of the past, aside from Maurice Renard's *le Maître de la lumière* (*The Light Master*, 1933), which puts forward a precise and original dispositive to reach images from the past: the 'summaries of the past', rear-view mirrors or developers, heavy and very thick opaque plates made up of an infinite number of very thin black or luminous lines and others that are light or dark.[20] Three novels have been chosen: Guiseppe Lipparini's *le Maître du temps* (*The Master of Time*, 1909), Maurice Leblanc's *les Trois Yeux* (*The Three Eyes*, 1920), and Léon Daudet's *Bacchantes* (1931).

Using the character of Professor Antonio Schwarz, Guiseppe Lipparini[21] evokes the question of the 'photography of time'. Following a handling error during astronomical observation, images of the past appear. However, the explanation of the phenomenon introduces a new parameter of the *energy* developed by each body in movement. The hypothesis is that the energy must 'subsist'. In other words, each of man's acts corresponds to a *projection* of that act *in space*, which, as Flammarion wrote, is preserved in time. The cinematograph confirms this law of projection (in space) / preservation (in time) for: 'the surrounding air is a veritable cinematograph where thousands of successive projections intersect and merge'.[22]

Schwarz thus sets out to find a receiver, which will enable him to *reconstitute* the act that has produced these projections. The instrument, close to the human

eye, is a dark room. The task then becomes to 'coordinate the dispersed and blurred images, and give back and restore their initial continuity'.

In Maurice Leblanc's novel,[23] the scientist, Noël Dorgeroux, is a chemist, and he simply contributes to the visualisation of images from the past that the Venusians, who have received them by reflection, project onto the earth. This thus involves finding a screen and a developer for 'photograms' that once again are present in the surrounding air.

In both cases, the existence of millions of invisible images and sounds circulating in the atmosphere is the result of assimilating these two phenomena with the Hertzian waves of wireless communications. While both the telephone and the telegraph foster an imaginary world of transmission by means of electric impulses, a current moving through some carrier (however thin this may be, such as a cable or a wire), radiophony implies moving to a different physical element, that of flux by emission in the air with neither carrier nor energy, aside from the initial energy of the waves.

This aspect of the waves of time carrying the past is exactly what Léon Daudet highlights when creating his physicist and 'French Edison', Romain Ségétan. The waves can be compared to 'sound vibrations' – they interpenetrate without merging, appear and disappear. The aim here is to capture them, and to do so Ségétan designs a device called Dyonisos – there is scant detail about this device, but we do know that it works in 'zones of predilection' for 'long-duration waves, sites that are positively haunted'; they are placed close to 'certain areas of the skin that are especially accessible to sensory hyperaesthesia'. The emphasis that is put on the 'vibrations' and 'waves' – rather than on the preservation of the images as such (and thus projected either from the past or from elsewhere [Venus]) – causes him to adopt a mental model of vision rather than an optical one. The theories about the skin's hyperaesthesia and vision via the skin were developed by Louis Farigoule [Jules Romains] in 1919, in a work that was singular compared to what he was later to write and which found little favour.[24] Clearly, Léon Daudet – who had trained as a doctor – was familiar with it.

Guillaume Apollinaire took an early interest in the cinema – his scenario, *la Bréhatine*, and his short story, 'Un beau film' ('A beautiful film', published in *l'Hérésiaque*), parody action films with sudden changes of fortune in the way that his contemporary, the humorist Cami, did. He also wrote two much more interesting texts entitled 'Le Toucher à distance' ('Distance Touch') and 'le Roilune' ('The Moon King').

The first story evokes a 'messiah' capable of simultaneously being in a series of different places. He has designed a machine that *combines* the cinematograph, the phonograph, the telephone and the telegraph and thanks to which he can be *duplicated* in as many places as he likes, on condition that he has placed a receiver there shaped like and the size of a nail. Not only do image and sound ap-

pear in these various places, but also a three-dimensional figure that can be touched (thus he regularly meets his mistress for their weekly rendezvous without her suspecting that he could be at the other end of the world – and he even manages to give her three children). When the narrator fires six shots from a revolver at what he believes to be the character's 'double', the latter dies simultaneously in 800 different places worldwide. Duplication and ubiquity are thus the parameters of this story.

In *The Moon King*, Apollinaire speaks of devices that do not project images, but that plunge their users into a virtual world. The images are of famous women from history (Cleopatra, Heloise or Lola Montez, etc.) are called up ('a naked body smiling voluptuously at him takes shape before his delighted eyes') and offered for the users' sexual pleasure ('The hands of the young people stretched out in front of them and wandered, as if they were fondling lithe, treasured bodies, their mouths gave enamoured kisses to the air. Soon they became more lascivious and spiritedly united with the void').

The machine is an extrapolation of the phonograph (with which it shares the turning 'cylinders'): there is a recording of the past, which is reiterated for individual use – implying a certain interaction with the machine. But, above all, it breaks with the belief in the 'communication' with the images of the past by introducing the fact that 'I could look at, touch, in a word I could pleasure the body within my reach, whereas the body had no idea that I was there, as it had no *present* reality'. The capturing of images of people from the past (great inamoratas) in improbable situations (sexual pleasure) produces a present, simulated activity that is really felt (moving from simulacra to simulation).

Finally, the symbolist Saint-Pol Roux, with his 'living cinema', announced a screenless cinema, removed from the platitude of being shown, going all over the world as anyone may, simultaneously painting and sculpture – and opening up to 'Immortality'. This is the cinema of tomorrow. Up till now, the image was reflected, but in tomorrow's cinema it will be crystallised, taking the place of and supplanting biological reproduction, it is the vector of a super-humanity that is reproduced by the sound and image technology. Saint-Pol Roux thus adds the production of 'doubles' – cloning – to the simultaneous presence of the living and the dead.

Conclusion

Gilbert Simondon's reflections on the 'modes of existence of technical objects' and, more precisely, on the linking of 'imagination and invention' help one to

understand the 'genesis' of the invention constitutive of it, or even that 'the genesis of the technical object is part of its being'.[25]

His reflections on the definition of the technical object meet those developed by Georges Canguilhem on the history of sciences, stressing the origin of the concept rather than its beginning, the origin always being indebted to causalities that are outside what would be considered a 'logic of science'. Thus, the concept of reflex did not arise within scientific discourse as if by internal engenderment (of the Hegelian type), but in the context of pathology and the clinic.

In what condition, asks Simondon, can the technical object be called such? It is not when I contemplate it, not when it is simply used, not even when it is considered objectively from the point of its use and functions, or considered according to its physical structures: it is the knowledge of the concretization of the technical object that constitutes it as such.

In this genesis, there is the imagination, the project and the conception – Simondon calls it an 'image-producing genesis' – which has a virtual dimension.

> When it does not 'go wrong', the invention can be distinguished from the images that precede it by the fact that it brings about a change of scale – it joins the middle, which it organises. An invention is an image that has succeeded, that has become concrete.[26]

The interest of fiction is not so much that it 'announces' or 'prefigures' what is to come (its prophetic quality) but that it takes part in this genesis, doubtless more on the side of 'creativity', which is syncretic, disorderly and abundant – while the 'invention' is discontinuous, spread out over time and through history.

Moreover, to the extent that such fiction borrows or experiments – purely in writing – on the basis of the state of knowledge or current projects, it has the faculty of shedding light on some dimensions of existing technologies that are a source of inspiration, but that history, in its catalogued form, has not retained, in that it has favoured use alone, thereby crushing other possibilities.

There are at least two aspects to these dimensions: the potential proper to a medium or machine (once the move from hand-building or prototype to generalisation has been made), and the social, imaginary or pragmatic expectations that both receive and solicit it.

In an article published in *Paris-Soir* on 8 May 1925, Maurice Renard commented on the notion of *anticipation* in literature and came up with the ad hoc expression of *anticipation as a fictitious solution*:

> By using new data, by prolonging into the future the presumed continuation of research underway, writers with methodical imaginations delighted … in *giving fictitious solutions* to certain problems that people had been facing for centuries, and other problems that had only just arisen through progress. They skilfully busied themselves with imagining the *advent of possibilities*, some of which were desirable and others appalling; in short, they absorbed themselves in *anticipations*, a word used first by

> Wells in this way (but he had predecessors: Poe, Villiers, Verne, Flammarion, the elder Rosny).[27]

In these 'anticipations', the narrative framework is a frame that *allows* the extrapolations authorised by the object under consideration to unfold.

By understanding the 'cinema' at the time of its advent through the representations of it that are provided in fictional works, to envisage it as a field of possible developments, in its extension, one may define its very concept beyond the empirical definitions that have held sway.

This approach leads to a reordering of how things are divided up between different media and the borders between them, and hence their respective chronologies. Thus, the extremely rigid partition between 'cinema' and 'television', which go through their respective values and purposes of *recording*, *storing* and *deferred repetition* on the one hand, and *transmission*, *simultaneity* and *contiguity* on the other hand, simply *retro-projects* later (and current) distinctions that have been established by society, and which depend on choices, within the mediums and media under consideration for the purposes of specialisations, profitability, and so forth.

By examining 'utopian' novels or works of extrapolation, one can measure just how far these later specialisations – whatever their importance may have been – have consequently retro-projected borders and chronologies by considering the media separately.

The outline of developments postulated by the first historians has contributed to this overshadowing by making the very overshadowing seem like a natural process – but certain theories of semiology or theories of intermediality do likewise when they set out the 'phases' and successive modalities that these media have passed through, thus slotting them into periods but without inscribing them into a broader space of intelligibility.

Notes

1. See, for example, Pierre Versins in his *Encyclopédie de l'utopie et de la science-fiction*, Lausanne, l'Âge d'Homme, 1972 (2nd edition 1984).
2. One of Edison's inventions mentioned in passing in *Tomorrow's Eve* is an instrument used to 'measure the heat of starlight' (p. 156). Measuring the light emitted by extinguished stars: 'the man who looks up and admires the stars is often looking at suns that no longer exist, which he nonetheless perceives as a result of that phantom ray, darting endlessly through the illusion of the universe' (p. 156).
3. Henri Fescourt and Jean-Louis Bouquet, 'L'idée et l'écran. Opinions sur le cinéma', préface de Francis Lacassin, *Archives* 99, November 2006. Jules Verne knew both of the American Fulton's submarine project (1798) and of that of Delonney who, in

1859, registered patents that had no practical applications. Seventeen years after the novel was published, the French naval engineer Gustave Zédé (1825-1891) perfected an operational submarine propelled by electricity and armed with two torpedoes, called the 'Gymnote' (1887).

4. One may ask where a project develops if not on paper – and how does one 'demonstrate' it if not on paper by means of the description of an experiment – its narration, its description?
5. For example, the telephonographic link with his secretary (he does not reply directly but by means of a recorded message, and calls the secretary by identical means) following the transmission of a written dispatch ('fax').
6. In this novel, which was only published in 1994, there is talk of the 'photographic telegraph, invented last century by Professor Giovanni Caselli of Florence, [which] allowed one to send over distances the facsimile of any writing or drawing and thus sign bills of exchange or contracts at five thousand leagues' distance' (p. 70).
7. In *Les 500 millions de la Bégum (The Begum Millions*, 1879) where the ideal city, France-Ville, built from scratch in the desert in the south of Oregon – again a kind of island – not far from its evil twin city, Stahlstadt, the City of Steel, built by a German despot and scientist with the sole aim of destroying everything that is not Germanic on earth, with the hygienic, peace-loving and Eden-like France-Ville first on the list.

   The organisation of the 'futuristic' city includes ultramodern architectural, urban, industrial and agricultural dispositives (with the primary concern of excluding all morbid germs from the city) and thus a number of advanced technical objects in the field of communication – a very developed telephone system enabling the Civic Council to meet at a moment's notice in an 'audio-conference', with an almost immediate transcription of discussions noted in shorthand in newspapers, a system of calling up its citizens by means of sound and visual columns (loudspeaker, alarm and luminous dial) situated on 85 of the city's crossroads.
8. The telephonoscope also appears in Camille Flammarion's *la Fin du monde*, set in the 25th century (*The End of the World*, 1894).
9. *Ignis*, 2nd part, chapter 3.
10. ('The Day of a Parisian in the 21st Century') *Lectures pour Tous* (13th year – 3rd instalment [December 1910]).
11. Guillaume Apollinaire, 'Le Roi-lune', *Mercure de France*, Tome CXVII, No. 440, 16 October 1916.
12. Marie-Ernest d'Hervilly, 'Josuah Electricmann', in *Timbale d'histoires à la parisienne* (Paris: Marpon-Flammarion, 1883).
13. The idea of freeing oneself from writing by reading texts aloud goes back at least as far as Cyrano de Bergerac, who encounters very convenient portable machines on the moon, which allow him to 'listen' to books. The move from the dispositive of the book (produced by the printing press) to that of a diffuser of sound is meant to go beyond the obstacle of the materiality of writing (letters, pages, printing) and its lack of clarity in relation to the meaning, located where there is transparency of the voice. This brings us close to Rousseau's *Essay on the Origin of Language*, which was stigmatised by Derrida in *Writing and Difference* (*l'Écriture et la difference*). There is also the fantasy of being able to store the sound of a voice. Cyrano, follows on from Rabelais and Sorel, but introduces a mechanism that is clearly modelled on watch

making, while his predecessors banked on natural phenomena (frozen words, words absorbed by sponges): (*Voyage dans la lune*, 1657).

14. One can measure the gap between the technological conceptual framework of this fantasy and what prevailed some centuries earlier in Rabelais's or Sorel's works. Rabelais exploits the 'natural' phenomenon of the freezing of words and noises that are reduced to steam by the expending of body energy, and Sorel, by assimilating the spoken word to a liquid, transfers the sponge's absorption and reversion capacity via pressure. (Rabelais, *Quart livre*; Sorel, *le Courrier véritable*)
15. See Danielle Chaperon in her *Camille Flammarion. Entre astronomie et littérature*, Paris: Imago, 1998, pp. 48-49.
16. C. Flammarion, 'La lumière ressuscitant le passé', *Magasin pittoresque*, 1873 (quoted by D. Chaperon, op. cit., p.65).
17. This issue of dead stars was one of the major topoi of the time (cf Baudelaire); in Charles Cros's 'drame interastral' (*la Renaissance littéraire et artistique* of 14 August 1872) one moves from the observation of planets to the transmission of sound by telephonic mode, and of images by 'series that are sufficient for the reproduction of the relief and the movements' – one of the rare cases of the application of the astronomy problematic to the field of sound.
18. Maurice Renard, *le Maître de la lumière* [1933], Paris: Tallandier, 1948 (published in *Romans et Contes fantastiques*, Paris, Laffont 'Bouquins', 1990, pp. 1020-1021).
19. See André Gunthert, 'La Conquête de l'instantané. Archéologie de l'imaginaire photographique en France (1841-1895)', Doctoral Thesis, Paris: EHESS, 1999.
20. The past here is not 'photographed' after the event (as in Lipparini), nor repeated using a support that has 'reproduced' it (the cinematograph) – it is seen live, without projection, via a kind of 'memory' of the plates. Compared to the partition between immediacy and différance, it is a third proposal – an immediacy of the past, based on the model of starlight – one sees it now, but it comes from the past.
21. Guiseppe Lipparini (1877-1951?) – the lack of concrete details about this author may have something to do with the modern Italian movement, which wrote about Marinetti in 1943 (?). His novel was published in France, with the approval of Riciotto Canudo, who incorporated it into the serials published by the periodical *les Annales* in 1909. The passages here are from instalments 1 and 2 in numbers 1340 & 1341 of 28 February 1909 and 7 March 1909.
22. The similarity of this expression to the one that Deleuze infers from Bergson is striking (see the fourth chapter of his *Cinema 1. The Movement-Image*, translated by Barbara Habberjam and H. Tomlinson, London: Athlone, 1986).
23. Maurice Leblanc, *les Trois Yeux*, Paris: Pierre Lafitte, 1920
24. Louis Farigoule [Jules Romains], *la Vision extra-rétinienne et le sens paroptique: Recherches de psychophysiologie expérimentale et de physiologie histologique*, Paris, Gallimard, 1964 [1919]. (English edition: *Eyeless Sight*, London, 1924. Reprint, New York: Citadel Press, 1978). In 1917, Farigoule, a medical student, studied the phenomena of 'extra-retinal vision'. He was laughed at by scientists, abandoned his research and adopted the pen name of Jules Romains. In the 1960s, Rosa Kuleshova (1955-1978), writing in the USSR, returned to this subject.
25. Gilbert Simondon, *Du mode d'existence des objets techniques*, Paris: Aubier, 2001 [1958].

26. Gilbert Simondon, *l'Invention dans les techniques. Cours et conférences*, Paris: Seuil, 2005 ('Imagination et invention', cours de 1965, p. 297).
27. Published in Maurice Renard, *le Maître de la lumière*, op. cit.