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# The Hero and a Thousand Actors

On the Constitution of Heroic Agency<sup>1</sup>

The goal of this text is to develop elements of a theory of the heroic – in other words, a cultural-sociological approach that can be used for the analysis of heroic figures. Using the reversal of the common view of heroes as a basis, I propose an approach that enables us to concentrate on the constitutive dynamics of both heroisation and deheroisation processes.

I will begin by providing an overview of the spectrum of material and socio-cultural processes that result in the creation of a hero, before turning to the main question of how heroic agency is constituted and what role things and objects play within this process. I will rely on several assumptions from Bruno Latour's actor-network theory to analyse Louis Pasteur as an example of a hero of science. My goal is to improve on Latour's own analysis of Pasteur by extending his approach to include the dynamics of heroisation processes. I will first discuss various heroic representations of Pasteur before I use these to demonstrate the analytical reversal of perspective. I thus demonstrate how things and objects influence events and focus on the humanisation of the heroic figure.

Through this approach to heroic agency, we will arrive at an essential insight, which I would like to mention now briefly before elaborating on it more later, which is: If we do not limit our focus to the individual hero, but expand the analysis of the events leading to heroisation to include everyone involved as well as things and objects, then it becomes clear that a high degree of human agency is a specific form of actorship. Only if we concentrate on the non-human actors will we realise that the acting human being is not a natural given, but actually requires some explanation. Heroic agency can thus be understood as an effect of multifarious constitutive processes in which many participants are involved.

## The Analysis of Processes of Heroisation

### A Heuristics of the Heroic

If we want to avoid an essentialist approach to the existence of heroes and heroines<sup>2</sup> and do not assume that the identity of a hero is fixed, then we need to establish criteria with which we can determine what makes a figure heroic. I am therefore proposing five attributes that characterise a heroic figure. These characteristics serve as a heuristic instrument that allows us to identify heroic figures in a variety of socio-cultural contexts.<sup>3</sup> This approach enables us not only to examine individual cases – because studies tend to focus on individual heroes – it also lets us identify heroic figures who are not explicitly described as “heroes” or as “heroic”. It also lets us compare heroic figures with one another and to relate them to other defining cultural figures. This heuristics and its accompanying catalogue of qualities can thus be located somewhere between the actual figures and an abstract definition of “hero”.<sup>4</sup>

Regarding a typology of heroes, we can say they are characterised by the following attributes: 1) they are *extraordinary*, 2) they are *autonomous* and *transgressive*, 3) they are *morally* and *affectively charged*, 4) they have an *agonistic character* and 5) a *high degree of agency*. Heroes are not average people; they are exceptional. They follow their own rules and transgress social norms. They affect people, they have a stirring character, they are fighters, and they are ready to risk their lives. And finally, a hero would not be a hero without performing a heroic deed.

These five attributes or qualities represent a typology that enables us to distinguish the hero from other related figures. Bernhard Giesen, on the other hand, works with four types of figures:

the triumphant hero, the tragic hero, the perpetrator and the victim. In this model, the distinguishing characteristics are already ascribed to the figures, even though they ultimately only make sense when distinguished from other qualities and types.<sup>5</sup>

### The Hero as Effect: On Constitutive Cultural Processes

In this approach, we therefore shift the focus away from the figure and the figure's characteristics toward the *processes* that produce these qualities in the first place. This enables us to analyse heroes and their specific attributes as the effects of constitutive material and socio-cultural processes.

When examining the attribute of *extraordinariness*, it thus becomes clear that this arises out of the process of creating a distinction. A line must be drawn that separates the heroic figure from the masses, who are not perceived as extraordinary. The exceptional individual is juxtaposed with the many, and the homogeneous mass of normal and average people forms the backdrop in front of which the heroic figure can stand out as extraordinary. The homogeneity of the collective mass and the extraordinariness of the single figure mutually constitute one another.

*Transgressivity* is also based on the process of establishing borders. For a hero to be transgressive, two semantic fields – or two worlds, according to Jurij Lotman – are separated from each other (Lotman 239-244). The world of the normal people – their habits, norms and laws – is limited by boundaries, and the heroic figure is constituted by transgressing these limits. Heroic figures are autonomous and follow their own laws. They break established norms and are able to do things that normal people cannot do. This transgression often brings with it a turning point in which the transgression is sanctioned as different, or is heroised and recognised as a heroic deed.

As they are elevated above the masses, heroes also serve as a surface on which collective values and emotions can be projected. Collective attributes are thus concentrated on a *single* distinct figure, similar to the scapegoat dynamics aptly described by René Girard, but with positive intentions.<sup>6</sup> This single figure becomes *morally and affectively charged*. In this process, not only do heroes and their deeds become associated with essential values, they also affect us. Their actions stir up our emotions. In short, the collective masses use this figure to articulate and discuss their own wishes, values and longings. Because they are charged in this way,

heroes acquire both a stirring and provoking character – they animate people to imitate and identify with them, or they inspire them to disassociate themselves and reject them. Either way, they are rarely met with indifference.<sup>7</sup>

The field in which the heroic figure is constituted is also defined by a constellation of dynamics in which polarisation, or an increase in dichotomisation – for example, friend vs. foe, good vs. bad, hero vs. villain – plays a role. This creates the process of differentiation and emotional charge – in other words, it creates the stage on which heroes can prove themselves in a fight, often by putting their life on the line for the good side. This is how their *agonistic quality*, their willingness and readiness to engage in combat, is formed.

The fifth quality, the hero's *high degree of agency*, will be the main focus of the following analysis. Before beginning this discussion, it should first be remembered that the approach used here goes beyond essentialising descriptions. Instead of limiting itself to a typological approach, it also considers the *processes* of heroisation. In addition, as we will see, such dynamics as polarisation, condensation, and especially *boundary work* (in other words, the drawing of boundaries) also play an essential role in the constitution of heroic figures.<sup>8</sup>

### A Hero of Science: Louis Pasteur and Different Forms of Heroisation

In the following, I will examine how heroic agency increases using the French scientist, chemist and microbiologist Louis Pasteur (1822–1895) as an example. We begin by asking: is he a hero or a heroic figure, and if yes, in what way? Before answering this question, I will take a brief look at a number of characterisations of Pasteur, beginning with the following statement.

In 1883, Pasteur's contemporary, Henri Bouley, wrote the following:

Pouilly-le-Fort is as famous today as any other battlefield. Monsieur Pasteur, a new Apollo, was not afraid to deliver oracles, more certain of success than that child of poetry would be. In a program laid out in advance, everything that was to happen was announced with a confidence that simply looked like audacity, for here the oracle was pronounced by science itself, that is to say, it was the expression of a long series of experiments, of which the unvarying constancy of the results proved with absolute certainty the truth of the law discovered. (quoted in Latour, *The Pasteurization 5*)<sup>9</sup>

The farm named Pouilly-le-Fort, located near Paris, is described here as a “famous battlefield” and Pasteur as having agonistic, audacious qualities. He is also called a “new Apollo”. This conjuring up and surpassing of an important well-known figure – Pasteur pronounces even more successful “oracles” – is a common feature in heroisations (see von den Hoff et al., *Imitatio heroica*). According to Bouley, Pasteur’s achievements lie in being able to predict “everything that was to happen” and in being able to prove the truth of the natural law he had only just discovered with “confidence that simply looked like audacity”. Through his discovery, he transgresses the valid notions and laws of chemistry and medicine. Thus, the fame with which heroes of war were honoured by remembering the place of battle is also awarded to him as a scientist.

In this characterisation, Pasteur is thus located in the tradition of “heroes of the mind”, the great men, or *grands hommes*, who in the 18<sup>th</sup> century ranked prominently alongside the martial type of hero. Unlike heroes of war, who earn their distinction through their exceptional deeds in battle and their physical strength and skill, great men use their intellect to accomplish extraordinary things that are also achievements for all of humankind (see Bonnet; Ritter; Gamper).

What achievements can then be attributed to Pasteur? At the time, he had already developed a method to prevent liquid foodstuffs from spoiling by heating them.<sup>10</sup> This procedure was based on his study of the fermentation processes and could be used to prevent wine, vinegar, beer and milk from souring. With the help of a microscope, he noted optical changes in molecular structures during the fermentation process and applied these findings in his experiments. He used a similar approach with diseases, which he first studied in animals.<sup>11</sup> He repeatedly examined the blood of both healthy and sick animals under the microscope, which led him to discover the bacterial pathogen that causes chicken cholera and allowed to develop a vaccine that made the organism immune to the illness by exposing it to a low dose of the pathogen.

At the time, the effect of anthrax on hooved animals, especially sheep, was devastating. In a neck-to-neck race with Henri Toussaint and despite the scepticism of the medical academy, Pasteur also worked to develop a vaccine against anthrax. In 1881, Pasteur announced his successes, even before he had achieved satisfying results. It was then announced that a public experiment would take place on Hippolyte Rossignol’s farm, Pouilly-le-Fort, near Melun, not far from Paris (see Vallery-Radot 312-326; Geison 145-176). The following arrangement was agreed upon: 10 out of the 60 sheep formed

a control group.<sup>12</sup> Of the remaining 50 sheep, 25 were vaccinated twice with Pasteur’s vaccine – once on 5 May and again on 17 May. The ears of these sheep were marked. All 50 sheep were then injected with the anthrax virus on 31 May. Pasteur predicted that all of the vaccinated sheep would survive and the others would die.

On 2 June, Pasteur and his two assistants, Emile Roux and Charles Chamberland, arrived again at the Pouilly-le-Fort farm. Hundreds of people attended the event – farmers, government officials, the mayor, members of the Academy of Science and the Agricultural Society, veterinarians and journalists, including the Paris correspondent of the London *Times*.<sup>13</sup> The result was clear: all of the animals that had not been vaccinated died apart from two, although these were extremely ill, while all of the vaccinated animals survived.<sup>14</sup> It was a great triumph, and the news spread quickly around the world.

In October 1895, shortly after Pasteur’s death, an issue of the *Petit Journal* appeared with a picture of Pasteur on the title page (see fig. 1). An angel with wings and a tiara is holding a palm leaf and a thin cloth banner with the



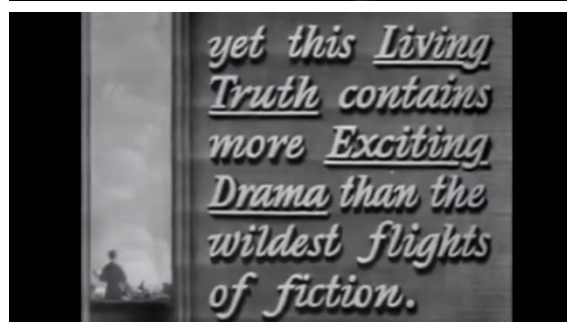
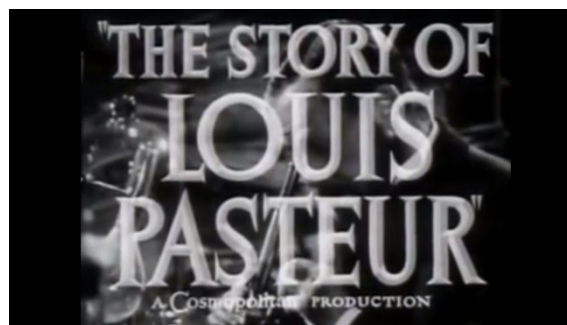
Fig. 1: Title page of the *Petit Journal* by Henri Meyer, 13 October 1895.



inscription “A LOUIS PASTEUR – L’UNIVERS RECONNAISSANT” (“For Louis Pasteur. The thankful universe”). The angel’s foot is resting on a dog that apparently has died from rabies while holding an oval portrait of Pasteur, framed by a black cloth and the French tricolour. In this picture, Pasteur is much larger than all the other figures. In front of Pasteur’s likeness, a woman kneels next to a child holding up a floral arrangement toward the portrait. In the background, we see the dark silhouette of an agitated mass of people.

This graphic form of heroisation refers to another of Pasteur’s heroic deeds. After developing the anthrax vaccine, Pasteur worked on creating a vaccine for rabies. He had just begun experimenting with animals when a nine-year-old boy, Joseph Meister, was brought to him by his mother after having been bit by a rabid dog.<sup>15</sup> Pasteur administered different doses of vaccine every day to the boy for several days. Young Joseph survived, and the story again spread throughout the world. Before the year was out, Pasteur was treating hundreds more patients, some of which travelled from all over the world. After this, he invested the state funding and donations he received into building the *Institut Pasteur* in Paris. The picture above thus very likely refers to the healing of Joseph Meister.

Pasteur has not only been celebrated in writing and pictures; he has also been a figure of the cinema since its early years. The first film about his life was released as early as 1936 and was called *The Story of Louis Pasteur* (directed by William Dieterle). The screenshots shown here are taken from the film trailer (see [figs. 2a-d](#)). In their paratextual descriptions, Pasteur is characterised as a “great man” and an “immortal man”, while the claim that Pasteur’s real life held more “exciting drama” than the “wildest flights of fiction” also serve the double purpose of emphasising his greatness and authenticating the events in the film.



**Figs. 2a-d:** Screenshots from the trailer for *The Story of Louis Pasteur*.

The film presents Pasteur as a man who devoted his life to science and who saved lives. Far from thinking of his own health and well-being, he risked prison and the guillotine to accomplish his deeds. Pasteur's many opponents are also shown – not only the members of the Academy of Science and Emperor Napoleon III, but also extremely dangerous microbes, capable of wiping out the population of entire cities.<sup>16</sup>

The poster for the movie relates Pasteur's achievements directly to the viewers (see fig. 3). The distinct gesture of pointing, which became famous through the war effort advertisement from 1917 showing a pointing Uncle Sam and the words "I Want You for U.S. Army", is used.<sup>17</sup> On the movie poster, the slogan says "If this Story Didn't Have a Happy Ending YOU and YOU Might Not Be Alive Today to See It."

Not long after this, Pasteur also appeared as a hero of the comic book *Real Heroes* in the 1940s (fig. 4).<sup>18</sup> What is remarkable about this issue of *Real Heroes* from 1942 is that Pasteur is featured together with war heroes, which in

comparison, makes the problem of the size of his enemies more apparent. Because they are miniscule and invisible to the naked eye, their dangerousness must always be depicted indirectly. Invisibility is thus one of the aspects that make Pasteur's enemies particularly dangerous. To be able to combat them, the microbes must first be made visible through a microscope, which is now also an icon, along with Pasteur.

Pasteur is also honoured in many monuments, school books and stories about science. Almost every French town has a Louis Pasteur street or square today. In a survey conducted for the French TV show *Le plus grand Français de tous les temps*, which was broadcast on France 2 in 2005, Pasteur was voted the second most important French citizen of all time after Charles de Gaulle.<sup>19</sup> Pasteur is also an important figure outside of France. The verb "to pasteurise" is just as common in many languages as it is a standardised method, and the same is true for vaccinations and fundamental standards of hygiene.

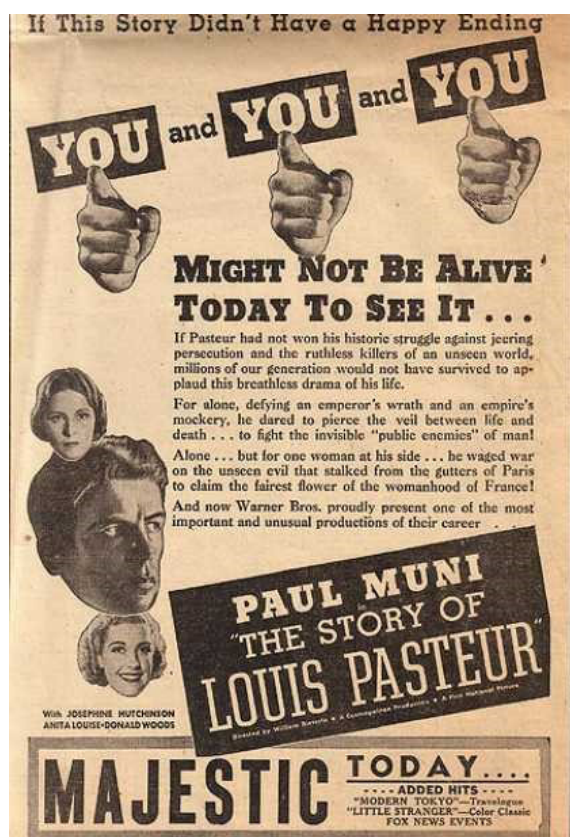


Fig. 3: Movie poster from *Grand Rapids Herald*, 20 March 1936.



Fig. 4: Title page of *Real Heroes* #7, November 1942.



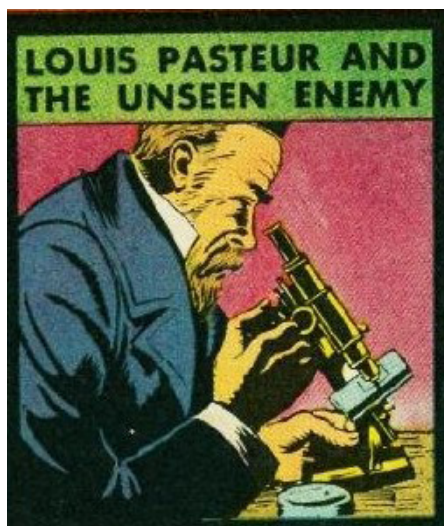


Fig. 5: Detail of fig. 4.

In these texts and pictures, Pasteur is shown as the protagonist. As can already be seen in the first example, Pasteur predicts events. He has the course of his experiments and of diseases ultimately under control. He makes ground-breaking discoveries that lay the foundations for new fields of research, such as microbiology and immunology. He saves the lives of people and animals and secures entire economic sectors, including the wine industry. His discoveries – from standards of hygiene to methods of pasteurising food – are still applied in many spheres today. In these depictions, Pasteur is a person who *actively* takes decisive steps and takes responsibility for his actions. We can therefore safely say that a *high degree of agency* is attributed to him.

### Symmetry and Translation: Actor-Network Theory as an Approach

In this section, we will shift our focus from the heroic figure toward the processes that constitute this figure. How is the quality of a high degree of human agency constituted? In our examination of agency, we will rely on Bruno Latour's actor-network theory as depicted in his works *We Never Have Been Modern* and *Reassembling the Social* as a suitable approach.

We will begin by asking: what is Latour's concept of an "actor" (see also Schüttpelz)? For this notion, Latour borrows the concept of "actant" from semiotics. According to this, not only does the main protagonist in a text act, but *all* structural elements specified in the text contribute to

the narrative. This includes not only the different human characters, but also the non-human actors – the individual as well the collective, the figurative and the non-figurative (see Latour, *The Pasteurization* 252; *Reassembling the Social* 46-50).<sup>20</sup> Latour applies the concept of "actors" or "actants" to the situation of the experiment in a scientific laboratory. An experiment consists of a specific arrangement of chemical substances, technical devices, human intentions and the like and has an open-ended result. *All* of the actors are involved in the experiment's outcome. The experiment can fail because a technical device does not work, or because a chemical substance reacts in an unexpected way, or because the scientist overlooks something, and so on. All of the actors involved in such a situation interact with one another, meaning they form an "actor-network".

An actor-network is a "structure of interdependencies" (von den Hoff et al., *Helden* 9). This means that elements that form a network do not act as fixed, predefined actors. Rather, what they represent is also influenced by their interaction with the other actors. Thus, the network is not formed by unalterable elements. However, the unity of a network also does not determine its elements. Instead, there is an intermediary level on which individual actors influence what occurs and where the entire structure also creates effects.<sup>21</sup> Who or what plays a role in the network and how far it can reach is left open. According to Latour, a description of such a situation is better if it is able to include more actors as active participants.

Since this approach has proven successful for describing the complex laboratory procedures, Latour has proposed it as a fundamental alternative to sociological descriptions, which he argues are limited to social actors and thus ignore the role of all other participants. However, his goal is to describe socio-technical networks as a whole, and not to conduct a preselection in which all natural things, technical objects and so forth are excluded.<sup>22</sup> It is therefore essential that the principle of symmetry be applied: everyone and everything should be equally taken into account regarding their participation in the overall events. Latour also argues that actors can serve as mediators in a chain of transmission – something that also plays a role in the following media analysis. Latour adopts Michel Serres' concept of "translation"<sup>23</sup> to describe how mediators not only *transport* information in a chain transmission, they also *transform* it. Actors that serve as mediators are thus not only a means with which to transport; they also *translate*, or change, what they transmit.

## Pasteur and “His” Actor-Networks

Bruno Latour wrote his main study on Louis Pasteur, *The Pasteurization*, early in his career, while he was still laying the foundations of his actor-network theory. Interestingly, his explicit goal was originally to counteract heroic portrayals of Pasteur as a “great man”: “The great man is alone in his laboratory, alone with his concepts, and he revolutionises the society around him by the power of his mind alone” (14). In Latour’s eyes, the idea that Pasteur had worked alone and that he had revolutionised society solely through the power of his mind was wrong. Latour thus challenged this heroic narrative with his concept of a network of many participants, including concrete material things and objects.

In his analysis of Pasteur, we would expect that Latour, who later explored such phenomena as hotel key fobs (see *The Berlin Key*) or speed bumps (*On Technical Mediation* 38–41), to focus on concrete objects, including technical devices, and that he would especially focus on those actors that are overlooked in one-sided, or one-actor, portrayals. However, Latour’s key study of Pasteur is actually a discourse analysis. Although he investigates the shift in roles within scientific debates and discusses the inclusion of microbes in the game as new actors, he focuses primarily on scientific positions and their “performances”. Most importantly, Latour demonstrates how Pasteur succeeds in presenting the situation of the laboratory experiment as something that represents the conditions of life in general. Experiments allow biological processes such as the progression of a disease to first be simulated and controlled in the laboratory, then influenced further outside the laboratory in the “real world”. In a later work on Pasteur, a chapter in his book *Pandora’s Hope*, however, Latour does discuss a particular non-human actor in detail: yeast. However, this actor is one that was not hitherto overlooked; rather, it is one that starts out as “Cinderella-the-yeast” (115) and turns into the “hero who triumphs” (122).

In the following examples, I will apply Latour’s approach to the distribution of agency and the integration of overlooked concrete things in the events in Pasteur’s life more systematically than Latour himself has done. It will soon become obvious that Pasteur was not the only person or thing that was *active*. For example, we must begin by turning to other people within this

central figure’s immediate circle: his scientific partners like Charles Chamberland and Émile Roux, his wife Marie, his patient Joseph Meister, his competitor Henri Toussaint, the members of the Academy of Medicine and Science, his bitter enemies Gabriel Colin and Henry Charlton Bastian, and the public audiences attending the events in Pouilly-le-Fort.<sup>24</sup> We can thus draw on a great number of (human) participants – of which only a few are named here – in this social network.

In following with the concept of the actor, however, we must also integrate the non-human participants. The question of who or what was involved can only be answered empirically. And as this is a historical subject, we can only resolve this question by conducting an additional reading of the sources. However, this also brings up the question of what facts are passed down through history, for we must keep in mind that the process of heroisation can be seen as a narrative in which more and more weight shifts toward the central figure.

### First Example: The Syringe

The reports of the events at Pouilly-le-Fort will again serve as examples in the following analysis, the difference being here that they are investigated from the perspective of the actor-network theory. Bouley describes the farm where the experiment took place as a “battlefield” bearing witness to Pasteur’s glory. The movie and many other depictions also present the public experiment at Pouilly-le-Fort as the highpoint of the narrative and as probably Pasteur’s most important “heroic deed”.

Figure 6 shows a drawing from Pasteur’s lifetime that depicts the events at Pouilly-le-Fort. Using this illustration as a basis, I will focus on a particular actor in the actor-network that is represented here, although it is barely visible. I am referring to the syringe used for vaccinating the sheep, which can be seen in a detail of this drawing (see fig. 7). The fact that the syringe is only visible close-up demonstrates that it was not one of the main actors in the events at Pouilly-le-Fort. Vallery-Radot also mentions it only once in his written account: “For the injection of the vaccinal liquid, Pravaz’s little syringe was used; those who have experienced morphia injections know how easily the needle penetrates the subcutaneous tissues” (317).<sup>25</sup>

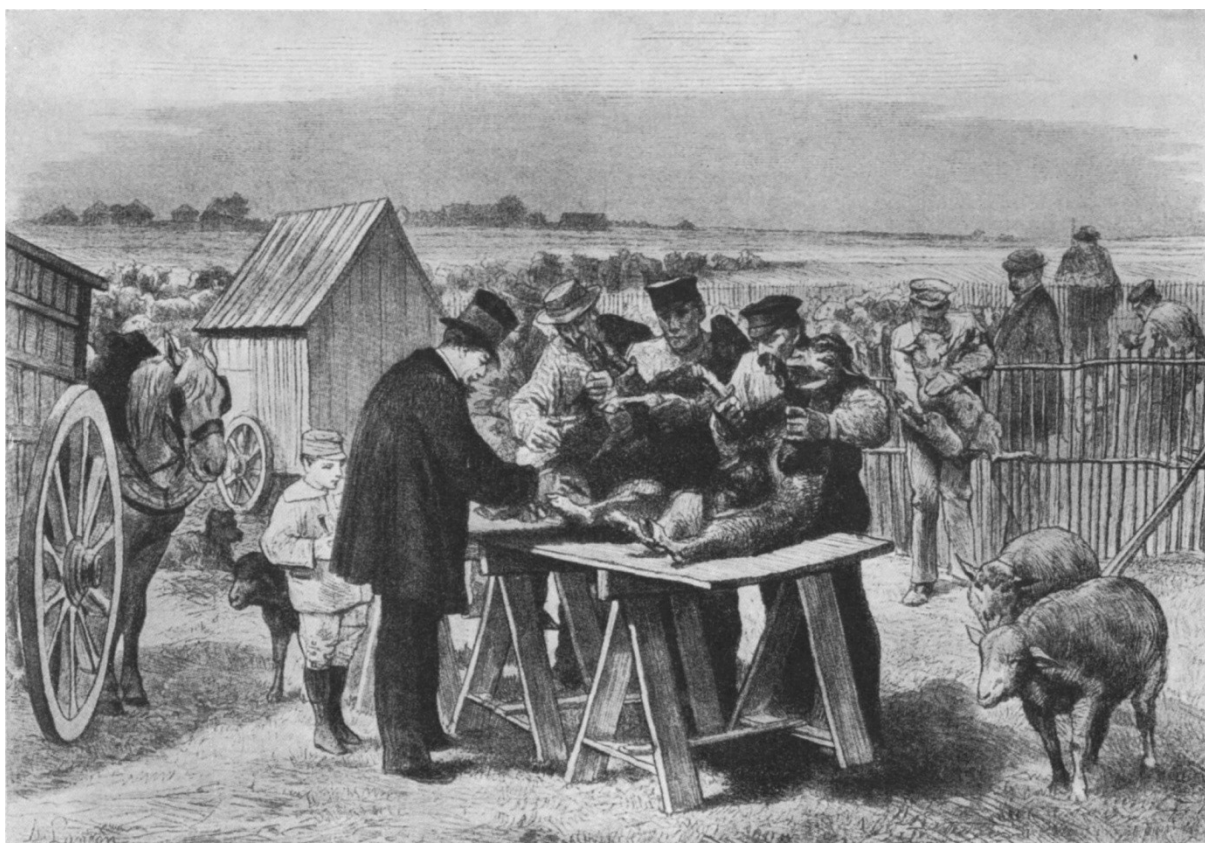
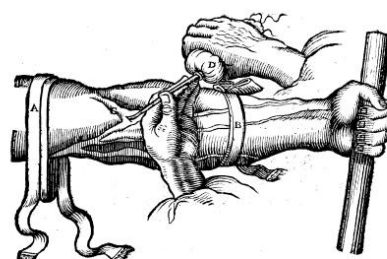


Fig. 6: Vaccination of animals, 1881.



Fig. 7: Detail of fig. 5.



A. Ligatura prima. B. secunda.  
C. Locus applicandi Instrumenti.  
D. Vefica liquorem venae Infundendum conti-  
nens, Instrumenti orificio maiori appensa &  
alligata.

Fig. 8: Woodcut *Chirurgia infusoria* 1667.

In 1853, Charles-Gabriel Pravaz and Alexander Wood each separately developed a metal syringe with a plunger, a screw mechanism and a hollow needle that was thin enough to inject fluid under the skin (see [fig. 9](#)). Although simple syringes consisting of an animal bladder and a mouth-piece had existed as far back as antiquity, William Harvey's observations of blood circulation in the 17th century gave intravenous injections a more significant purpose. However, syringes at the time were still so large that the vein first had to be exposed and opened with a scalpel (see [fig. 8](#)). Injections therefore did not take root as a

method until the 19th century, when intravenous drugs also became available (see Ruisinger; Feldmann). The basic form of the glass syringe with a metal cone developed by Pravaz became the established technical standard.

This syringe not only allowed practitioners to inject drugs in certain areas; its screw thread also allowed a precise dosage and made it significantly easier to take blood samples. Without the technical functions of the syringe, Pasteur's experiments would have taken a different course, or perhaps not even have been possible.<sup>26</sup> The syringe, although virtually invisible





Fig. 9: A Pravaz syringe made by Charriere Collin & Cie.

in heroic portrayals of Pasteur, thus forms an important link in Pasteur's actor-network: it has its own agency and makes its own independent contribution to the events.

The example of the syringe demonstrates that actors not only act with a certain degree of independence within a network; they are also affected by the network.<sup>27</sup> I am referring here to the fact that syringes initially led to a higher disease rate, which could not be explained for some time. In fact, it was not until Pasteur that it became clear that the syringes themselves were acting as disease carriers because sterilising them had not been thought necessary. After this, syringes were not only sterilised, they were also manufactured out of glass, making sterilisation even

more effective. Sterilised syringes thus functioned somewhat differently than their predecessors as a result of their having been changed by a network constellation.

What is demonstrated by the example of the syringe – that it can be seen as an actor within Pasteur's network that makes its own contribution to the events – applies not only to a multitude of technical objects, but also to natural things or animals that were also involved as actors in Pasteur's experiment. We can thus determine an actor-network with many different participants that do not correspond with the boundaries between nature and culture, humans and technology (see fig. 10).<sup>28</sup> Latour's heuristics thus levels out all fundamental differences and ensures that all elements “become *horizontal*” (*Pandora's Hope* 138, emphasis in original). In Latour's attempt to subvert such traditional distinctions, the question of a network's limits and of how far it reaches is left out for the most part. Latour does, however, address the issue of different modes of existence in more recent works, including *An Inquiry into Modes of Existence*. Ultimately, he argues that who or what is part of the network is up to the participants themselves.<sup>29</sup> Thus, a way of testing whether an actor is actually part of a network is simply to physically remove it or to imagine it gone. If something changes in the overall constellation, then this proves that it is part of the network.

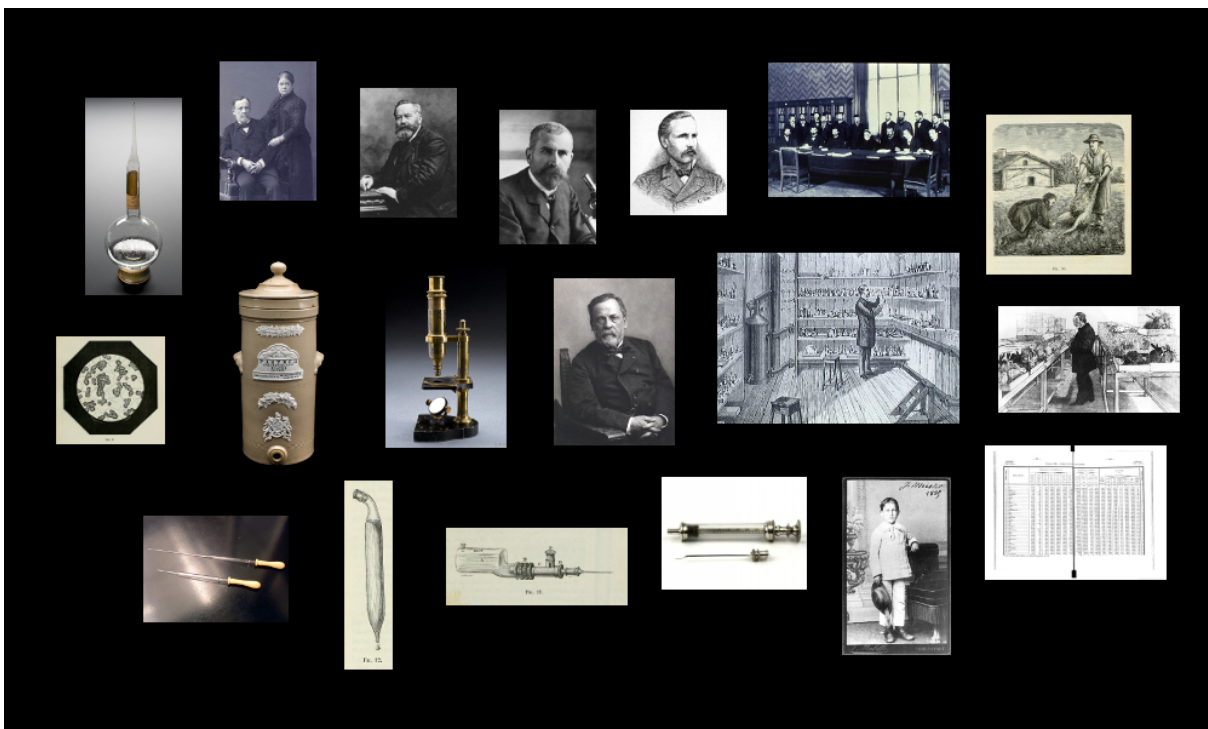


Fig. 10: Pasteur's actor-network.

## Second Example: The Statistical Network

The second example in this analysis is not a thing, but an entire network of things, people, technologies and so forth. This network was also involved in Pasteur's experiment at Pouilly-le-Fort – namely, the statistical methods used by the French Ministry of Agriculture. Already before the experiment, hygienists had established a connection between health and economic growth.<sup>30</sup> They argued that it was therefore important and economically relevant to successfully fight disease. They not only regarded this as a more effective way to save human lives than winning battles, they were also concerned about the health of animals, which were a profitable economic sector.

The Ministry of Agriculture collected statistics in all of France in the 19<sup>th</sup> century and estimated that the mortality rate of livestock was 9% (Latour, *The Pasteurization* 91). The collection of data for such a statistical survey required a network of trained people, standardised questionnaires and compatible spreadsheets (see Bourguet). This entire network is represented here by the statistical spreadsheet in [fig. 10](#) (lower right).<sup>31</sup> The statistical network made it possible to establish a new, numerical perspective of the agricultural situation and its development, which in turn made it possible to focus on the problem of almost one out of every ten animals

dying. Interestingly, the suffering and deaths of the animals on which Pasteur undertook his experiments was regarded as morally justified, as the law of large numbers dictates that few must die so that many can be saved. An additional factor was that morality, in the traditional sense, referred here only to human subjects, while animals were regarded as a means and not as an end in themselves (see Hache/Latour). In any event, this numerical perspective generated a need for action.

In this narrative, the network of statistical methods not only occurs before the experiment at Pouilly-le-Fort, but also after it. This is because statistics also provided numerical proof of the effects of the vaccinations, which were done in all of France *after* Pasteur's successful demonstration.<sup>32</sup>

Thus, reconstructing the actors involved as examples makes it clear that many of the actors and their agency have been ignored in the process of heroisation. The film, for example, also puts Pasteur in the centre of action, while the technical devices only serve his purposes. Neither their agency nor that of the test animals plays a role. Exactly how this blind spot works depends very much on the medium used, however. While a large number of actors can be found in the film, there are fewer in sculptures of Pasteur. The monument in Lille (*L'inoculation et la fermentation* by Alphonse-Amédée Cordonnier) from 1899, for example, shows Pasteur

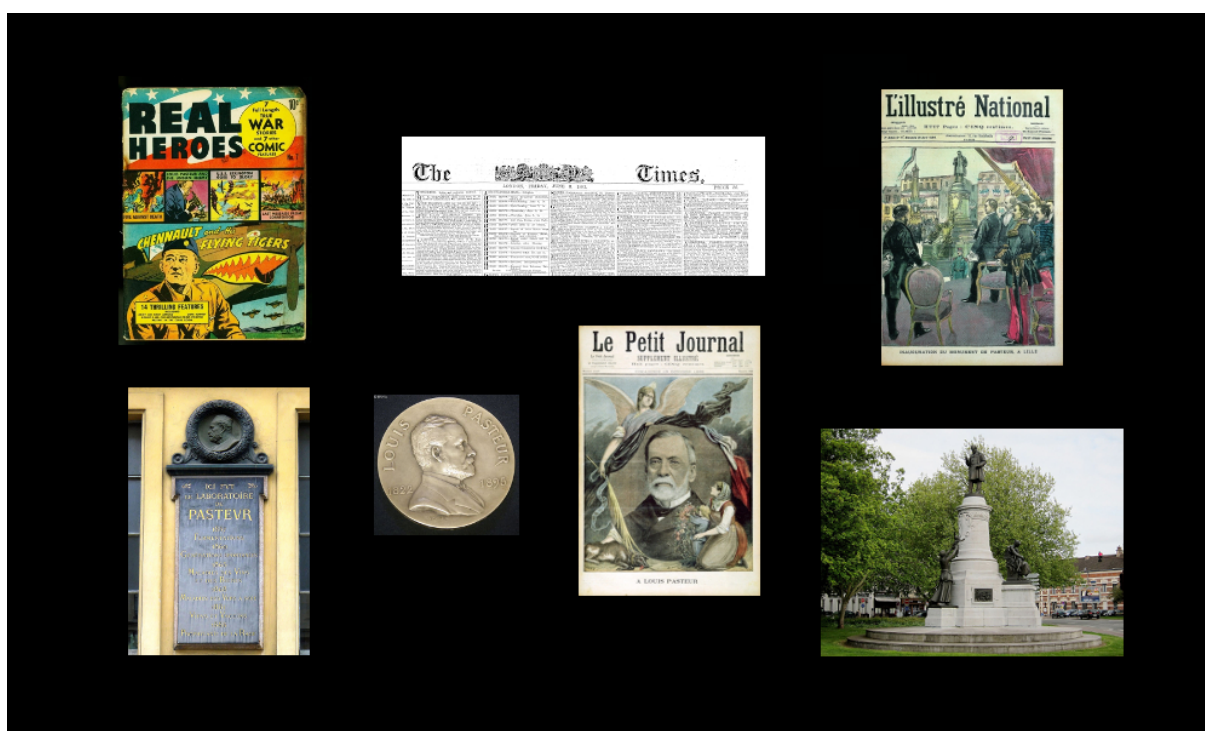


Fig. 11: Media of representation and transmission.

standing on a tall plinth with a test tube in his hand. Below him, one woman holds out her child to him, while another woman sits facing away from him with a child in her lap (see [fig. 11](#), lower right).<sup>33</sup> The constellation of figures is thus reduced in accordance with the medium.

### Third Example: Media as Actor

Another aspect of Pasteur's achievements is their documentation. They were made public by the press and have continued to be a subject in various media. Not only were articles published in scientific journals – Pasteur himself wrote works and gave lectures – they were also published in newspapers, such as the *Times* in London. There were graphic depictions, like the drawing shown above, as well as comics. Monuments were erected, films were made, and so forth. These media can also be regarded as actors (see Thielmann/Schüttpelz) because they not only convey the content of Pasteur's achievements, they also “translate” it, as Latour would argue. Each medium has specific qualities and transforms what is represented. A comic book offers different possibilities of portrayal than a classical painting, and a film depicts events differently than a sculpture. Furthermore, we would not know anything about Pasteur today were it not for this chain of transmission through which references to the events at Pouilly-le-Fort continue to circulate. Finally, these media are also concrete objects, and although they may signify something beyond themselves, they still have a material quality.

We can thus reconstruct a large number of actors that were involved in the network and have agency. According to Latour, heroic stories make bad accounts because they ascribe the power to act to the protagonist – here Pasteur – while ignoring the agency of most other participants. Our goal is therefore to expand Latour's approach to include the constitution of heroic agency. In other words, when looking at the process of heroisation, we must explore how the agency shared by many actors is transformed into agency that is concentrated on a *single* human figure.

## On the Constitution of Heroic Agency and the Role of Objects

It thus becomes clear that this concentration of agency is part of the process of heroisation.<sup>34</sup> Out of the interaction between many actors, each of which has an impact on events, a heroic narrative emerges with a protagonist who has a

significant impact on the course of events. In this narrative, the main figure continually acquires more emphasis, more power to act, and more properties of action. Whether this concentration can be seen as gradual throughout the history of documentation is something that would require further study elsewhere.<sup>35</sup> Here, it will suffice to say that in the heroic representations discussed here the agency of the hero increases, while the agency of the other participants is overlooked.<sup>36</sup>

Another important aspect of the process of heroisation is humanisation. Especially when looking at the agency of very different actors – such as things, technical devices, animals, and so forth – it quickly becomes clear that human actions are a specific form of representation. This is because we associate human actions with the assumption that humans are capable of making decisions and are thus responsible for their own actions. An observer or an audience frame an event as a human action (see Schulz-Schaeffer 13-17). In the process of figuration, the heroic figure also acquires a human face (see Weigel 70-137), a human body, a gender, a biography and so forth.

Regarding the constitution of heroic agency, we can therefore define two main aspects of the process of figuration. First, the representation of Pasteur is clearly gendered.<sup>37</sup> There is thus a sharp gender distinction between the figures involved. In the graphic representations and sculptures, this can be observed in the arrangement of figures and scale – in the monument in Lille, Pasteur is depicted above and in the centre, while in the drawing and on the movie poster he is depicted as being much larger than the other figures, which are female. In all of the representations we have discussed here, science is depicted as “men's work”. For example, in the film, Pasteur's wife Marie's intuition inspires an essential idea that only becomes significant when Pasteur applies it in his experiment. Otherwise, his wife and daughter, as well as the mother of Joseph Meister, are mainly worried about their own physical well-being and that of their families. Their realm is the private household. The female figures primarily express emotions, including admiration for and veneration of Pasteur's achievements. They serve as a contrast and a backdrop against which Pasteur is shown as a “man of science” – a man whose decisions and actions are defined by rationality, who pursues higher goals by placing these above his own health and who dedicates his life to the service of humanity, which is an essential quality shared by “great men”. While he also displays determination, courage and even emotions, he does this only with regard to the bigger picture. The film even goes so far as to show



a witch whose very irrational method of fighting anthrax is juxtaposed with Pasteur's new scientific methods. In conclusion, the heroic figure is constituted along the dichotomies of masculine vs. feminine, rational vs. irrational and public vs. private action (see Lloyd), highlighting the close connection between masculinity and heroic agency.<sup>38</sup>

The second important aspect of figuration is the unique status of scientific biographies (see Govoni). On the one hand, they are an important genre for representing the history of science, especially within popular science. But on the other, they are also regarded as unserious and are therefore omitted from scholarly studies on the history of science (see Wirtén; Shortland/Yeo). Biographies of Pasteur thus lend themselves well for a metalevel analysis of scientific biographic writing.<sup>39</sup> My analysis thus focuses on the biographical narratives in various media that relate Pasteur's life to his scientific achievements. In these narratives, Pouilly-le-Fort is often described as a decisive and dramatic turning point and as a test of Pasteur's heroism.<sup>40</sup> It represents the culmination of a difficult struggle against established notions, the race against Toussaint, and a crisis. It is the decisive day that marks his breakthrough and ultimately changes everything in Pasteur's favour.

To sum up agency, the process of heroisation thus functions as follows. There is an actor-network in which there are many actors who have agency and are symmetrically aligned. At the end of the process, which in a strict sense is never complete, there is a figure in the centre with a high degree of agency.<sup>41</sup> In between, a process of concentration of the qualities attributed to the heroised figure occurs, while at the same time, most of the other actors are either ignored or depicted as passive in terms of agency. This process of figuration also means that a human figure is constituted out of the symmetrical actors. The advantage of Latour's heuristics, which levels out all differences, is that it allows us easily trace how the emphasis on different actors, characterisations and figurations is established.<sup>42</sup>

Heroic agency is formed through a narrative – by portraying or imagining how a single human being has done something extraordinary or has created something revolutionary for which they are responsible. Within this narrative, things or objects play three different roles. *First*, they are material actors involved in the events, although their agency is ignored due to the narrative focus on the heroic figure's actions – objects like syringes, spreadsheets and so forth. *Second*, they are things heroes carry with them, things that help heroes achieve power and agency and

that become iconic with them – for example, Pasteur's microscope. *Third*, they are the media through which the heroic deed becomes known, through which knowledge about the figure is spread and passed down, and through which the narrative is defined in specific ways – in other words, journals, newspapers, monuments and so forth. In conclusion, in terms of agency, objects – whether they be not-represented (because they are made passive or negated), represented (iconic) or representing (media) – are vital to the process of heroisation, and should be regarded as such.

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1 I am very grateful to Michelle Miles for the translation of the text.

2 "Hero" refers to people of both sexes (while "heroine" refers exclusively to female heroes), which is why it is used here. For more on the role of gender and heroes, see p. 27-28 of this article.

3 This approach is the basis of the Collaborative Research Centre 948 "Helden – Heroisierungen – Heroismen" (Heroes – Heroizations – Heroisms) of the University of Freiburg as stated in the grant proposal for the first funding period (2012–2016). In the sub-project "Der Held als Störenfried. Zur Soziologie des Exzeptionellen" (The Hero as a Disturbing Element. The Sociology of Exceptionality), a fifth quality – a high degree of agency – was added to the original four. These criteria were developed collectively within the Collaborative Research Centre, and especially in the "Theories" interdisciplinary work group.

4 This also means that the characteristics or qualities must be expanded or changed if required by the empirical facts or sources.

5 For more on the advantages and disadvantages of typologies, see Bröckling 12-13.

6 According to Girard's theory, a group "solves" all interpersonal conflicts by projecting all negative aspects onto the person excluded, onto the scapegoat: "But suddenly the opposition of everyone against everyone else is replaced by the opposition of all against one. Where previously there had been a chaotic ensemble of particular conflicts, there is now the simplicity of a single conflict: the entire community on one side, and on the other, the victim." (Girard 24) We can productively apply this idea here without also adopting Girard's fundamental anthropological beliefs.

7 For more on the different forms of identification, see Jauß.

8 *Boundary-work* is a concept that so far has been mostly used in science studies, see Gieryn. The reason I am using this concept in the entirely different context of heroisation processes is that the processes that are analysed suggest such a formulation because they are about different forms of distinction, transgression and demarcation resulting from cultural actions or performances – in other words, resulting from "work". It is understood here in a more comprehensive sense, similar to Lamont and Molnár 168.

9 Latour also addresses Pasteur in the chapters “From Fabrication to Reality: Pasteur and His Lactic Acid Ferment” and “The Historicity of Things: Where Were the Microbes before Pasteur?” in *Pandora’s Hope*, 113-144, 145-173.

10 For a critical analysis of Pasteur’s scientific achievements, see Geison.

11 This also is true for the silk worm disease that caused significant problems for the French silk industry.

12 At the last moment, two sheep were swapped for two goats and an additional six out of ten cows were vaccinated. See Geison 147.

13 See the article in *The Times* 5.

14 Except for one that died from complications during pregnancy.

15 According to Pasteur’s laboratory notes, he had already treated two people, one of which had died. The fate of the second person is unknown. Contrary to Joseph Meister, these two cases were not made public. See Geison 195.

16 For more on how the term “microbes” was introduced, see Vallery-Radot 266-267.

17 The poster refers to a drawing of Uncle Sam by the graphic designer James Montgomery with the words “I Want You for U. S. Army” (1917). The poster was an advertisement for the military in the First World War. The motif was borrowed from Alfred Leete, who first used it on a poster in 1914 showing Lord Kitchener with the sentence “Britons, [Lord Kitchener] Wants You. Join Your Country’s Army!”

18 See Hansen for more on this comic and other Pasteur comic books from the 1940s.

19 Wirtén refers to this survey.

20 See Latour, *The Pasteurization*, where he refers to Greimas and Courtès. For more on the concept of the actor, see Latour, *Reassembling the Social* 43-86.

21 See also the concept of “assemblage” according to DeLanda and based on Deleuze. Latour refers here to an “event” that changes the actors involved. See Latour, *Pandora’s Hope* 126.

22 There are three roles for elements within the network: as intermediaries that do no change what they transport; as mediators that translate and transform what they pass on; and as actors, meaning the kind of mediators that acquire a clear form through their figuration.

23 His colleague Michel Callon refers to Serres.

24 For more on the audience in Pouilly-le-Fort, see Vallery-Radot 323. For more on the role of different types of audiences in heroisation processes, see Asch and Butter.

25 In his report from 1881, Pasteur also briefly wrote that “we used a Pravaz syringe to inoculate twenty-four sheep, one goat and six cows each with five drops attenuated anthrax.” (Pasteur, *Summary Report* 61)

26 A closer analysis of the materiality of the syringe that goes beyond functionality could lead to “surprising perceptions” (Hahn 12).

27 For more on the continuity of an entity throughout the institutionalisation of its network, see Latour, *Pandora’s Hope* 164-168.

28 Any actor could become the main focus. The composition of the network would change accordingly. The fact that Pasteur is the centre here is due to our retrospective perspective. We can only tell in hindsight what stabilisation has been successful because we do not assume a historical teleology.

29 For more on the methodological guidelines for empirical work that can be derived from this, see Schlechtriemen 163-165.

30 See Latour, *The Pasteurization* 19, in a reference to Coleman.

31 Reproduction from the *Annuaire statistique de la France* 330-331. It shows the number of agricultural products in 1893.

32 See Pasteur’s summary of this statistical survey in Pasteur, *Une statistique*.

33 On one bronze plaque, there is also a depiction of a vaccination scene.

34 Accordingly, we should assume a decentralisation in the deheroisation dynamics. This could be an additional aspect in an analysis of processes of deheroisation. See Gelz et al.

35 Eva Hemmungs Wirtén refers to such a gradual process regarding the title pages and book cover of Latour’s *Les Microbes: Guerre et Paix* (1984), which over time have evolved more and more in the direction of “traditional” notions of a human hero of science. The edition from 2001 is thus titled *Pasteur: Guerre et Paix* and the cover of the English edition presents Pasteur in his laboratory. See Wirtén 5.

36 It is also interesting that the agency of the opponent or enemy also increases to a certain degree.

37 For more on the construction of masculinity, see Edwards. For more on gender and heroicity, see Mommertz and Seedorf. For more on gender and the cult of the genius, see the chapter “Vergeschlechtlichen: Schwangere Philosophen und geistige Kinder” in Köhne.

38 Masculinity is understood here as “a set of values, practices or dispositions” (Edwards 17). Horlacher provides a helpful overview of masculinity studies. See especially 212-217.

39 The question how the person depicted is gendered plays a decisive role. Wirtén demonstrated this using Marie Curie as an example.

40 The episode of the healing of Joseph Meister is another highlight in the storyline.

41 The heroic is always regarded in this approach as the product or result of processes of heroisation. It can also be dissolved again in processes of deheroisation. Seen from another perspective, the heroic can be regarded as an actor in socio-cultural processes.

42 According to Hans Peter Hahn, we should be sceptical about such “shifts of relevance” in science, if only because they often overestimate the significance of everyday objects. “In most cases, it would be more appropriate if casualness, negligence or even ignorance would be the initial result. Generating a sensibility for the meaning of things must be organised in a methodological way that maintains the reduced role of everyday things.” (Hahn 15)

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Glass flask used by Louis Pasteur: © Science Museum/Science and Society Picture Library. Object Number A55130.

Compound monocular microscope produced by Nachet et fils used by Louis Pasteur: © Science Museum/Science and Society Picture Library. Object Number A55114 Pt1.

Water filter, stoneware, Pasteur-Chamberland design, by J.G. Defries & Sons of London, c. 1900: © Science Museum/Science and Society Picture Library. Object Number A631491.

**Fig. 11:** Title page of *Real Heroes* 7, November 1942.

Louis Pasteur: Title page of *The Times*, 3 June 1881: 5.

Erection of the Pasteur monument in Lille: Title page of *L'illustré National*, 23 April 1899.

Pasteur Monument Lille: public domain, 25 November 2016 <[http://images.google.de/imgres?imgurl=https://upload.wikimedia.org/wikipedia/commons/3/37/Lille\\_monument\\_Pasteur.JPG&imgrefurl=https://commons.wikimedia.org/wiki/File:Lille\\_monument\\_Pasteur.JPG&h=1500&w=1999&tbnid=G44SHeJzrZJHcM:&vet=1&tbnh=93&tbnw=124&docid=s-C7d391JDxS3M&client=firefox-b&usq=\\_\\_UteEwc31tZx5EQf23lr4tAPr65w=&sa=X&ved=0ahUKEwiDlqivmdXQAhXBbQKHTfsCZ8Q9QEII-jAA](http://images.google.de/imgres?imgurl=https://upload.wikimedia.org/wikipedia/commons/3/37/Lille_monument_Pasteur.JPG&imgrefurl=https://commons.wikimedia.org/wiki/File:Lille_monument_Pasteur.JPG&h=1500&w=1999&tbnid=G44SHeJzrZJHcM:&vet=1&tbnh=93&tbnw=124&docid=s-C7d391JDxS3M&client=firefox-b&usq=__UteEwc31tZx5EQf23lr4tAPr65w=&sa=X&ved=0ahUKEwiDlqivmdXQAhXBbQKHTfsCZ8Q9QEII-jAA)>.

Louis Pasteur: Title page of the *Petit Journal* by Henri Meyer, 13 October 1895.

Medal: 25 November 2016 <<http://www.biusante.paris-descartes.fr/histoire/images/index.php?refphot=en-va-2006-0-00155>>.

Commemorative plaque: public domain, 25 November 2016 <[http://images.google.de/imgres?imgurl=https%3A%2F%2Fupload.wikimedia.org%2Fwikipedia%2Fcommons%2Fthumb%2Ff%2Ff3%2FP1250442\\_Paris\\_V\\_rue\\_Ulm\\_plaque\\_Pasteur\\_bis\\_rwk.jpg%2F220px-P1250442\\_Paris\\_V\\_rue\\_Ulm\\_plaque\\_Pasteur\\_bis\\_rwk.jpg&imgrefurl=https%3A%2F%2Fen.wikipedia.org%2Fwiki%2FList\\_of\\_things\\_named\\_after\\_Louis\\_Pasteur&h=325&w=220&tbnid=YAILR4ilt-T0X-M%3A&vet=1&docid=YjM\\_ZOyFOTGJ4M&ei=p0NBWPTJG8XXUbvvgg\\_gJ&tbn=isch&client=firefox-b&iact=rc&uact=3&dur=891&page=0&start=0&nd-sp=21&ved=0ahUKEwi0ucfUndXQAhXFaxQKHTv-wAJ8QMwghKAQwBA&bih=587&biw=1280](http://images.google.de/imgres?imgurl=https%3A%2F%2Fupload.wikimedia.org%2Fwikipedia%2Fcommons%2Fthumb%2Ff%2Ff3%2FP1250442_Paris_V_rue_Ulm_plaque_Pasteur_bis_rwk.jpg%2F220px-P1250442_Paris_V_rue_Ulm_plaque_Pasteur_bis_rwk.jpg&imgrefurl=https%3A%2F%2Fen.wikipedia.org%2Fwiki%2FList_of_things_named_after_Louis_Pasteur&h=325&w=220&tbnid=YAILR4ilt-T0X-M%3A&vet=1&docid=YjM_ZOyFOTGJ4M&ei=p0NBWPTJG8XXUbvvgg_gJ&tbn=isch&client=firefox-b&iact=rc&uact=3&dur=891&page=0&start=0&nd-sp=21&ved=0ahUKEwi0ucfUndXQAhXFaxQKHTv-wAJ8QMwghKAQwBA&bih=587&biw=1280)>.