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Scientists in Belgian comics: typology, chronology and origins

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This article presents an overview of the scientist as a special character in Belgian comics. In the years after World War II and during the first stages of the Cold War, scientists were introduced in many long-term Belgian comic series. The first aim of this article is to find structural commonalities in the scientist as a comic character. The characters are classified following a typology: geniuses, wizards, puzzlers, adventurers, nerds, mad scientists and the misunderstood genius. The second aim is to explain the appearance of the stereotypical character of the scientist in Belgian comics. To trace its origin, the histories of some real scientists and of scientists in novels and films are discussed. It is argued that the way scientists are portrayed in Belgian comics is mainly the result of pragmatic choices the authors have to make, inspired by the work of colleagues and examples from other art forms.

Keywords: Belgian comics; representation; science; Tintin; the Smurfs; *bandes-dessinées Franco-Belge*

Comics are one form of medium that constitute an important source of information and opinions on science. The available quantitative and qualitative content analyses on media representations to date (e.g. Long et al. 2010) indicate that scientists are often presented in a stereotypical way. The negative image of science and technology in society and in media offers one of the main explanations for young people's lack of interest in science subjects (Van den Berg et al. 2003).

In view of the potential social impact of the representation of scientists in media popular with youth, this article focuses on comic series originating from Belgium. When comparing the most successful Belgian comic series, one may conclude that a scientist is one of the recurring characters. That they are indeed popular is clear from sales figures: all of the popular series have sold hundreds of thousands or even millions of copies (e.g. *Les Schtroumpfs* [The Smurfs] and *Les Aventures de Tintin* [The Adventures of Tintin]). Because of the many decades of popularity, it is plausible to assume that these comics are partly responsible for the image children have of scientists, in Belgium and in other countries where the '*bandes-dessinées Franco-Belge*' (Franco-Belgian comics) are known. Therefore, the aims of this article are, first, to find structural commonalities in the scientist as a character in Belgian comics and, second, to search for an explanation for the scientist's obvious presence in so many comics.

Belgian comic culture

Belgian comics are marked by some specific characteristics, but there are also some remarkable differences between Francophone and Flemish comics (Baetens 2008). As a

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rule, the comic characters from Flanders are famous in the Dutch-speaking part of the country, but not in any other part of the world.

Just like their American colleagues, Belgian publishers are historically mainly interested in series. This incited numerous authors to rely on a limited number of discernible and recurrent characters in order to tell stories that can be moulded into the 46-page album format over and over again. In general, the stories told by the different comic books within the same series are not related to each other, which makes it possible to read them separately and in random order. Comics in both parts of the country are published in ‘European format’ (Lefèvre 2000), but Francophone comics are released in hardback and Dutch ones generally in paperback. Yet, they are both printed on higher-quality paper than pocket-edition American and Japanese comics; as a result, Belgian comics are not discarded after having been read, but are preserved, reread, collected and, for the older ones, also remarketed. Most Flemish comics owe their popularity partly to their pre-publication in newspapers (e.g. *Suske en Wiske*, *Nero* and *Jommeke*). Francophone series are published in weeklies (e.g. *Tintin* and *Spirou*) before publication. Finally, there is a difference in publication frequency: most Flemish series appear on average four times a year as comic books, while Francophone books appear just once a year or less.

Research methodology

To make an inventory of all scientists who have ever appeared as a character in a Belgian comic-strip is unfeasible. Therefore, a number of selection criteria was used to define the sample. Only long-running series with 20 albums or more and a relatively fixed set of characters were included. This strict criterion excluded all graphic novels, one shots and one-time appearances of scientists, even though in some cases they were memorable, for instance Professor Dersenvail in the album *Brüssel* in the series *Les cités obscures* [Cities of the Fantastic] (Schuiten and Peeters 1992). The only exceptions to this rule are the precursors to the comics that were selected because their physical resemblance helps to explain the origins of their famous successors.

Table 1 offers an inventory of the Flemish and Francophone comic series that made up the corpus of this study. For all series holds that at least the album in which the scientist for the first time showed up was included in the sample. The physical appearance and the role of the character in the story lines were studied systematically.

Results

Some of the scientists from Table 1 play a title part (Mortimer, Yoko Tsuno, Génial Olivier, Léonard), but in general they are supporting characters. If they are not one of the protagonists themselves, they make their inventions available to the central comic hero. This observation leads immediately to a first explanation for the noticeable presence of scientists in these series. On one hand, they are able to set the plot of the comic in motion with their inventions. For instance, their inventions can get out of hand or become the target of villains who want to lay their hands on them. On the other hand, when the central comic hero seems the far from fulfilling an objective, the scientist’s inventions can help the hero overcome problems. While American superheroes, like Superman and Batman, are able to solve problems on their own, Belgian heroes need their scientists to come to their assistance in their hour of need.

The dual functionality of creating problems and at the same time helping to solve them is especially clear and even crucial to Flemish comic heroes, where the author generally

Table 1. Scientists in Belgian comic series.

Comic heroes (current publisher)	Artist/creator (1st publication)	Scientific character (introduction in the series)	No. of comic books in series (as of 2011)
Flemish series			
<i>Suske en Wiske</i> (Standaard Uitgeverij)	Willy Vandersteen (1945)	Ir. Wargaren (1945) Prof. Barabas (1945) Savantas (1946) Dr Krimson (1963) Matsuoka (1947) Adhemar (1959) Prof. Snuffel (1952)	247
<i>Nero</i> (Standaard Uitgeverij)	Marc Sleen (1947)		163
<i>Piet Pienter en Bert Bibber</i> (Standaard Uitgeverij)	Pom (1951)	Prof. Kumulus (1957) Warwinkel (1969) Prof. Gobelijn (1959)	45
<i>Jommeke</i> (Standaard Uitgeverij)	Jef Nys (1955)		256
Francophone series			
<i>Tintin</i> (Casterman/Moulinart)	Hergé (1929)	Dr Müller (1938) Prof. Tournesol [Calculus] (1947) Pacôme de Champignac (created by Franquin 1950) Zorglub (id. in 1959) Prof. Mortimer	24
<i>Spirou et Fantasio</i> (Dupuis)	Rob-Vel (1938)		52
<i>Blake et Mortimer</i> (Editions Blake & Mortimer)	Edgar P. Jacobs (1946)		20
<i>Les Schtroumpfs</i> (IMPS)	Peyo (1958)	Dr Miloch (1959) Gargamel (1959) Olivier	29
<i>Génial Olivier</i> (Dupuis)	Jacques Devos (1963)		20
<i>Cubitus</i> (Le Lombard)	Dupa (1968)	Sénaphore (1969)	46
<i>Yoko Tsuno</i> (Dupuis)	Roger Leloup (1969)	Ir. Yoko Tsuno	25
<i>Léonard</i> (Le Lombard)	Turk (drawings) De Groot (1975)	Léonard	41

needs to work on the story daily for publication in the newspaper. For instance, a recurring plot in *Jommeke* starts with an out-of-control invention of Professor Gobelijn's that results overnight in strange effects (e.g. all residents of the village acquire a tail, they start to fly, or they become little children), followed by the hero, who tries to manage the chaos, and ends with another invention that makes the symptoms disappear. Similarly, Professor Barabas from *Suske en Wiske* has a number of inventions to his credit, like the 'tele-tijdmachine' [tele-time-machine]. The authors, creator Willy Vandersteen and his successors, can use the inventions an infinite number of times to start stories and to complete them. In sum, the scientist in the comic is a versatile character with unique characteristics: he can both cause and solve problems. This is not much unlike the way sciences are seen nowadays in western countries (see, e.g., Yearly 1997).

Scientists and their inventions not only supply suspense and a deus ex machina device that helps to return to a state of equilibrium, they also supply humour, a characteristic ingredient of the comic series in the table (with the exception of *Blake et Mortimer* and *Yoko Tsuno*). This is a second explanation for the ubiquity of scientists among Belgian comic characters. The humorous series in the table, the one about whizz kid *Génial Olivier* and *Léonard*, a parody on Leonardo da Vinci, are largely constructed upon inventions going haywire. Also the misadventures of amateur inventor Sémaphore, a retired sailor, in *Cubitus* create numerous comedic situations. In many cases, the humour is the result of stereotypical characteristics of scientists that have been exaggerated, like scientists who are so absorbed in their work that they forget and overlook the important societal implications of their work, or scientists that are less socially skilled.

Inventions that turn out differently than intended, like Gobelijn's, make it possible for the authors to let a 'good' character, despite his intentions and against his will, become the creator of problems and difficulties. In these occasions, it is science itself that represents evil, and not necessarily the character. This is a specific problematic conclusion, because it underlines the message: 'Beware of science! Even in the hands of scientists of integrity it constitutes a threat' (see Toumey 1992). However, in many series, evil science is explicitly represented by a 'bad' character who presents challenges for the heroes. In five of the studied series, the scientists belong to the 'bad guys', who play the role of arch villain in a number of stories: Dr Müller in *Tintin*, Savantas and Dr Krimson in *Suske en Wiske*, Gargamel in *The Smurfs*, Zorglub in *Spirou et Fantasio* and Warwinkel in *Piet Pienter en Bert Bibber*. *Blake et Mortimer* introduces a number of evil scientists (e.g. Dr Septimus). In Jacobs' universe, Asians (Japanese) often act as villains. Similarly, in the story *Het geheim van Matsuoka* [The Secret of Matsuoka], the artist Marc Sleen relegates his main character to a side role and focuses on a mad scientist who is also a Japanese man, Matsuoka. The story was written in 1947, just after the Second World War, which could explain why the author chose a Japanese, megalomaniac character. In all these cases of science or scientists 'going bad', the comics express – as Weingart (2003) also noticed in studying scientists in fiction films – the ambivalence that characterises the relationship between science and society, and the basic, mythic fears that go hand in hand with the creation of new knowledge.

Typology of the scientists as comic heroes

Chambers (1983) developed a test in which children were asked to draw a scientist (the Draw-A-Scientist Test; DAST). In this study, seven characteristics of the scientist were found that recurred most often and, together, they form the stereotypical image of the scientist: a white coat, spectacles, bold or unruly hair, a beard and/or moustache, and

scientific instruments such as a flask or pipette, books and chests of drawers, and technology such as missiles, and finally formulas and the exclamation 'Eureka!'. Also, images of science as 'dangerous' and 'secret' occurred regularly. All these elements are present in the Belgian comics. As such, they tend to reiterate these common beliefs and may even help create and perpetuate them.

Figure 1 chronologically presents a number of exterior characteristics of the scientists listed in Table 1, including a number of precursors. Almost all of them show a number of stereotypical exterior characteristics: a bald head or unruly hair, spectacles and a moustache or a beard. Albert Einstein's luxuriant, spiky hair has supposedly influenced the creation of Pacôme de Champignac from *Spirou et Fantasio*, among others. Nearly all are

Figure 1. Study of the morphology of scientists in Belgian comics.

Notes: The drawings were made by the first author, based on and with respect for the original work of the respective artists. These drawings can differ from the original ones on other items than those discussed here. The reproduction and other copyrights rest with the respective artists, their beneficiaries and the publisher as mentioned in Table 1.

old men, with Adhemar as the most notable exception. We only find one woman, and she is also the only non-white character: Yoko Tsuno. In comparison with other fiction media, let alone in non-fiction media, these exterior characteristics are much more stereotypical (see, e.g., Steinke 2005). Similarly, Whitelegg et al. (2008) found that stereotypes are much more profound in cartoons and animations than in any other type of medium. In the bottom row of the figure, where some of the villains appear, the white-grey hair is replaced by black hair, the colour generally symbolising evil. In this category, we also find more hooked noses, which resemble the anti-Semitic caricatures of the 1930s.

Based on their actions and roles in the various stories, scientists in comics can be classified following a number of prototypes: stereotypical characters who are the personification of a cluster of stereotypical characteristics (Van Gorp, Rommes, and Emons 2013).

The genius is the scientist who earns the most admiration in public life. The principal characteristics of geniuses are exceptional intelligence and the apparent ease with which they achieve the top-notch performances for which they are praised. Léonard is the most outspoken example of the genius as he excels in several scientific areas, just like the real Leonardo da Vinci. A second prototype is the wizard; closely related to the genius, but his exploits can be labelled more as miracles. The genius is usually presented as the central hero while the wizard tends to be a supporting character: the helper or donor who supports the hero in achieving his assignment, by supplying him with, for example, a potion that helps him to conclude a quest (see Panoramix in the French series *Astérix*). Because of their role as helper or donor Pacôme de Champignac, Barabas, Tournesol and Gobelijn fit perfectly into Propp's (1958) often quoted classification of the kinds of characters common in storylines. The wizard is helpful, extremely intelligent, full of inspiration, but possibly somewhat absent-minded, in contrast with the central heroes. This absent-mindedness and naive impression can be seen in Tournesol, Gobelijn and Wargaren, the predecessor of Barabas, in particular.

The puzzler is the personification of a number of specific characteristics of the scientist: the endless patience with which he tries to solve mysteries, his structured way of working, his applied precision and the satisfaction found in the smallest detail. The dominant characteristic for this prototype is that the underlying process of argumentation and the technical actions that need to be executed are typically shown and explained to the reader in didactic fashion. Of all the Belgian comic professors, Mortimer corresponds best to this profile, although he also displays some characteristics of the following prototype.

The scientist as adventurer, the fourth prototype and the personification of the physically active scientist, prefers to work outdoors and has a helper or sidekick. Just like the geniuses from this typology, they are heroes, but the adventurer does not avoid danger in order to solve, unravel or clarify mysteries. Therefore, the adventurer symbolises the willingness of the scientist to put his life at risk for science. Yoko Tsuno is the best example of the scientist as adventurer. With her sidekicks Vic and Pol, she explores the earth and everything beyond.

Another prototype is the nerd. Nerds are as obsessive as puzzlers, but they are characterised by their lack of social skills. Nerds can be very smart, but can still make a 'dumb' impression as they deviate from social standards. Their priority obviously lies with their passion. Génial Olivier fits this typology. He played the main part in Jacques Devos's comic series *M. Rectitude et Génial Olivier*, published from 1963 until 1988. Most of the jokes dealt with the schoolboy's inventions, with which he used to cause trouble in Mr Rectitude's class.

A contrast to the admirable prototypes is the mad scientist, like Miloch from *Blake et Mortimer*, Dr Müller from *Tintin* and Dr Krimson and Savantas from *Suske en Wiske*. While the genius has a social and professional standing, the mad scientist is driven by his urge for power and wants to command the world. The most recurrent characteristic for the mad scientist is his obsessive behaviour, aimed at the execution of an insane plan. In general, this project is directed against humanity, ranging from the megalomaniac ambition to conquer the world to the creation of new life, whereby the scientist claims the power of a deity.

The mad scientist is the most efficient prototype to expose moral matters concerning science and technology. An example is Savantas, who already appears in the first stories of *Suske en Wiske*, but who becomes involved in controversial scientific fields such as genetic engineering and cloning in later stories. Other recent examples in our corpus appear in *Nero*. Professor R.B. Purmerend is trying to exact revenge on Professor Adhemar by melting the polar caps and blaming Professor Adhemar for it (*'Ijskoud geblaas'* [A freezing blast], Marc Sleen, 1995) and Professor Spoelwaether wants to destroy the world by spreading a virus that will make people infertile (*'Het Bio-Bao-Virus'*, Marc Sleen, 2001). In sum, the actions of the mad scientist symbolise the perceived dangers of scientific and technological progress.

A category containing characters that can be labelled as both good and bad is that of the misunderstood genius. He has brilliant ideas, but the outside world and his colleagues do not recognise his merits. His ideas and inventions are too absurd or too revolutionary and entail a potential danger to humanity. Good examples of this type are Zorglub from *Spirou et Fantasio* and Warwinkel from *Piet Pienter en Bert Bibber*. In both cases, there is contact between the heroes and the scientists, but the relationship is not always amicable. The initial misjudgement of the scientist by the hero is often given as an explanation for the condemnable behaviour of the scientist.

The origin of the prototypical scientists: influence from real-life scientific progress

Most of the scientists in Belgian comics were conceived between the end of the Second World War and the end of the 1950s (see [Table 1](#)). By contrast, the character of the scientist is remarkably lacking in newer, successful series that have been launched in the course of the last decades in Belgium (e.g. *Largo Winch*).

There are three possible reasons for the creation of so many iconic comic characters in the immediate aftermath of the Second World War and during the first stages of the Cold War. First of all, humankind was being confronted with the brutal force of a number of new inventions, most notably the nuclear bomb, at that time. Scientists were regarded more ambiguously, as not only able to solve problems, but also to create new moral dilemmas related to their research. Hirsch (1962) found similar shifts in the number and ways in which scientists were depicted in the media after the Second World War. Second, science and especially technology was a basic requirement for rebuilding post-war Europe. Nowadays, young people in developing countries regard science and technology as much more positive than do western youth (Sjøberg and Schreiner 2006), possibly for the same reason: that constructing and building is seen as a core requirement for (re) building a wealthy nation. Third, many technological inventions, like cars and the television, have entered the lives of ordinary people, especially since the 1950s. This stimulated the imagination of the comic authors of that time: where does the technological revolution lead? The disastrous impact of the weapons from World War II made it especially clear that technological progress does not mean only prosperity. Remarkably,

comic heroes were engaged in designing deadly weapons immediately after the Second World War. Engineer Wargaren from *Rikki en Wiske in Chocowakije* (Willy Vandersteen, 1945), the precursor of *Suske en Wiske*, is the inventor of a war tank, and Mortimer is the inventor of a ‘total weapon’ in *Le secret de l’Espadon* [The Secret of the Swordfish] (Edgar P. Jacobs, 1950–1953). They only became peace-loving scientists in later stories.

Although the influence from World War II is remarkable, there are no direct references to the atrocities committed in the name of science during that period of time. For instance, Nazi Dr Mengele could have been an inspiration for a mad scientist in a horror story, as he was for horror comics in the 1950s in the United States (Normanton 2008). However, in the kind of comic series under study, clearly aiming at children, this is almost impossible. It seems even that topics such as the Holocaust are under a strict taboo. This became evident in 2005, when the heirs of Willy Vandersteen fired comic artist Marc Verhaegen after he wanted to make a story of *Suske en Wiske* that was related to the Holocaust.

Yet it is plausible that the origin of many prototypes can be situated *before* World War II. First of all, a connection can be found between the prototypes and real contributors to science. Leonardo da Vinci (1452–1519), without doubt the model for Léonard, also wore a long beard according to oral tradition and self-portraits. Another real-life scientist upon whom a comic character was based was the Swiss physicist Auguste Piccard (1884–1962). The physical resemblance with Professor Tournesol, except for the goatee, is striking (Farr 2001). So although most characters’ physiognomy originated from the artist’s fantasy, this fantasy was clearly influenced by the work of colleagues and took into account a certain number of stereotypical ‘conventions’ in popular culture. There are two exceptions in which a real person served as a model, although none of them was a scientist: Jacques Van Melkebeke (1904–1983), a Belgian journalist and friend of Hergé, for the appearance of Professor Mortimer (Le Gallo 1984); and the Belgian artist Hendrik Bulterys (1899–1989) for that of Professor Gobelijn (De Ryck 2005).

In addition to physical characteristics, other characteristics that the studied characters have in common can also be traced back to actual and famous scientists: they work individually, are financially independent and some of them have an eccentric appearance. We refer here mainly to Galileo Galilei (1565–1642) and Isaac Newton (1642–1727). They undoubtedly left an enormous impression, and geniuses such as Newton became real celebrities. Their historical influence remains noticeable in twentieth-century comics.

All scientists from the comics studied work independently and they are not connected to a university or a research institution. Occasionally, there are indications that the scientist in Belgian comics actually is part of a scientific network, when he meets old school friends (e.g. Champignac and Zorglub) or colleagues (e.g. Tournesol and Hippolytus), or when he participates in scientific conferences (Mortimer, Adhemar, Tournesol, Barabas, etc.). However, scientists in comics clearly prefer to work alone. They rarely even tolerate an assistant at their side, and if they do have an assistant, they mostly turn out to be villains, as Savantas in *Suske en Wiske* and Frank Wolff in *Tintin’s Objectif Lune* [Destination Moon] (Hergé, 1953). From this last album, it is clear that a scientist may operate very occasionally within a group of scientists.

The idea that scientists are asocial or loners is historically incorrect. Although a few famous scientists were indeed loners, like Michael Faraday (1791–1867) and Alfred Nobel (1833–1896), it can be deduced from biographies (e.g. Balchin 2003; Farndon et al. 2005) that the most famous scientists had a partner, or that they were assisted in their laboratory, and they were not de facto socially inept.

The isolated position of the scientist in comics is further explained by its symbolic meaning. On the one hand, isolation is a characteristic that can be linked to passion and

commitment to science. It is plausible that the absent-mindedness of, for instance, Tournesol and Gobelijn is symbolic of wisdom and detachment from the material world. On the other hand, in extremis, this isolation and neglect of the physical world may be associated with insanity, and thus with the mad scientist (Stiles 2009).

Another observation is that the scientists from these comic books never seem to suffer any lack of resources and have a well-equipped, private laboratory at their disposal. Having a proper laboratory is historically consistent with the first scientific celebrities, who came from the upper classes of society and had private capital at their disposal in order to execute experiments at home. The attire of a character like the aristocrat Pacôme de Champignac seems to originate from those times, and just like him, Tournesol and Gobelijn live in a castle (Leroy 2002). With regard to social class, there is a remarkable distinction between Francophone and Flemish comics. The Flemish scientists do not belong to the upper class, which can be said for Tournesol, Champignac and Mortimer. Gobelijn, Barabas and Kumulus are dressed more soberly than their Francophone counterparts. They do not wear detachable collars, but often a simple lab coat.

It is not common in Belgian comics to elaborate on the financial condition of a comic hero, but one may ask where the scientist gets his funding from to implement his innovative plans? We may assume that Champignac is of noble origin and has sufficient resources from his ancestry. We also know that Tournesol managed to accumulate a small fortune with the sale of his invention, the shark-shaped submarine from *Le trésor de Rackham le Rouge* [Red Rackham's Treasure] (Hergé, 1944), to the government. With this money, he was able to buy the castle of Moulinsart. Sémaphore seems to be the least affluent character, but he is in fact a retired sailor and not a scientist. Barabas is the only scientist who has ever become impoverished. In *Het zingende nijlpaard* [The Singing Hippo] (Willy Vandersteen, 1951), he invested all his money in a type of mini flying saucer that no one thought to be useful. But this is a really exceptional story ingredient, which reminds us of the general rule that scientists in comics do not have to deal with the financing of their activities.

The eccentric appearance of some of the scientists (e.g. Pacôme de Champignac, Savantas; see Figure 1) is a third point of comparison with historical scientists. According to their biographies, Galileo Galilei dressed conspicuously and Dmitri Mendeleev (1834–1907) cut his tangled hair and long beard just once a year. Browne (2009) outlined a good overview of the many meanings a long beard on a scientist could have: maturity, masculinity, wisdom, patience, references to Greek philosophers, saints and prophets such as Moses, or to show that one has been dedicated to nothing but his work for a long time. Still, in reality, the eccentric scientist seems to be more an exception than a rule. Of course there is the most famous of all scientists, Albert Einstein (1879–1955), whose unruly hair is universally known. Furthermore, Charles Darwin's long beard and bushy eyebrows are iconic for the stereotypical image of the scientist. We can find these characteristics in, among others, Gobelijn, Zorglub and Warwinkel. According to Browne, a scientist can more easily express his sacrifice and dedication to science in an individual portrait. The universally known images of Einstein and Darwin, with their wild hair, have even partly been consciously chosen and disseminated to promote their position as scientists.

The origin of the prototypical scientists: influences from fiction

We have just discussed how some characteristics of scientists in comics can be traced back to biographies and hagiographies of certain legendary scientists. In addition, some of the

prototypes of scientists that we have found in Belgian comics are clearly influenced by well-known stories and literature, which in themselves are, in several cases, again influenced by the stories of real scientists.

The perhaps most well known stereotypical images of the scientist as a wizard or as a mad scientist have a long history and go back to the mythologisation of the Middle Ages. Both are reincarnations of the medieval alchemist (Schummer and Spector 2007). The most fascinating goal of alchemy was the creation of the Philosopher's Stone, which could change base metal into gold and produce the Elixir of Life, making man immortal. This often-popularised goal and the symbols that surround them (like a thick book, a skull and magical symbols) can be directly linked to the prototype of the wizard. For example, Gargamel from *Les Schtroumpfs* [The Smurfs] is literally an alchemist.

As Haynes (1989) argued, the practical origins of alchemy in chemistry and medicine were gradually obscured. Alchemy turned into quackery and the black arts, receiving severe criticism from the field of metaphysics and religion. Similarly, the story of Faust is illustrative of the perceived threat to the divine order of alchemy and the development of science. The English playwright Christopher Marlowe (1564–1593) wrote the story in which the tragic Dr Faust has to choose between good and bad, though the version of the story by Johann Wolfgang von Goethe (1749–1832) is the most famous. Marlowe found his inspiration in a person who actually lived from circa 1480 till 1540: a wandering alchemist named Johann Georg Faust (Dell'Aira and Hoekstra 2002). The fictitious character of Faust, though, appeals more to the imagination and became a model for the prototype of the genius with devilish powers, referred to in this article as the 'mad scientist'.

Haynes (1989) concluded that the most dominant image of the scientist in western literature is that of an evil man. The most famous example of a novel describing the negative consequences of science's unbridled urge to understand life and God's creation is *Frankenstein, or the Modern Prometheus*, by Mary Shelley (1797–1851). Herbert George Wells (1866–1946) is another famous author of scientific narratives in which the possibilities of scientific progress have a negative impact, like in *The Island of Doctor Moureau* (1896) and *The Invisible Man* (1897).

The fear of change, the disturbance of the social order and the inability to take stock of the consequences of science form powerful underlying motives to stories that can also be found in Belgian comics. This fear, however, is matched by the public's fascination with scientific discoveries. It is this duality that is embodied by the misunderstood genius. Furthermore, as a rule, even plotlines that end in a catastrophe start out with an astonishing demonstration of human ingenuity. After all, Dr Frankenstein did succeed in bringing a dead person back to life. Similarly, in comics, Zorglub's flying machine made a strong impression on Spirou and Fantasio (*Z comme Zorglub* [Z for Zorglub], André Franquin, 1959).

The inventor is the genius character that embodies progress. Contrary to the 'mad scientist', only the fascination for science, and not the moral dilemmas and fear of the consequences, is embodied in this character. According to Haynes (1989), this focus on progress is more an ingredient of American rather than European literature, and is influenced by Alexander Graham Bell (1847–1922) and Thomas Edison (1847–1931). As we tend to characterize the scientists in Belgian comics as 'master mechanics' (Allen 1992), with Gargamel and Mortimer as rare exceptions, we may presume that the comic artists are inspired by this American narrative on technological progress.

The fascination for the possibilities of science and new inventions lay at the basis of the success of the many nineteenth-century, fictitious narratives in which science and

inventions play a central role, such as in *L'Ève future* [The Future Eve] (1886) by Auguste Villiers de L'Isle-Adam (1838–1889). But the most famous is Jules Verne (1828–1905), who contributed prominently to the popularisation of science by conceptualising the scientist as an adventurer and giving his visionary imagination free rein. Tintin first stepped on the moon on behalf of mankind, but Verne sent his characters there long before in *De la Terre à la lune* [From the Earth to the Moon] (1865).

Additionally, the scientific method was seen, both in science and in fictitious literature, as the way to get progress in society. The scientific method goes back to Auguste Comte's (1798–1857) positivism, and can also be traced in the first utopian novel in which society clearly benefits from science, i.e. *New Atlantis* (1627), written by Sir Francis Bacon (1561–1626). He popularised science that was based on empiricism. This systematic, inductive approach to science later found its way into detective novels, in which a number of honest scientists appear who most closely match the description of the puzzler in our typology, for instance Professor S.F.X. Van Dusen, a.k.a. the Thinking Machine, created by Jacques Futrelle (1875–1912), and Dr Watson, Sherlock Holmes's sidekick, and Professor Challenger by Arthur Conan Doyle (1859–1930). Conan Doyle also created the mad scientist Professor Moriarty, Sherlock's nemesis.

When the Belgian comic authors were confronted with the task of creating their characters and inventing their stories, they undoubtedly knew the writers who gave science a central place in their novels. For instance, the story *Het mini mierennest* [The Mini Anthill] (Willy Vandersteen, 1967) is an adaptation of Jules Verne's *L'île mystérieuse* [The Mysterious Island] (1874). It is very plausible that the Belgian comic writers simply continued the creations and genre conventions from fiction authors after the Second World War. According to this interpretation, both themes (science as progress and science as danger) and the different prototypes (the wizard, the genius, the puzzler, the adventurer, the mad scientist and the misunderstood genius) were transferred from one popular medium to another.

With regard to the visualisation of the prototypical scientist, a similar transference between genres can be seen, only this time between graphic artists, filmmakers and comic artists. For instance, in the German science-fiction film *Metropolis* (Fritz Lang, 1929), a gem of a mad scientist appears, with a wild hairdo and a penetrating stare: C.A. Rotwang. Although the movie takes place in 2026, the scientist's attire is more in keeping with an alchemist or a wizard, whose images, in turn, are inspired by old etchings and engravings, like that of Rembrandt's *Faust* (circa 1652). The pointed hats, long robes with star patterns, and long, white beards are even more explicitly present in the boffins launching a missile in one of the first science-fiction movies: *Le voyage dans la lune* [A Trip to the Moon] by Georges Méliès (1861–1938) in 1902. Over the years, the movie industry created numerous iconic scientists, such as Indiana Jones, and Doc Brown from *Back to the Future* (Robert Zemeckis, 1985; for an overview see Frayling 2005 and Perkowitz 2007). The nerd seems to be more a creation of the film and TV industry than of literature because it is a character that lends itself to exuberant visualisations and slapstick humour, as in, for instance, *The Nutty Professor* (Jerry Lewis, 1963) and in the TV series *Happy Days* (Garry Marshall, 1974–1984).

Science fiction as a genre especially redirects our search into the roots of the scientist in Belgian comics towards the world of comic books, and more particularly, of American comics. A clearly traceable trail can be found to the American science fiction series *Flash Gordon* by Alex Raymond, which first appeared in 1935. In this story, the scientist Hans Zarkov is the central character. Initially, he can be labelled as a mad scientist, but he then evolves into an adventurer who wants to do good for society. He invents the spaceship

that takes Flash Gordon to the planet Mongo. The series already appeared in 1936, translated as *Stormer Gordon*, in the Dutch-language comic magazine *Bravo!* (Gaumer and Moliterni 1994). At the beginning of the Second World War, the Dutch publisher, located in Brussels, lost the Dutch market and from then on aimed the magazine, in French and Dutch, at the Belgian market. It is plausible that young Belgian comic authors became familiar with the American comic heroes in this way. Moreover, Willy Vandersteen and Edgar P. Jacobs, among others, would later make their debut in this magazine. When the Americans became involved in the war, new supplies from the United States became unavailable as a result of censorship by the German occupying forces. It was Jacobs who was asked to complete the running story of *Flash Gordon* with five pages of his own creation (Le Gallo 1984). He subsequently got the opportunity to devise his own story for the magazine in 1943: *Le rayon U* [The U-Ray]. The physical resemblance between Zarkov from *Flash Gordon* and Professor Marduk from *Le rayon U* is striking. The first scientist as protagonist in Belgian comics was therefore a continuation of an American series.

The particular origins of Yoko Tsuno as a comic character are also noteworthy here, especially because she is an atypical scientist (female, young, beautiful, non-white). Until the end of the 1960s, Belgian Francophone comic artists had to deal with the French censorship, knowing that France is their largest market (De Weyer 2011). Comics were perceived as children's literature. Moreover, the Belgian publisher, Dupuis, was a Catholic. Therefore, it was only possible from the early 1970s to introduce attractive female lead characters in comics. Airhostess Natacha, created by François Walthéry, and Yoko Tsuno were the first female comic heroes from publisher Dupuis. Roger Leloup, lover of Asian culture, chose to give Yoko the Japanese nationality because Chinese or Korean were more controversial in the aftermath of the Cold War. Initially, in the first story, *Le Trio de l'étrange* [Trio into the Unknown], Yoko was not the lead character. She was part of a trio, along with TV engineers Vic and Pol. However, as during pre-publication in the comic weekly *Spirou*, a reader survey showed that Yoko was particularly popular among young readers (notably girls), the publisher asked Leloup to place her in the foreground of the story. Therefore, the conclusion here is that contingencies, like an authors' fascination for Asia, but also the historical context and industrial imperatives play a crucial role in the origins of prototypical scientists in Belgian comics.

Discussion

In comics, the hero who needs to cope with the dilemmas that science poses may represent the classical struggle between good and evil. Locke (2005) noted two alternative ways of thinking about science in American superhero comics. On the one hand, science can achieve wonderful, even magical things. On the other hand, science can lead to severe disappointments and destructive outcomes. It is this ambivalent attitude that is reflected in many Belgian comic strips, both in the way they depict science and in the prototypes of scientists that we found.

Leroy (2002) also noted this ambivalent attitude towards science in *Tintin* and *Spirou et Fantasio*. Science is useful, and offers a solution to many problematic situations, but at the same time it may be a source of discomfort, turmoil and even mass destruction. In general, however, stories have a happy ending only when the equilibrium has been re-established and the impact of the technological change is rectified. No matter how imaginative the inventions may be, there is no acquiring of knowledge in comics. If Suske and Wiske would just keep all of Barabas's inventions for the next stories, it would

save them a lot of hassle. But, of course, that is not how a comic plot is devised: every story starts from zero, just as all comic characters never grow old.

From the inventory in this study, it becomes all the more apparent that the scientist constitutes a recurrent and particular character in Belgian comic history. A first reason for his presence is found in the fact that the scientist is an exceptionally versatile character. The scientist can be depicted as the unthinkable villain whose aim is to destroy the world, but just as easily and as credibly as a kind of saint who wants to help and supplies solutions. Scientists and inventors make dreams come true, but they also play upon the greatest nightmares of the comic readers by creating monsters and causing disasters. It is exactly this double characteristic and versatility of scientists and inventors that makes them popular with comics authors.

Finding the source of the scientific character was the second goal of this study. It became clear that certain characteristics, like seclusion and the eccentric appearance of the prototypical scientist were not based on everyday life experiences of scientists, but rather came from stereotypes and popular fiction. A small number of historical scientists supposedly lay at the basis of the stereotypical scientist. Subsequently, biographers, journalists and inheritors, drew attention to characteristics they felt suited to their role of an extremely dedicated person as shown through their disregard for looks and social contacts. Writers and comic writers enlarged and cultivated the specific characteristics even further.

The stereotypical characteristics of comic scientists have not changed over time: they are loners who, at the most, tolerate a pet at their side (like Cubitus from *Sémaphore*). A reason why certain types like adventurers, misunderstood geniuses and mad scientists dominate and why they deviate so much from the more realistic image of the scientist is, according to our analysis, their long history. Since the second half of the nineteenth century, specific kinds of scientist regularly occur in popular literature. In addition, the works of writers like Verne, Wells and Shelley are an important source of inspiration for many generations of comic artists. The same prototypes are used over and over again, making it easier for the public to recognise them. This is convenient for the authors, who want to play with the conventions and aim at a comic effect like in *Génial Olivier* and the parody *Léonard*.

A downside of the narrative functionality of the scientific comic character is that it endorses any number of clichés and stereotypes of scientists: they are generally somewhat naive, older white men with a bald head or rumpled hair, a beard and a moustache. Absent-mindedness, forgetfulness and the inability to perform the most ordinary daily tasks are typical characteristics. The use of these ingredients to represent scientists, which Leroy (2002) already noted in *Tintin* and *Spirou et Fantasio*, holds true for many more long-running, Belgian comic-book series. As a result, the image of scientists in comic books is not appealing and may be particularly unappealing to young, non-white women and men who want to be seen as sociable and attractive (Rommes 2010). Indeed, various 'Draw A Scientists' tests (e.g. Fralick et al. 2009) have indicated that the image young people hold of scientists is remarkably close to the stereotypes depicted in comic book series. As a result, science becomes an inaccessible domain, reserved for the elite.

The Japanese beauty, Yoko Tsuno does not fit this quite unattractive role model of the scientist for comic-book readers, which makes her the exception that proves the rule. Gallego Torres (2007) concluded in her study of comics available in Spain (including those of Belgian origin) that science in comics is strictly reserved for men. Although current statistics show that in practice women are underrepresented as scientists, they are not as rare as comic-book stories tell us. One of the explanations for the

underrepresentation of women scientists in comic books may be that the period in which by far most of the scientists in comic books were inceptioned was right after the Second World War. At this particular time, women were discouraged from partaking in public working life, and traditional gender stereotypes were abundant. French conservative censorship prevented Francophone authors even from creating female lead characters until the end of the 1960s. Moreover, racist tendencies in society were still at a peak, which may help to explain why scientists in comic books are depicted as they are: white men. Through the years, the scientists in the comic-book series we studied have undergone hardly any changes, meaning that in their representations of scientists comic books are neither mirror nor moulder of society, but rather they reiterate long-standing stereotypes, sometimes even originating in the Middle Ages.

Could this stereotypical depiction of scientists in comic books be a result of conscious choices? Leroy argued that the ideological preferences of comic authors like Hergé and Franquin are reflected in the way in which they dealt with science and scientists in their series. Hergé's heroes are fighting Stalinist ideology (e.g. in *Le Sceptre d'Ottokar* [King Ottokar's Sceptre], 1938; and in *L'affaire Tournesol* [The Calculus Affair], 1956), which could refer to Hergé's right-wing political background. By contrast, Leroy characterised Franquin's creation Champignac as 'an anarchist, a troublemaker, and a Humanitarian' (2002, 215). This would be linked to the leftist political background of the artist.

A relevant question is whether these observations hold true for the other comic characters in our more comprehensive sample? Unfortunately, the political background of the other authors in the corpus is not as thoroughly discussed as that of Hergé. Willy Vandersteen is the only other comic author whose political past was the topic of a controversy. Vandersteen's heirs have confirmed that, during World War II, at the beginning of his career, Vandersteen did draw some anti-Semitic cartoons. It is debatable whether this 'youthful lapse' has influenced the representation of scientists in *Suske en Wiske*. However, it can be argued that, from the 1960s onwards, Vandersteen's work is characterised by an extensive social commitment that is mainly embodied in the character of Barabas. Delbeke (1996) stated that the basic attitude towards science in *Suske en Wiske* is a deep distrust of the intentions of political authorities and military powers with regard to science, and that the enemy is not filled in ideologically, such as was the case in *Blake et Mortimer* and *Tintin*.

On the basis of this study, it is concluded that it is not so much the ideological background that provides insights into how science is presented in comics, but rather contingencies, a reflection of the historical period of time in which a comic character was conceived and the pragmatic choices that a comic artist has to make. Most Flemish authors were confronted with the task of devising many stories for comic series that appeared in daily newspapers. They needed to finalise a half-page of their narrations six days a week, as an industrial imperative. The work of colleagues and other art forms undoubtedly inspired them. It turned out that scientists, good ones and bad ones, are especially versatile because they can put a story conveniently into motion and they can offer a solution when the central comic hero is at a complete loss as to what to do and so they can easily help save time for authors under time pressure. The capacity of being able to inspire laughter, while simultaneously causing problems and presenting solutions, offers a functional explanation for the reason why the scientist, in one or more of his distinguished appearances, is used so often with the same characteristics in Belgian comic series.

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