

Close-up on the robot of *Metropolis*, Fritz Lang, 1926

The robot of *Metropolis*

The Cinémathèque's robot

- Description

This sculpture, exhibited in the museum of the Cinémathèque française, is a copy of the famous robot from Fritz Lang's film *Metropolis*, which has since disappeared. It was commissioned from Walter Schulze-Mittendorff, the sculptor of the original robot, in 1970.

Presented in walking position on a wooden pedestal, the robot measures 181 x 58 x 50 cm.

The artist used a mannequin as the basic support¹, sculpting the shape by sawing and reworking certain parts with wood putty. He next covered it with 'plates of a relatively flexible material (certainly cardboard) attached by nails or glue. Then, small wooden cubes, balls and strips were applied, as well as metal elements: a plate cut out for the ribcage and small springs.'² To finish, he covered the whole with silver paint.

- The automaton: costume or sculpture?

The robot in the film was not an automaton but actress Brigitte Helm, wearing a costume made up of rigid pieces that she put on like parts of a suit of armour.

For the reproduction, Walter Schulze-Mittendorff preferred making a rigid sculpture that would be more resistant to the risks of damage. He worked solely from memory and with photos from the film as he had made no sketches or drawings of the robot during its creation in 1926.³

Not having to take into account the morphology or space necessary for the actress's movements, the sculptor gave the new robot a more slender figure: the head, pelvis, hips and arms are thinner than those of the original.

In the film, the robot has a piercing gaze thanks to its eyes painted with a very light pupil on a white background; in comparison, that of the copy, in the same silver-grey as the rest of the statue, is duller, more lifeless. The expression is also gentler owing to a smaller forehead, with arches of the eyebrows rounder and higher than the original.

The copy allows for observing a side of the robot that is invisible in the film: its back.

¹ According to the account by Bertina Schulze-Mittendorff, the sculptor's daughter.

² 'Rapport d'examen de traitement' by Emmanuelle Pris, restorer of sculptures, 2001.

³ According to the account by Bertina Schulze-Mittendorff, the sculptor's daughter.

It is crisscrossed by a network of small vertical ridges imitating the air vents of a motor. At shoulder level, round rivets close the metal plates, giving the robot a 'Meccano' look. A fake cut-out held by artificial springs between the trunk and the legs symbolises the joint.

- From the disappearance of the original...

There now exist only copies of the robot used for the filming, the original having disappeared.

For the scene at the stake when the mob burns the robot, the film crew lit a real fire. A production still shows the flames being extinguished, so the robot thus underwent damage, which could explain why it was not saved.

Another reason, this one historical, probably sheds more light on this disappearance. In 1926, cinema was above all an industry and had not yet fully acquired an artistic status. The notion of film heritage was in its infancy. Rare are the documents, be they scripts, sets, costumes or the films themselves, to have been saved. As important as it was in the film's plot, the robot was merely a film accessory.

- ...to its reconstruction

In April 1970, the Cinémathèque française was in charge of organising an exhibition devoted to the history of world cinema. On that occasion, Lotte Eisner, head curator of the collections, commissioned a reproduction of the robot from art director Walter Schulze-Mittendorff.

The robot was shown to the public at the Palais de Chaillot, the Cinémathèque's home at the time, during the inauguration of the exhibition entitled '*Trois quarts de siècle de cinéma mondial*' (Three Quarters of a Century of World Cinema), on 14th June 1972. Thanks to the success it met with, the temporary exhibition became a permanent film museum named the Musée du Cinéma⁴.

For 25 years, the robot was exhibited in an area devoted to *Metropolis*, along with an original poster and drawings of the film's sets. But in 1997, a fire on the roof of the Palais de Chaillot caused severe water damage and forced the Cinémathèque to close the museum. The robot returned to the store rooms.

In 1994, the Louvre had five resin casts made of the robot. Four of them entered private collections, whereas the fifth, given to the Cinémathèque française, joined the store rooms, coming out only for temporary exhibitions such as '*Metropolis, The Complete Version*', organised at the Cinémathèque française from 19th October 2011 to 29th January 2012.

In September 2005, the Museum reopened its doors in the new premises of the Cinémathèque française, in Paris's XIIth *arrondissement*. The robot from *Metropolis*, restored in 2001, is on

⁴ Laurent Mannoni, *Histoire de la Cinémathèque française*, Gallimard, 2006.

exhibit there, accompanied by an excerpt from the film and a tape-guide commentary. Once again, it has a place of choice amongst the showpieces of the Cinémathèque's collections.

The film robot

- The 'human machine'

In the film, the robot is referred to as a *Maschinenmensch*, a 'human being machine', without specification of gender, but it has a female silhouette and attributes: sex, bosom, narrow shoulders, round hips...

The robot is made of blocks imitating the various members of the human body, but this assemblage does not reveal any of the inner components or workings.

How does the robot function and what mechanisms compose it? We do not know, and the film does not provide an answer; only the elbow joint reveals complex machinery.

Made entirely of a polished white metal, the robot glitters in places under the brilliance of the lights, this material giving it a precious, finely-worked look that contrasts with the simplicity of the overall form.

The roundness of the contours, the chiselled aspect of the ribs, abdomen and ears give the robot a refinement and fragility, counterbalanced by solid legs, large hands and thick forearms, which give the machine a powerful look.

Thanks to the sophisticated, original design, the robot symbolises the future and the domination of technology. The fascination it instils is based both on this plastic invention and, in the film, on its transformation into the false Maria. By taking on an appearance that merges the organic with the technical, the robot of *Metropolis* becomes cinema's first android.

- The robot's creator

After studying sculpture, Walter Schulze-Mittendorff (1893-1976) came to the cinema thanks to Fritz Lang who hired him for *Der müde Tod* ('Destiny' or 'The Weary Death', 1921). He would work for him again on the second episode of *Die Nibelungen* (1923) and *The Last Will of Doctor Mabuse* (1932).

Visual artist, sculptor and film architect, Schulze-Mittendorff progressively became a wardrobe master and was head wardrobe master at the DEFA (German Democratic Republic Film Agency) from 1947 to 1962. After the construction of the Berlin Wall, and up until 1968, he participated in 18 West German cinema and television films as an independent wardrobe master⁵.

⁵ Adapted from the biography by Bertina Schulze-Mittendorff on the Website www.filmportal.de.

For *Metropolis*, Schulze-Mittendorff created four sculptural elements:

– the robot;

– the 'head of Hel', consisting of a stele surmounted by a gigantic sculpted woman's head. It was impossible to sculpt the head the size it was to appear on the screen, for it would have measured nearly five metres in circumference, so Schulze-Mittendorff made a 60-cm sculpture, enlarged on film by a special effect (Schüfftan process);

– 'Death and the Seven Deadly Sins', a group of eight allegorical statues located in the cathedral of Metropolis. For the shots where the statues are rigid, the sculptor created statuettes 30 centimetres high, while for the shots where the statues come alive, he conceived eight masks (in the same material as that of the robot) worn by the disguised actors;

– the 'fantastic seven-headed creature', a set element from the dance number that the false Maria performs in the Metropolis cabaret.

- Creation of the robot

The creation of the robot was a technical and artistic achievement.

The crucial issue was the choice of material, as the actress Brigitte Helm 'had to be able to remain standing, walk and sit – and without its being too heavy'⁶. Metal turned out to be technically unsuitable.

By chance, the sculptor discovered a sample of a new, 'absolutely suitable'⁷ material: wood putty, 'malleable, hardening quite quickly in the air, and that could then be worked like natural wood'⁸.

Schulze-Mittendorff explains: 'I had to make a cast of Brigitte Helm's body, then I worked the figure directly, it naturally being in several pieces (armour principle).'⁹ 'Pieces of bagging, cut out like a suit of armour, were covered on about two millimetres by the wooden mass, flattened with a common rolling pin, then arranged on the 'plaster Brigitte Helm', in the way a shoemaker arranges the leather on his last. Once the material had hardened, the parts were

⁶ Walter Schulze-Mittendorff, 'Begegnung mit Fritz Lang', Schulze-Mittendorff collection at the Deutsche Kinemathek and reproduced in Wolfgang Jacobsen, *Babelsberg: ein Filmstudio, 1912-1992*, Berlin, Argon, 1992.

⁷ Walter Schulze-Mittendorff, 'Begegnung mit Fritz Lang', Schulze-Mittendorff collection at the Deutsche Kinemathek and reproduced in Wolfgang Jacobsen, *Babelsberg: ein Filmstudio, 1912-1992*, Berlin, Argon, 1992.

⁸ Walter Schulze-Mittendorff, quoted by Lotte Eisner in *Fritz Lang (Cahiers du Cinema / Éditions de l'Étoile / Cinémathèque française, 1984)*, pp. 112-113.

⁹ Walter Schulze-Mittendorff, 'Begegnung mit Fritz Lang', Schulze-Mittendorff collection at the Deutsche Kinemathek and reproduced in Wolfgang Jacobsen, *Babelsberg: ein Filmstudio, 1912-1992*, Berlin, Argon, 1992.

polished and the contours cut. Such was, roughly, the structure of the 'machine-creature', which allowed the actress to stand, sit and walk.¹⁰

Enclosed in this shell, Brigitte Helm could just barely breath and see through two minuscule holes. The following step was 'the decoration and realisation of details, which required a technical aesthetic. And finally cellulose lacquer mixed with silvered bronze, applied with a spray gun, produced the appearance of metal, convincing even to the naked eye. The work had taken four weeks.'¹¹

- Body movements and directing

The robot appears for the first time behind a curtain drawn by the inventor, Rotwang. Initially immobile on a seat resting on a glass platform, the robot then stands and moves forward on a gesture from its creator. On a new order from the scientist, it turns towards Fredersen and holds out its hand to him. Waving the iron prosthesis that has replaced his hand, an exultant Rotwang explains to an alarmed Fredersen that the creation of 'the machine in the human image' is worth all the sacrifices. The scene ends with a close-up of the robot's head.

To arouse the viewer's interest, Lang first plays on the effect of surprise by having the robot appear in an abrupt, theatrical way. Filmed in an esoteric setting (a pentagram decorates the wall) in semi-darkness, it becomes a mysterious, disturbing object. Then, the glass platform, which seems to light up all by itself, accentuates the fantastic atmosphere. Finally, the slowness of the robot's movements, its automaton's stride, stare and silence make it enigmatic.

The metal robot has mechanical body movements and moves only on Rotwang's order. But once turned into Maria, it adopts the body movements and freedom of action of a human being. Nonetheless, to allow the viewer to differentiate between the real Maria, pure and generous, from the false Maria, nasty and underhanded, a few elements differ: makeup, gestures, mimics and behaviour.

The black circles round the eyes, the rapid, jerky gestures, the limbs twisted with pain, and the unpleasant, mocking smile underscore the diabolical nature of the false Maria. 'She' comes across as a deadly temptress, a threatening woman, the opposite of the true Maria, pure, chaste and gentle.

¹⁰ Walter Schulze-Mittendorff, quoted by Lotte Eisner in *Fritz Lang (Cahiers du Cinema / Éditions de l'Étoile / Cinémathèque française, 1984)*, pp. 112-113.

¹¹ Walter Schulze-Mittendorff, quoted by Lotte Eisner in *Fritz Lang (Cahiers du Cinema / Éditions de l'Étoile / Cinémathèque française, 1984)*, pp. 112-113.

Birth of a character

- The scriptwriters

Stage actress, bestselling author, scriptwriter of numerous films for directors such as Joe May, Friedrich W. Murnau and Carl Theodor Dreyer, Thea von Harbou was the co-writer of the scripts for all the films of her husband, Fritz Lang, from *Der müde Tod* (1921) up to *The Last Will of Doctor Mabuse* (1932).

In June 1924, a corporative journal, the *Lichtbühne*, reported that Lang and von Harbou were completing the screenplay of a future film called *Metropolis*. That autumn, 1924, Fritz Lang paid a visit to the United States, a trip that would prove decisive for the film: the nocturnal vision of New York's lights and architecture profoundly influenced the look of the city of the future.

For her part, Thea von Harbou continued working on the script in Germany. At the same time, she was writing a book version for, in keeping with common practice at the time, the film also had to come out as a serialised novel in the press. *Metropolis* was thus published beginning in August 1926 in the illustrated supplement of the *Frankfurter Zeitung*, whereas the film's premiere did not take place until the following January.

It is impossible to determine precisely the respective contributions of each of the two authors. Nonetheless, one finds von Harbou's taste for love stories and the romantic in the plot, and she is also responsible for the message championed by the film: advocating order and reconciliation rather than class warfare.

Without clearing his name of the responsibility, Lang, who claimed to detest this film, would later dissociate himself from its political message. His personal contribution doubtless lies more in the choice of themes (Man facing his destiny, death, the Romantic legends) and in the handling of motifs (work on the architecture and the realistic treatment of fantastic themes).

- But where has the human gone?

In the 1920s, transportation, industry and economic concentration developed with corollary rationalisation, standardisation and the mechanisation of work. These upheavals question the relation of Man with a modern environment.

In 1924, the science-fiction film *Aelita*, by the Russian Yakov Protazanov, shows an extraterrestrial civilisation that is quite advanced technologically, where the people is reduced to slavery to the benefit of the ruling class. In 1923, the Czech Karel Capek invented the word 'robot' for his play *R.U.R. (Rossum's Universal Robots)*, in which humans are wiped out by the machines they have built.

In *Metropolis*, the progress symbolised by the robot is seen as fascinating but, even more, threatening: Man's loss of control over his inventions and submission to his creatures. Thus,

when an explosion in the factory decimates the workers, the machine turns into a man-eating monster.

The issue that interests artists is not so much technological or scientific progress as their consequences on the social and human levels. The Great War caused millions of deaths, provoked economic instability and the increase in the number of political and social struggles in Weimar Germany. The artistic production of the period reflects the disarray of German society as attest the violent, grotesque canvasses of the painters of the 'New Objectivity' (Otto Dix, George Grosz, Max Beckmann), the fantastic, tortured universes of Expressionist films (*The Cabinet of Doctor Caligari*, *Faust...*) or else the development of political theatre (Brecht, Piscator...).

- The sources of inspiration

The robot in *Metropolis* escapes from its inventor just like other cinematic creatures that preceded it. In Otto Rippert's *Homunculus* (1916), a laboratory monster weds the daughter of its creator to take revenge on him, while in Paul Wegener's *The Golem* (1920), a clay monster terrorises the community he was supposed to protect.

The principal sources of literary inspiration resulting in the robot are to be found in science-fiction novels, of which Fritz Lang was an avid reader:

- *The Future Eve* by Villiers de L'Isle-Adam (1886), in which an artificial double called Hadaly is created to compensate for the failings of a real woman who is beautiful but intellectually and emotionally impoverished. Hadaly is THE physical and psychological model for the robot in *Metropolis*;
- Mary Shelley's *Frankenstein, or the Modern Prometheus* (1818), inspired the idea of the creator outstripped by his creature;
- *R.U.R.*, a play by Karel Capek (1923), in which robots decimate their creators.

Without indicating which ones, the sculptor Schulze-Mittendorff acknowledged having been inspired by existing paintings and sculptures to create the physique of the robot in *Metropolis*:

- *Maske Gelb-Schwarz zum Scheibentänzers*, by Oskar Schlemmer (1923), in which the face of polished metal, powerful nasal and frontal ridges and prominent cheekbones is an obvious ancestor of the film's robot;
- *Abstrakte Figur (Freiplastik G)*, by the same Oskar Schlemmer, shows that Lang's film mixed and focussed on the influences of his era and contributed to the renewal of the art.
- *Skulptur 23*, by Rudolf Belling (1923). Here we find the smooth metal, the chiselled features and an assemblage of different components that recall the robot's head.

About the work

Metropolis, complete version

- The plot

Metropolis is governed by the powerful industrialist Joh Fredersen. From his office at the top of the Tower of Babel, he enjoys an uninterrupted view over a modern world that has been made highly technical.

Accompanied by workers' children, a young woman answering to the name of Maria goes to the Eternal Gardens where the sons of the city's elite find entertainment and where she meets Freder, Joh Fredersen's son.

Later on, while looking for Maria, the young man witnesses an explosion in a machine room, which costs the life of numerous workers. It then dawns on him that the luxury of the well-to-do is based on exploiting the proletariat.

In the catacombs located under the workers' city, Freder again finds Maria, who rekindles the workers' hopes with her prophecies of a better future. His father has also heard talk of Maria's influence on these men and fears for his power.

In the house of Rotwang the inventor, Joh Fredersen discovers his experiments in creating a cyborg resembling Hel, the woman that both men had loved and mother of Freder. Fredersen orders Rotwang to give the robot Maria's face in order to send it into the underground city to deceive its inhabitants and discredit the young woman.

The robot Maria carries out its mission successfully and provokes a catastrophe. The furious workers destroy the Heart Machine, which results in the flooding of the workers' city, where the children are. The real Maria, with Freder's help, manages to save the children and get them to shelter.

When they learn about the disaster, the outraged workers stop working. Their wrath is then directed at the robot Maria, which is captured and burned at the stake.

At the same moment, Rotwang, who has gone mad, pursues the real Maria over the rooftop of the cathedral but slips and falls to his death. Freder and Maria find one another. Taking his father's defence, Freder serves as mediator between him and the workers. Maria's prophecy of reconciliation between him who leads and those who are led ('brain and hands') triumphs.

- Amputations

The gala premiere of *Metropolis* took place on 10 January 1927 in Berlin. It was a triumphal success with the audience, but the specialised press criticised the film severely. The original 153-minute version (4,189 metres of film reels) was modified in short order.

In December 1926, even before the German premiere, Paramount, the film's American distributor, decided to cut the work, adapting the script and running time to the American market. This work was entrusted to the playwright Channing Pollock who amputated numerous passages from *Metropolis*, Americanised the characters' names, rewrote insert titles and restaged certain scenes. This 3,100-metre American version was released in New York in early March 1927.

At the same time, Paramount created another version, quite similar to the American version, for Great Britain and the Commonwealth. With footage of 3,050 metres, it came out in London on 21st March.

In Berlin, the film did not find its public. It was cut for its release in the rest of the country, in hopes of a better reception. A second German version (of 3,214 metres), close to the American version, came out in August 1927.

It seems that the original negatives disappeared during this period. From then on, different versions of the film were in circulation, all amputated.

- The enigma of the female robot

The important mutilations undergone by *Metropolis* (approximately one fourth of the film) resulted in the disappearance of numerous scenes and the modification of the story's structure.

In the original script, the creation of the robot was justified by inventor Rotwang's obsession with bringing back to life Hel, a woman who preferred Fredersen to him and died giving birth to her son Freder. The viewer thus understands, on the one hand, why the robot looks like a woman and, on the other, why Rotwang turns against Fredersen: he takes revenge on his former rival by using the robot to destroy his son and the city.

But in the versions that were released, all references to Hel were omitted. Rotwang comes across as an evil genius in service to the city's master, creating the robot to enable him to replace the workers.

The disappearance of the scenes referring to Hel considerably changes the story and raises questions in the viewer's mind. Why choose to give the robot a female appearance? Why call it the 'machine human' and not the 'machine woman'? Why turn it against Fredersen?

It was the reconstruction and restoration work of *Metropolis*, begun in the 1970s, that was going to allow for finding the original chronology as well as reconsidering the robot's place in the film.

- Restorations

The reconstruction of the original *Metropolis* was a very difficult task owing to the multiplicity of materials (original 35mm nitrate negative, nitrate dupe negative, contemporary positives), of their condition and places of conservation. Furthermore, in 1926, in the absence

of a reliable duplication support, several original negatives were made so that a large number of prints be realised. Yet, these negatives were never totally identical for their images came either from several cameras positioned side by side during the filming, or from the assembly of different takes of the same shot.

Since the end of the 1960s, numerous film collections sought to reconstruct *Metropolis* according to its original cut. Long years of research resulted in finding documents that were believed lost:

- Thea von Harbou's script, acquired in 1979 by the Deutsche Kinemathek;
- the list of original insert titles found in 1980 in East Germany's film archives;
- a new print, close to the English version but containing scenes missing from all the other prints, found in Australia (1981);
- three albums of original photos taken during the shooting of the film, found in the Cinémathèque française in 1983, some showing images of scenes that had disappeared;
- Gottfried Huppertz's original score with the director's instructions and synchronisation between frames and music.

In 1987, starting with this material and the various prints available, the historian Enno Patalas, of the Munich Filmmuseum, carried out the first major restoration of *Metropolis*, an essential step towards a return to the original film.

In 2001, a new, more complete¹² version of reference, restored digitally, was published by the Friedrich Wilhelm Murnau Stiftung with the collaboration of several German film institutions. It reconstructed the film with its original music and in its chronological continuity, with the insertion of photos, insert titles and summaries in place of the missing scenes. *Metropolis* became the first film listed on UNESCO's Memory of the World Register.

- The complete *Metropolis* (2008-20??)?

In July 2008, the Friedrich Wilhelm Murnau Stiftung announced the discovery of a print heretofore unknown, comprising 25 minutes of film absent from all other existing versions.

In January 1927, Adolfo Z. Wilson, an Argentine distributor, saw *Metropolis* in Berlin in its complete original version and decided to distribute it in Buenos Aires. After its theatrical run, the print was acquired by a private collector, Manuel Peña Rodríguez and would be used in film clubs up until the 1960s without anyone noticing that this version was longer and different from the other prints in circulation. In the 1970s, the collector donated his films to the national film archives and, in 1992, the documents were turned over to the Museo del Cine Pablo C. Ducrós Hicken in Buenos Aires.

The Museum no longer had the 35mm nitrate print that had been imported from Germany in the 1920s. This had been copied on a back-up support but, doubtless for economical reasons, on a 16mm dupe negative, this process reproducing all the defects and scratches and

¹² Carried out by two specialists, Martin Koerber assisted by Enno Patalas.

truncating the image. It was not until 2008, after the film archives had been moved several times, that the reels of this unknown copy were rediscovered.

Even though the transfer from the 35mm format to 16mm truncated the image and the assembly of this version turned out to be slightly different from that of the other prints, its rediscovery made a new restoration imperative. Here we find the quasi-totality of the excerpts that had disappeared, including the sequence in which Fredersen discovers the statue of Hel. With the help of archives, a new comparison of the different versions, and a digital restoration of the Argentine frames, a reconstructed and restored version was carried out but nonetheless bears the traces of the cuts and mutilations that the film has undergone in the course of its history since 1927.

Posterity of *Metropolis*

- German cinema in the 1920s

Metropolis has become one of the great classics of world cinema and one of the symbols of the golden age of German cinema in the 1920s, along with *The Cabinet of Doctor Caligari*, *Faust*, *Nosferatu*, *The Last Laugh*, *Sunrise*, *Die Nibelungen*, *The Last Will of Doctor Mabuse*, *The Joyless Street* (aka *Viennese Love*)... Despite their differences, these films make up a spectacular body that founds a specificity of German cinema compared with other productions of the period.

These works are of exceptional inventiveness and creativity thanks to impassioned, talented scriptwriters, chief cameramen, art directors, costume designers and directors. The crews got together on film after film under the firm rule of Erich Pommer, director of the UFA, the large production company of the period. Coming from different countries, backgrounds (literature, the theatre, architecture, painting, sculpture, music...) and aesthetic movements (Expressionism, New Objectivity, Constructivism...), these professionals innovated in terms of lighting, equipment, shooting, sets and costumes; their inventions would end up becoming models copied all over the world.

The force of timeless themes (madness, fear of the future, Man faced with his destiny, the struggle of men between themselves) and Lang's sense of spectacle and visual inventiveness made *Metropolis* a work that straightaway marked the collective imagination. A masterpiece, therefore, albeit a problematic one, owing to the debates of interpretation it has given rise to since its release. Some critics and historians have viewed the portrayal of this dictatorial society advocating social unity as a foreshadowing of the Nazi regime even though Fritz Lang always denied this and disowned the film's ending.

- Cities of the future

Lang often declared that it was in seeing New York at night, during a trip in 1924, that he had the idea for the film; in truth, he had already been working on the project for several months. But it is evident that Manhattan's aesthetics considerably influenced the look of the imaginary city of *Metropolis*: skyscrapers in the form of totem poles, neon signs, geometric structures...

The film reflects the numerous architectural innovations and thinking of the era: development of a geometric conception of space, recourse to functional lines and minimal decoration and use of new materials such as concrete, steel and glass. In a total break with that of European cities in the Twenties, this modern architecture was going to conquer urban areas throughout the 20th century¹³.

During that period, architecture also occupied an essential place in German film aesthetics. The mission of the sets was to create the *Stimmung*, the atmosphere of the film, and reinforce the dramatisation. They were built in keeping with the desired image and not according to classic criteria of building construction. The elaboration of the sets became a space of experimentation and visual expression; in fact, a number of art directors of the period were architects and imported architectural debates into the Seventh Art.

As a trained painter and architect, Fritz Lang could not ignore these evolutions. *Metropolis* lies within these movements of thought and proposes an architecture of the city of the future so powerful and modern that it still astonishes viewers today as it had in 1927.

- Science-fictions

With *Metropolis* and *Woman in the Moon* (1929), Fritz Lang played a part in opening the way for a new film genre: science-fiction.

Artificial intelligence, the mad scientist, utopia and counter-utopia, futuristic architecture, the dangers of science and unchecked technology...

Metropolis is a pessimist, speculative fiction on the future of mankind. Despite its commercial failure in 1927, this film marked the imagination of the public and became a reference. Charlie Chaplin's *Modern Times* (1936), William Cameron Menzies' *Things to Come* (1936), George Lucas's *THX 1138* (1970), Ridley Scott's *Blade Runner* (1982) or Steven Spielberg's *Minority Report* (2001) belong to this trend of works questioning technological advances and repressive universes.

The element taken up most often is doubtless the vision of the city. The 'megacity' of *Metropolis*, with its very modern architecture, immense skyscrapers and streets intertwined with superimposed traffic lanes, has become the archetype of the city of the future.

Up until the 1960s, robots remained rare, generally looking like a tin can. The robot in *Metropolis* constitutes a new type of character on the screen: the android, a robot with a human appearance. Its most famous avatar is the C3PO in George Lucas's *Star Wars* (1977). But that nice robot, a faithful, helpful companion, has a personality diametrically opposed to that of Lang's bellicose, nasty robot. It was not until the 1970s that androids and other cyborgs (bionic men) became more numerous and, like the robot in *Metropolis*, they often play the

¹³ Frank Kessler, *Metropolis de Fritz Lang: esthétique ou esthétiques?* (Doctoral thesis. University of Paris 3 - Performing Arts, 1987), ANRT, 1987.

villain's role, as in *Westworld* (Michael Crichton, 1973), *Saturn 3* (Stanley Donen, 1980) or *Terminator* (James Cameron, 1984).

Special effects

- The Schüfftan process

The visual inventiveness of *Metropolis* necessitated resorting to special effects. Fritz Lang relied on a peerless team of technicians with whom he experimented and meticulously prepared the realisation of scenes: 'We had to do our special effects all alone (to the camera, on the set – nothing in a laboratory). That's why we didn't stop looking for new ways of expressing ourselves.'¹⁴

Thus they used the Schüfftan process, named for its inventor, chef cameraman and special effects expert Eugen Schüfftan. This technique allows for mixing, at the time of shooting, real and miniature sets that, on the screen, will give the impression of a seamless image. It allows for giving the illusion of characters moving in gigantic settings, without having to build them in totality.

This process was used for shooting the sequence in the stadium. The running tracks were built life-size, whereas the outside wall and building were painted in miniature on a model. The camera was then positioned with the lens facing the stadium set. Next, on the side of the axis thereby formed between the camera and the set, the painted model was placed at 90°. In the crossing of the lens's axis and that of the model, a mirror was placed at a 45° angle so that the image of the model, reflected in the mirror, was seen by the camera. Finally, the mirror's surface was scraped so as to let the actors and the portion of the real set pass in the bottom of the frame. In the shot, the camera records a combination of the reflected image of the model under which the actors play the scene. On the screen, the illusion is perfect, the various elements appearing uninterrupted.

- The mobility of the camera

The camera crew was headed by chief cameraman Karl Freund. He imprinted a visual movement on his shots thanks to his technical daring that led him to perfect new shooting set-ups. One speaks of the 'unchained camera' when mentioning him.

When Freder and Maria escape by the stairs while the workers' city is collapsing, the camera zooms in on them quickly, and the image trembles to show that they are caught in a trap. This effect was obtained by giving a pendulum motion to the camera, which was attached to a plank held on the ceiling by wires. Here we see Fritz Lang pushing the plank to launch the camera and what it is filming.

¹⁴ Peter Bogdanovich, *Fritz Lang en Amérique: interview* (Paris, *Cahiers du cinema*, 1990).

- Multiple film exposures

Like numerous scenes in the film, the robot's transformation into the false Maria necessitated resorting to this technique, which consists of exposing the same film several times.

The cameramen first filmed the robot alone, then rewound the film. They then filmed, one by one, the small concentric circles of light at different heights, rewinding the film between each shot.

Finally, they did the same for the large circles of light.

With each shot, the camera records a different image on the film. The projected image is thus made up of multiple exposures.

- Double-exposures combined with special lighting effects

Together with this double-exposure technique, it was still necessary to find a trick so that the passage of electric current in the circles - ordinarily invisible - would become visible.

Thanks to containers filled with liquids that became fluorescent and began bubbling, the electric apparatus surrounding Maria began to throw off sparks then enveloped her in luminous chains.

By this process, the electric rings then spun, from top to bottom, round the human machine.

- Multiple-exposures and matte shots

For the 'Vision of Babel' sequence, the filmmaker wanted to represent an army of slaves. This called for 6,000 bald extras, but it was impossible for the assistant directors to find that many!

1,000 unemployed people agreed to shave their heads and were filmed separately, six times. A matte-shot system was used, the matte being shifted each time to film the new column of extras.

The film was thus exposed six times, giving the visual impression of a horde of 6,000 men.

- Synchronised back projection

The sequence in which Joh Fredersen has a conversation with Grot, the shop foreman, via videophone necessitated the use of the technique called 'synchronised projection'.

The dialogue between the two men appears to be simultaneous and yet it is not. The image of Grot, shot earlier, is projected from the rear.

It was indispensable that the motor of the projector projecting the previously-filmed part of the dialogue (Grot) and the motor of the camera filming the other part (Fredersen) be

synchronous, otherwise the image of Grot would have been non-existent in the shot. This synchronisation was made possible using an electrified rotating shaft.

Fritz Lang and the Cinémathèque française

The Cinémathèque française has one of the world's richest collections of works and documents pertaining to Fritz Lang¹⁵. It was able to assemble this exceptional collection (films, archives, photographs, drawings, objects, books and periodicals) for three reasons.

– Early interest in the filmmaker's work

Since its founding in 1936, the Cinémathèque has collected and screened silent German films, including some by Fritz Lang such as *Destiny* or *The Weary Death* (1921), *Spies* (1928), *The Woman in the Moon* (1929)... In 1937, in *CINEMAtographe* magazine, Georges Franju (one of the co-founders of the Cinémathèque) devoted a long study to Fritz Lang's style. The German filmmaker, who had taken refuge in the United States, sent his thanks in return. Contact had been made.

– A very active acquisition policy

Beginning in 1945, the collecting of documents relative to Fritz Lang's films accelerated thanks to Lotte Eisner¹⁶. As chief curator, she acquired models of sets and costumes from German art directors. Up until the 1970s, she obtained or bought at modest prices drawings made for *The Woman in the Moon* (9 drawings), *M* (26), *Metropolis* (7), *Die Nibelungen* (18) and *The Last Will of Doctor Mabuse* (33). Moreover, donations and purchases of photos, posters and books further added to these.

– A special relationship

Here again, Lotte Eisner played a crucial role¹⁷. Of German-Jewish origin, she took refuge in France in 1933, joining the Cinémathèque in 1937. An art historian and film critic, she knew Fritz Lang, having attended some of his shootings such as *Metropolis* and *The Last Will of Doctor Mabuse*. In 1945, she got back in touch with the filmmaker, exiled in the United States, and a correspondence was begun, attesting to their growing friendship. Moreover, Fritz Lang helped Lotte Eisner in writing the book she devoted to his work¹⁸.

In 1955, Lang made his first donation of documents relative to his American films. In 1959, the Cinémathèque paid homage to the director in Paris, in his presence.

¹⁵ Bernard Eisenschitz, Paolo Bertetto (under the direction of), *Fritz Lang: la mise en scène*, Paris, La Cinémathèque française, Torino, Lindau, 1993.

¹⁶ Laurent Mannoni, 'Lotte Eisner, historienne des démons allemands', in the catalogue for the exhibition *Le Cinéma expressionniste allemand: splendeurs d'une collection*. Paris, Éditions de La Martinière / La Cinémathèque française, 2006.

¹⁷ Laurent Mannoni, *Histoire de la Cinémathèque française*, Gallimard, 2006.

¹⁸ Lotte Eisner, *Fritz Lang* (Paris, *Cahiers du cinéma* / Éditions de l'Étoile / Cinémathèque française, 1984).

Touched by the welcome he received, Fritz Lang, in return sent new archives on his American films and photo albums of *Liliom*, *M*, *The Woman in the Moon*, *Metropolis* and *Spies*. When, in 1968, Henri Langlois (co-founder and director of the Cinémathèque) was temporarily ousted from his position by André Malraux, Minister of Cultural Affairs at the time, Lang was one of the first to support him publicly