

# CONCEPTS AND CONSTELLATIONS

## UTOPIAN ARCHITECTURE



Bruegel, Pieter the Elder - The Tower of Babel (1563)



Lyonel Feininger, Cathedral of Socialism (1919)

## Walter Gropius

### Manifesto of the Staatliches Bauhaus (April 1919)

The ultimate aim of all visual arts is the complete building! To embellish buildings was once the noblest function of the fine arts; they were the indispensable components of great architecture. Today the arts exist in isolation, from which they can be rescued only through the conscious, cooperative effort of all craftsmen. Architects, painters, and sculptors must recognize anew and learn to grasp the composite character of a building both as an entity and in its separate parts. Only then will their work be imbued with the architectonic spirit which it has lost as "salon art."

The old schools of art were unable to produce this unity; how could they, since art cannot be taught. They must be merged once more with the workshop. The mere drawing and painting world of the pattern designer and the applied artist must become a world that builds again. When young people who take a joy in artistic creation once more begin their life's work by learning a trade, then the unproductive "artist" will no longer be condemned to deficient artistry, for their skill will now be preserved for the crafts, in which they will be able to achieve excellence.

Architects, sculptors, painters, we all must return to the crafts! For art is not a "profession." There is no essential difference between the artist and the craftsman. The artist is an exalted craftsman. In rare moments of inspiration, transcending the consciousness of his will, the grace of heaven may cause his work to blossom into art. But proficiency in a craft is essential to every artist. Therein lays the prime source of creative imagination.

Let us then create a new guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsman and artist! Together let us desire, conceive, and create the new structure of the future, which will embrace architecture and sculpture and painting in one unity and which will one day rise toward heaven from the hands of a million workers like the crystal symbol of a new faith.

Walter Gropius

(Source of English translation: Hans Maria Wingler, *Bauhaus. Weimar, Dessau, Berlin, Chicago*. Cambridge: MIT Press, 1978, pp. 31-33).



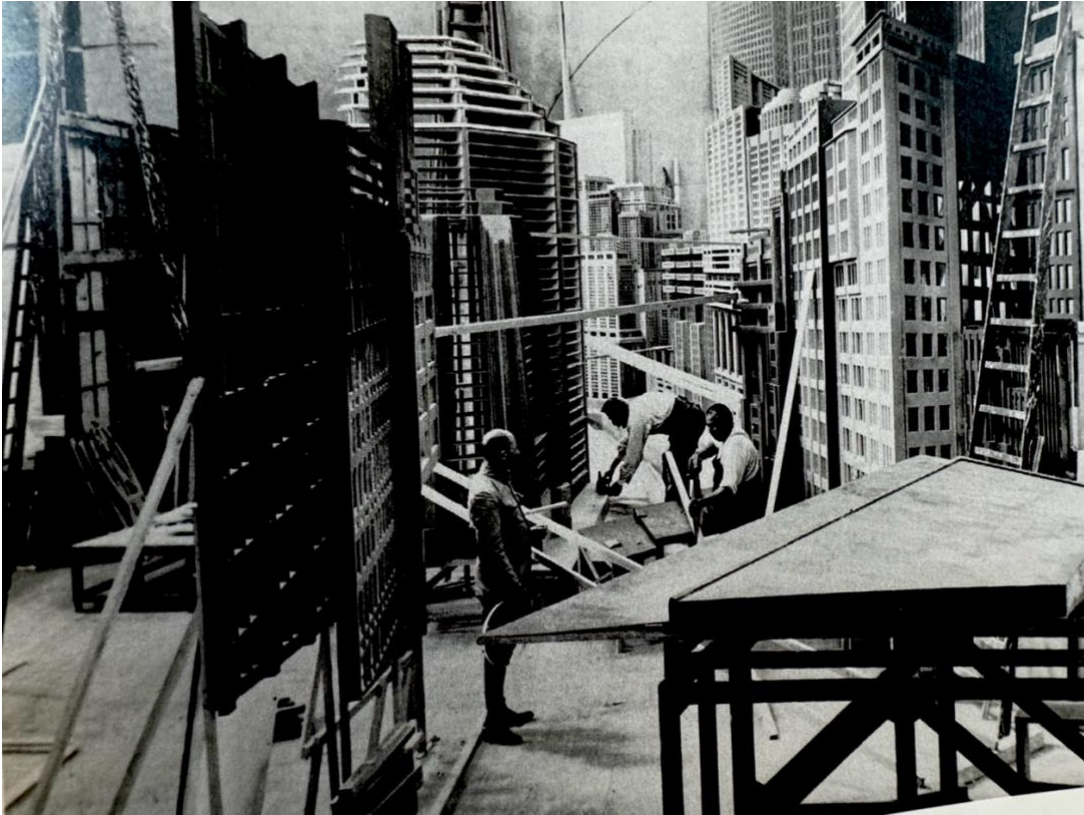
## Imagining Skyscrapers for Berlin in 1921



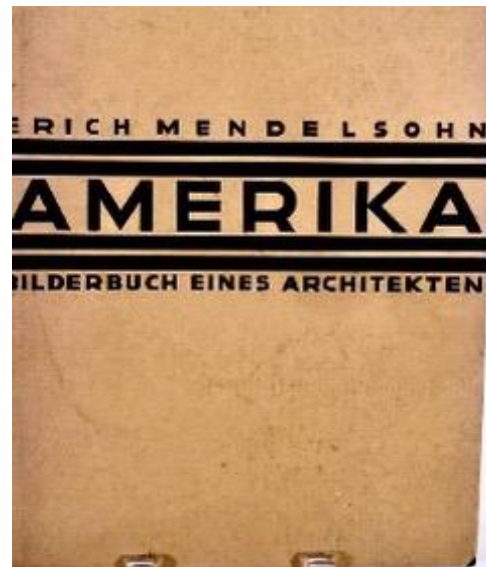
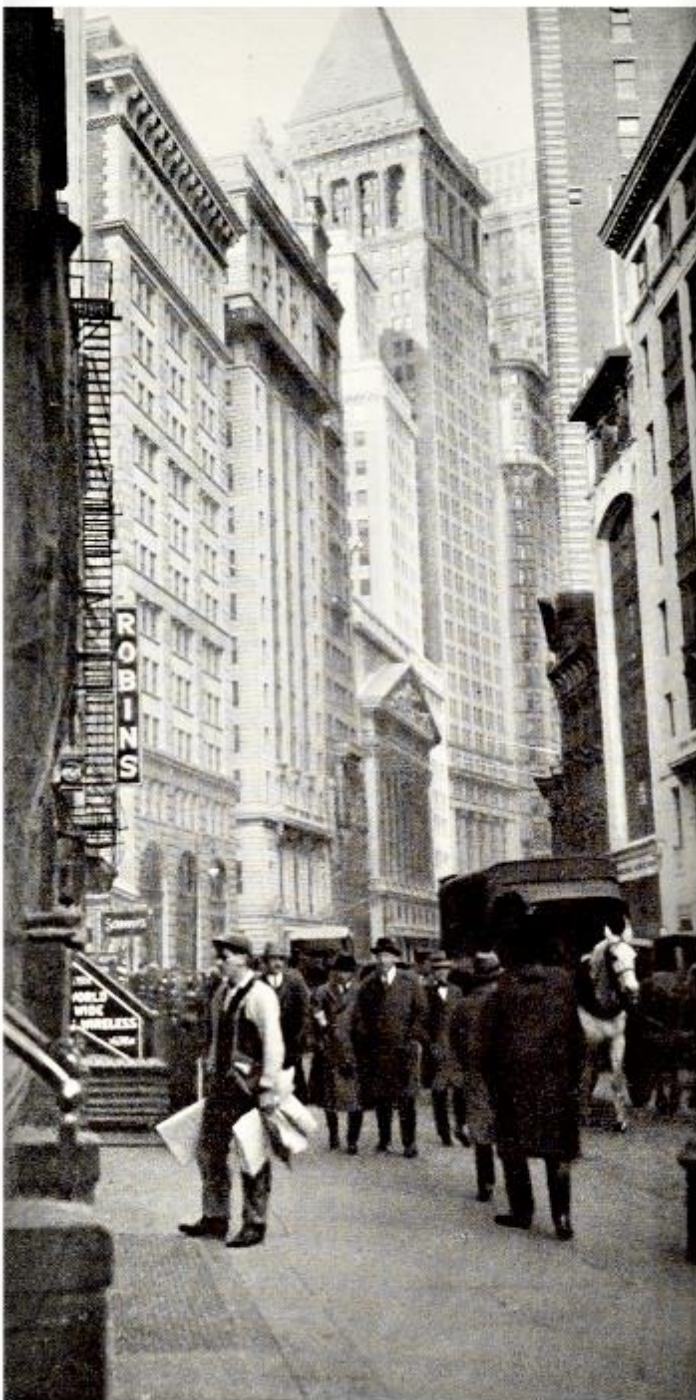
**Ludwig Mies van der Rohe's design for a skyscraper at Bahnhof Friedrichstrasse was one of 140 entries in a 1921 competition (Der Schrei nach dem Turmhaus) among architects to imagine the future of modern cities. None of the visionary proposals could be realized at the time -- except as movie sets.**

## Erich Kettelhut's Draft Sketches for the Set Design of Metropolis



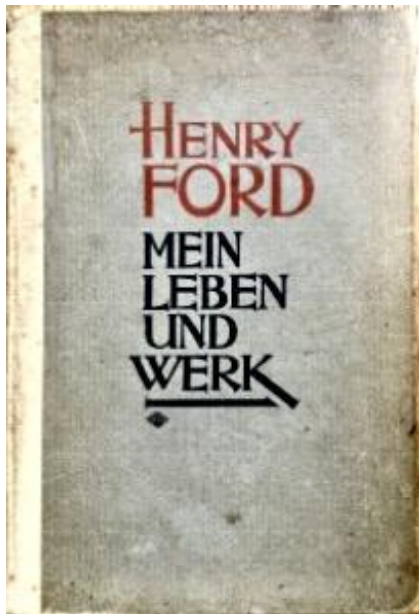


## AMERICANISM & FORDISM

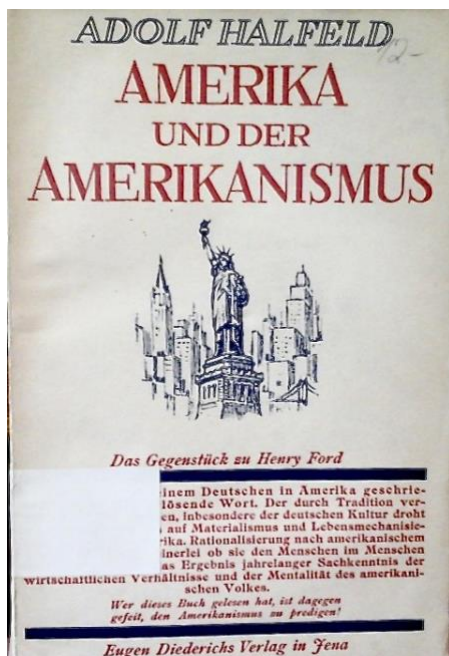


Erich Mendelsohn (1887-1953), who initiated the Berlin Skyscraper Design Competition in 1921, traveled to the United States in 1924 (the same year as Fritz Lang) and documented his impressions in 86 photographs published as *Amerika - Bilderbuch eines Architekten* (Berlin: Mosse Verlag, 1926).





Henry Ford's autobiography was published in Germany in 1922. It sold more than 200 000 copies.



Adolf Halfeld's book appeared in 1927. It was intended as a response to Henry Ford's autobiography.

# RUDOLF KAYSER

## Americanism

First published as "Amerikanismus," Vossische Zeitung, no. 458 (September 27, 1925).

Americanism is the new European catchword. It suffers the usual fate of catchwords: the more it is used, the less one knows what it means. It is certain that in this case the range of meanings is enormously broad, far exceeding particular minor phenomena, and that it applies to the fundamental character of our time. So the remarkable situation has arisen in which, for the designation of a truly radical change in the inner and outer forms of our life over the last few decades, we have no expression other than the name of a foreign continent that previously appeared to us infinitely far away, and not only in the geographical sense.

What is it then with Americanism?

Certainly it has nothing or only little to do with the American, whom we, after all, know less than any other national type. As a literary type, the American is also much less familiar to us than that of the European or the Oriental. The French citizen, the English lord, the Russian peasant, the Eastern sage—they have become palpable realities to us through their literatures, offering perspectives on the spiritual and social structures of their nations.

There are those who say we do possess the figure of the American in literature. But what do we know of their writings? Who in Germany reads [Joseph] Hergesheimer, [Theodore] Dreiser, Sinclair Lewis, [H. L.] Mencken . . .? In Eugene O'Neill we became acquainted with our first American dramatist, and—let us be honest—he left us cold. But we have other things: trusts, highrises, traffic officers, film, technical wonders, jazz bands, boxing, magazines, and management. Is that America? Perhaps. Since I have never been there, I can make no judgment. But I do know that the images of these things come to us from America. But does all this then amount to Americanism? Are these phenomena not much more than the external and revealed symptoms of a more secret, spiritual, soulful essence? Is Americanism not a new orientation to being, grown out of and formed in our European destiny? This is a question that the Viennese writer (who died a year ago) Robert Müller first raised and answered: "Americanism is therefore either a method or a fanaticism." And with this we come much closer to its character and its Europeanness.

In fact, Americanism is a new European method. The extent to which this method was itself influenced by America seems to me quite unimportant. It is a method of the concrete and of energy and is completely attuned to spiritual and material reality. The European's new (Americanized) appearance corresponds to it too: beardless with a sharp profile, a resolute look in the eyes, and a steely, thin body; and the new female type (explained only minimally by sexology alone): boyish, linear, and ruled by lively movement, by her step, and by her leg. It is altogether fitting to the method of Americanism that it expresses itself very strongly in the corporal, that it possesses body-soul. This in no way implies superficiality, only a clear turn away from abstraction and sentimentality and a transformation of even our noblest capacities into the concreteness and wakeful liveliness best revealed by the body. (Sport is therefore but one symptom of this new inner split.) Concrete and unsentimental, thus in a positive sense naive—such is the method of Americanism, in the life of the soul and the spirit as in practical affairs. No burden of culture weighs this method down. It is young, barbaric, uncultivated, willful. It has that free and strong breath we sense in the poems of Walt Whitman and which already enchanted Baudelaire. It follows no abstract or historical ideal, but instead follows life. Americanism is fanaticism for life, for its worldliness and its present-day forms.

Americanism thus appears as the strongest opponent of romanticism, which sought to flee worldliness. It is the natural enemy of all distraction from the present, whether through a backward-looking conception of history, through the mystical, or through intellectualism. Americanism is very northern, clear, and secure; it billows with a seawind. It has a strong and exact relation not only to the exactness of a machine, organization, economy but also to nature. It does not experience nature as a symbol of subjective feelings or as a Rousseauian idyll but as the mightiest and most extravagant reality, which people do not face, but in which and with which they live. This new experience of nature reverberates most strongly in the books by Knut Hamsun, as in the Scandinavian character in general—one thinks too of Johannes V. Jensen—he is very close to Americanism (which Robert Müller likewise emphasized). But it is Prussian in its sober technical methods and reaches down into the Latin countries insofar as clarity of form and rationalism are at issue.

Nothing, however, is more foreign and bygone to Americanism than the old Russian East, its fatigue and passivity. Americanism hates unfruitful passions, the unplumbable depths of the soul, and a stifling, deadening religiosity. Only in the world of reality does it find a worthy test for humanity. Marcel Proust's declaration, "Tout e action de l'esprit est aisée, s'il n'est pas soumise au réel, [All action of the spirit is easy, if it is not subordinated to the real]," is easily understood by Americanism (and, incidentally, understood in the sense of the American philosophy of pragmatism). But Paul Valéry's elevation of architecture to an ideal—not in the sense of classical laws of form but by virtue of the experience of

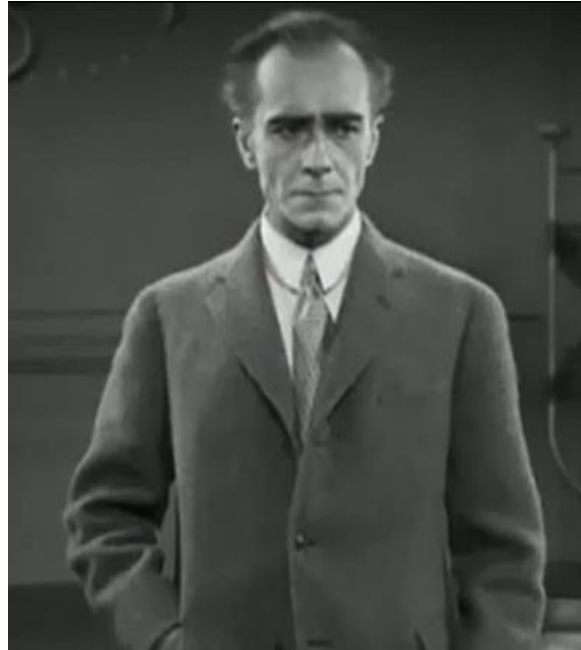
building and statics—also contains a recognition, despite the writer's formal strictness and musicality, of reality. Perhaps, though, the proximity of these two Frenchmen to Americanism is controversial. Its literary inroads become clearer in cases of writers who consciously turn away from tradition in their desire to create a new world in a new form out of the radical experience of the immediate present, for example, the epic writers Alfred Döblin and Ilya Ehrenburg. Their novels are carried by the experience of collectivism; they are visions bursting with vitality and monumental legends of the present. Electrical centers explode into action and send their energy waves through the mechanized world. In the most recent Parisian literary fashion, Surrealism, the attempt is made to reduce this new experience of reality—a near total opposite of the old biological—romantic naturalism—to a theoretical formula.

But literature follows Americanism only minimally at first. Its vitality is still too overpowering and uncultivated, so that it is still sensed as nearly antiliterary. Its intellectual potential is still problematic. Perhaps it marks an end or an intermission in the cultural history of Europe; but perhaps as early as tomorrow we will find ourselves confronting a surprisingly new flowering. It would be fruitless to pose and solve puzzles here. On the other hand, it would be wrong to want to recognize the epoch only in the external phenomena of economy and exchange, thereby passing over the new orientations of the spirit. The present clings to reality as the most powerful creative substance, as energy, as mastery of the world.

Now should we complain or rejoice over Americanism? Neither. We sense its vitality and should not measure its manifestations against false standards. The jazz band, too, is force and sound, magical in the wild brilliance of its rhythm. But why, as we listen to the pounding of its instruments, speak of classical music?



**Henry Ford**



**Alfred Abel as Joh Fredersen**

## **FRIEDRICH VON GOTTL-OTTLILIENFELD**

### **Fordism**

First published in *Fordismus. Über Industrie und technische Vernunft* (Jena: Verlag von Gustav Fischer, 1926), 6, 13, 16-18.

While the creativity of Fordist methods is manifest on the level of immense systems of plants taken together, the Taylor system is meant for exclusive application to single plants that have already been established and organized. The goal of the latter is to improve plant operations in a single, one-sided fashion—namely, through technical refinements in the way work is performed, that is, in the execution of jobs in the plant. The basic idea of the system derives from its focus on regular drudge work: loading iron ingots, shoveling ore, etc. The story of Schmidt, the valiant ore shoveler, continues to circulate through the world making propaganda for the Taylor system.

For [Frederick Winslow] Taylor, the point of departure lies in plant management. That is always an important matter. A plant can be organized in this way or that and as a consequence be capable of greater or lesser productive potential, since everything finally

depends on how able the directors and employees are in getting something out of it; or, more precisely, on what the administration and the workforce are able to wring from the plant once they seriously get down to work. That obviously depends on the output potential of human action, on how it is integrated in its manifold types and forms into the chain of effects represented by the plant. Now Taylor attempts to get the most out of it from the outset by aiming at the highest possible performance, toward which end those involved are expected to give their best. Maximum performance, however, is a goal that can be pursued in a wide variety of ways. The Taylor system represents only one of them!

This striving for maximum performance, a very significant goal, I have called Taylorism, and it has filled the soul of every capable plant manager since long before Taylor. Taylor, however, has worked more effectively in its favor than anyone before; above all he has sharpened the critical eye focused on plant operations and preached the necessity of a regular stock-taking to management. No one but he, that is, can claim to have cultivated a science of work, the promotion of which is incumbent upon those branches of scientific research where the forms of expertise associated with the discipline intersect. [ . . . ] Maximum performance reaches its peak in the plants of the Ford Motor Company. I do not mean so much the mathematical success that can be measured in the output potential of the individual worker, which may still be subject to increase by Taylorism. But the completely different approach adopted by Ford is infinitely more fruitful in terms of overall success. Here that "supreme individual potential," of which Count [Ferdinand] Degenfeld-Schonburg speaks in his instructive book, is transmitted to the whole plant; it is transmitted down from the top—which in this case is Henry Ford.

[Hugo] Münsterberg's representation of the "spirit of individual initiative at the margins" as one of the characteristic features of Americanism is well known; and the Ford plants themselves do in fact "Americanize" their numerous acquisitions, or they get rid of them—both principles quite contrary to Taylorism. But what radiates more strongly from the top—in absolute contrast to Taylorism—is the vital spirit of the personality! It blows through the whole gigantic operation and draws every last worker into its wake. There are, for example, no departments at Ford, nor any permanent, titled positions. Someone needs only to deliver the proof that he, in some way or another beneficial to the indefatigable completion of the whole, knows how to produce a result, and he has obtained a position for himself and will be better paid for it.

Departmental responsibilities do not exist; no one, however, not even the last drudge worker, is deprived of the purely human responsibility for what he does and does not do. There is no coordination of the lines of command of any kind, not a trace of the drab horror of a conventional office; a personnel office serves as the registry for the plant and that is all. Only the top management has a staff, such as the executive general staff for the really

big issues. The only ones who hold their own up there are those who do not turn into narrow-minded experts; for what Ford wants to say, wants to believe, is this: that people already have the best solutions for everything in their heads. Nor could a more unpardonable offense to the spirit of the Ford plant be conceived. Nothing is already or ever will be fully developed and perfect in Henry Ford's eyes! He is dynamism personified. It is truly as if this most American of all industrial organizations were the intellectual embodiment of activism, of, strictly speaking, the meliorism of William James. [ . . . ]

Every Ford automobile is composed of more than 5,000 parts, all of them interchangeable, so that each part would fit in its assigned place on every car. Even though this number naturally includes many of the same parts, and even though the numerous machines devoted to their manufacture operate in concert (accomplishing much while demanding little in the way of operator movements, little in the way of labor), about 8,000 different functions still result.

Every worker is devoted to only one function, but the same function is often assigned to several and even many workers, for in all Ford employs not 8,000 but 50,000 workers, the majority of whom are continually occupied operating machines. Ford calculates that it would take 2,000,000 trained workers, specialists of all sorts, if one were to match the production of his plants by traditional toolmakers' means; he is obviously presupposing optimum organization and the highest level of desire on the part of the workers, so that given production in artisanal style these millions would have to be further multiplied. In any case, it is necessary to distribute properly in space not only the workers but also the machines they are to operate.

Expressed more precisely, the various processes themselves, which are at the same time the specific acts in the production process, must be arranged properly in space. For that there is only one law: that productive functions be organized into an ideal succession; and this ideal of a closed, unified production process—for the processes in fact are accomplished in separate locations—simultaneously generates an ideal arrangement of processes, that is, of machines and workers. For a product as complex as an automobile does not result from a linear process, but from the coordinated march of interwoven tasks. At first they march separately, that is, the parts are conducted through to completion individually from station to station; then they are put together one after the other, that is, "assembled" (in that, for example, a wheel is made up of a rim, hub, and spokes); likewise must the chassis be put together, and the motor, and finally the automobile as a whole. It is also always necessary to conceive of these assembly procedures as a succession of operations, so that here too an organized march results: from the basic part, for example, a wheel rim—to which the spokes are attached one after the other and then the latter connected in succession to the hub—to the point of final completion.



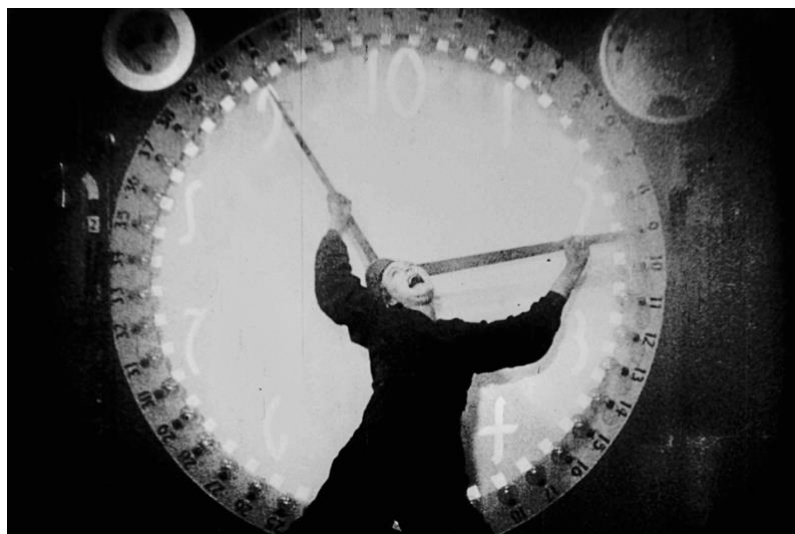
Charlie Chaplin, *Modern Times* (1936)



# MAN AND INDUSTRY



Lewis W. Hine, *Powerhouse Mechanic* (1921)



## Karl Marx, Machinery and Modern Industry

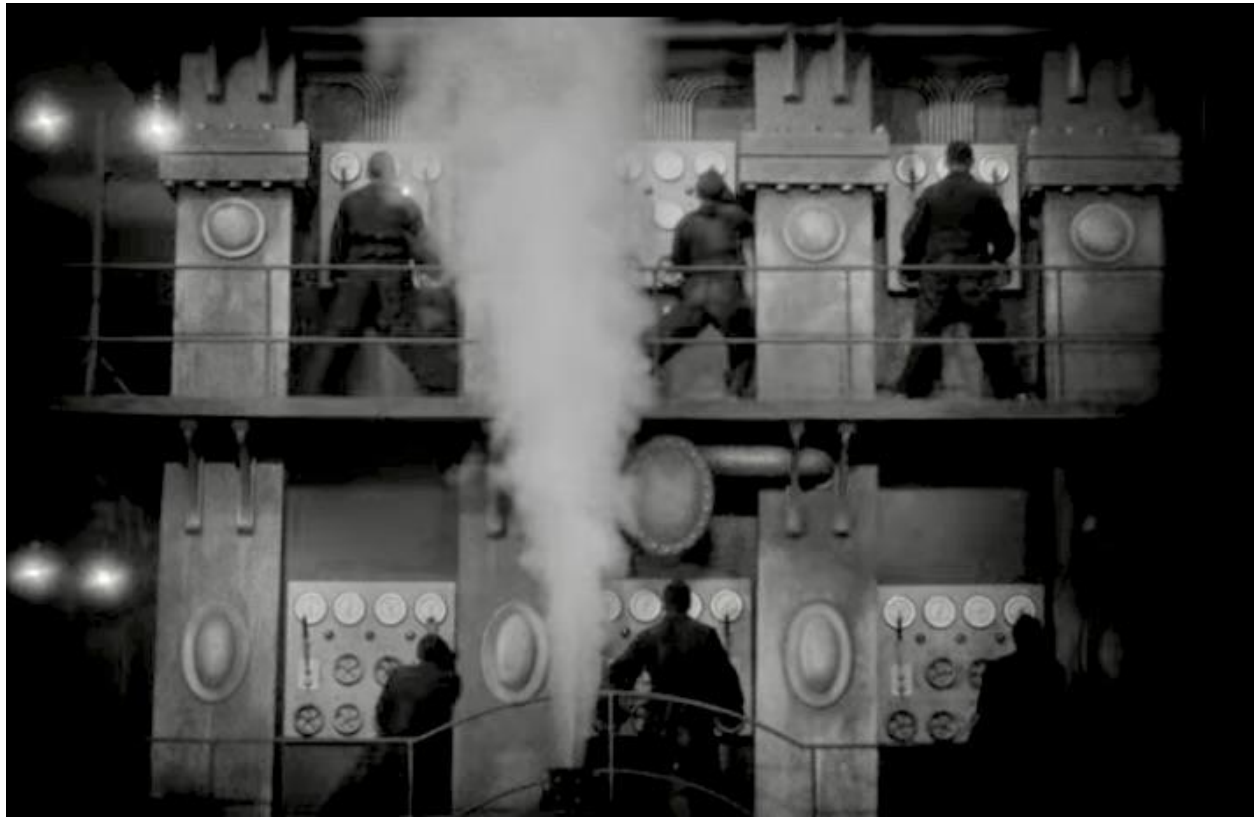
(Karl Marx, Capital: A Critique of Political Economy Volume I Book One: The Process of Production of Capital First published: in German in 1867, English edition first published in 1887)

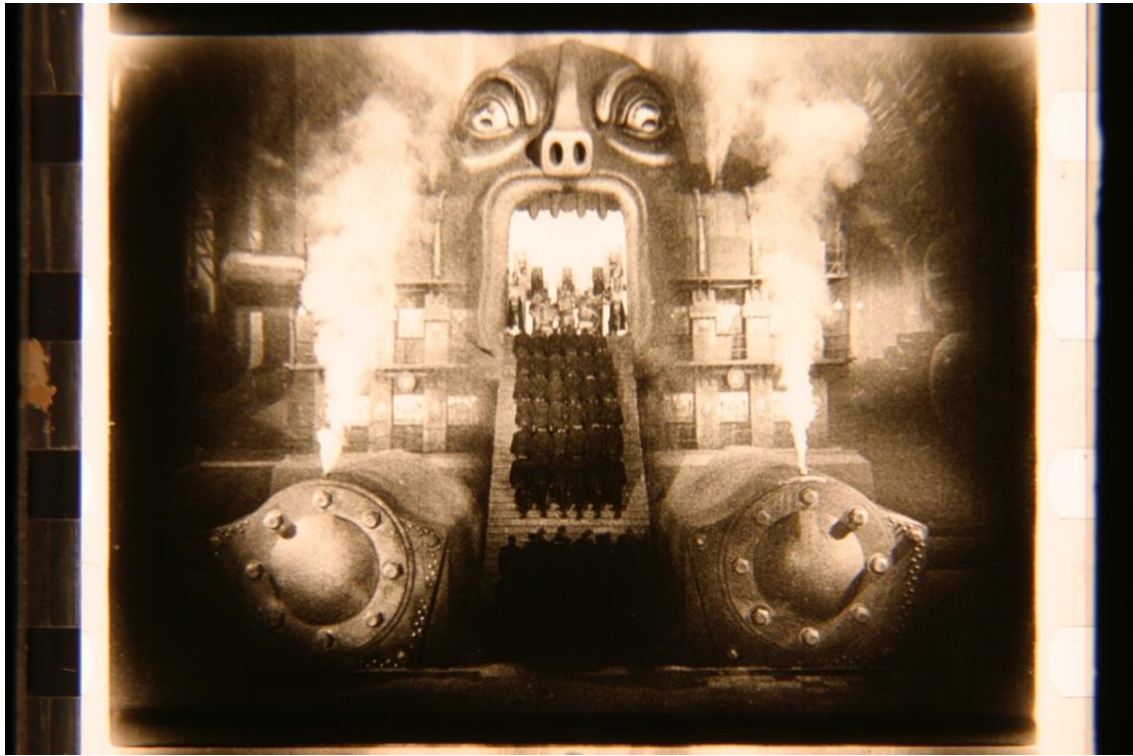
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### The Factory as an Industrial Battlefield

#### The Factory

. . . The technical subordination of the workman to the uniform motion of the instruments of labour, and the peculiar composition of the body of workpeople, consisting as it does of individuals of both sexes and of all ages, give rise to a barrack discipline, which is elaborated into a complete system in the factory, and which fully develops the before mentioned labour of overlooking, thereby dividing the workpeople into operatives and overlookers, into private soldiers and sergeants of an industrial army. “The main difficulty [in the automatic factory] ... lay ... above all in training human beings to renounce their desultory habits of work, and to identify themselves with the unvarying regularity of the complex automaton. . . . **Every organ of sense is injured in an equal degree by artificial elevation of the temperature, by the dust-laden atmosphere, by the deafening noise, not to mention danger to life and limb among the thickly crowded machinery, which, with the regularity of the seasons, issues its list of the killed and wounded in the industrial battle.** (p. 285f.)





## Workers' Revolution

*„Und wenn die  
in der Tiefe einmal  
aufstehen gegen Dich?“*

And if those in the Depths  
one day rise against you?



## TECHNOLOGY AND DECEPTION

„Rotwang,  
gib dem Maschinen-Menschen  
das Gesicht dieses Weibes...“

Rotwang, give the Machine-Man  
the likeness of this woman...



„Ich will Zwietracht  
säen zwischen ihnen und ihr!  
Ich will ihren Glauben  
an diese Frau zerstören--“

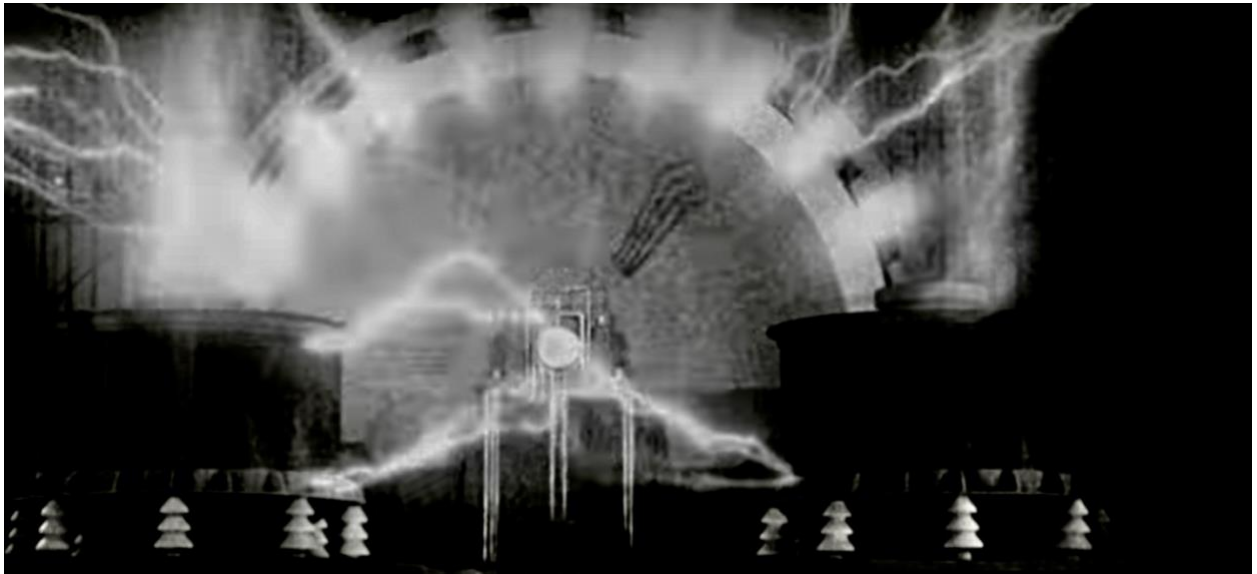
I shall destroy their belief  
in this woman —



„Schlagt sie tot -  
die Maschinen-!!“

Do them in —  
these machines — !!







# ARTIFICIAL REALITY

The Metropolis Cityscape (see clip [here](#))



Workers set up the shots of the traffic congestion on the main street (above), using a model construction

# EUGEN SCHÜFFTAN

## MY PROCESS

Originally published as “Mein Verfahren,” in *Kinotechnische Rundschau des Film-Kurier* 6, no. 24 (November 18, 1926). Translated by Alex H. Bush.

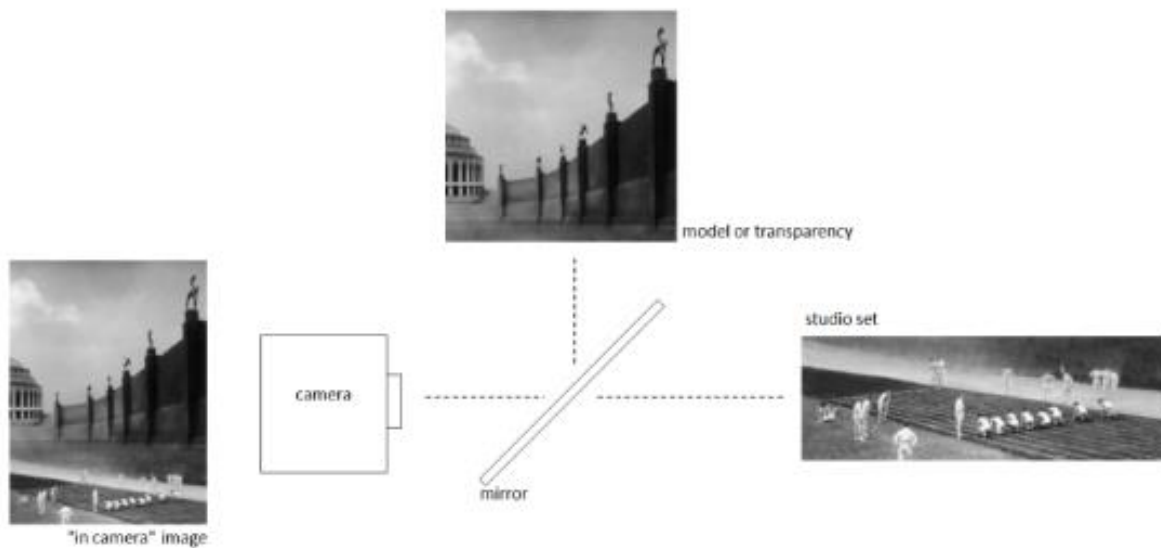
“Originally a painter, I have been working on inventions for nearly sixteen years. Among other things, I first came into contact with film through a projector with an infinite loop, which I constructed during the war but was unfortunately unable to launch. After the war, I drew several animated films. Over the course of their production, which required the use of models, I came to my first mirror in 1919, which was followed by four or so improved versions. I too can sing of the inventor’s sufferings,<sup>1</sup> of the hostilities encountered by each new object and of the difficulties caused by film producers in the making of films that pursue new paths.”

*“Even American producers?”*

“You know, of course, that I have made a deal with Universal, according to which this company in America will apply and further develop my process, and that I therefore spent over a year in Hollywood. I was able to observe a few things there and had to conclude that contemporary American producers may think extraordinarily economically but are still much more open-minded about promising innovations than their German counterparts. In spite of a certain resistance that met my invention at first, many American directors turned to it because they had previously balked at the very idea of shooting objects from a distance of 20 meters, and they made as much use as they could of glass painting and model sets. In my opinion, the technology of film in itself, which has gained a large potential for expansion in my process—especially in the areas of fantasy and fairy tale—will progress only with the increasing artistic demands that audiences are making of film. Strange as it may sound, I have at least noticed over there that even the audiences of small cinemas are growing tired of kitsch and Wild West films. And I believe that in time, cinemagoers all over the world will begin to demand not only entertainment but also artistic standards and quality. But these are both absolutely dependent on technological progress.”

*“And does your process really mean such large savings when compared with conventional shooting methods?”*

“Certainly. Of course, there are still no screenplays that are tailor-made for my process, thus providing the best possibilities for application, but even in the films that were just made, use of my process more than paid for itself. If you consider that the photography, the materials, the rental fees for the apparatus, the mirror, and the license cost only a total of 1,000 marks per day, and that it can be used to film the interior of the Cologne Cathedral or the street Unter den Linden, you will be able to infer that in purely financial terms, my process offers great advantages on top of its possibilities for artistic expression. But it should always remain in the background of the final cinematic product, simply a technological tool, for in my opinion, the best film technology is that which no one notices.”



See also [Katharina Loew, Magic Mirror: The Schufftan Process](#)

# GÜNTHER RITTAU

## THE MAKING OF METROPOLIS: SPECIAL EFFECTS

The shots which use the Eugen Schüfftan process make up a special chapter in the area of special effects. Had all the colossal constructions needed for Metropolis been built on the intended scale, the costs would have been astronomical and most of all, precious time would have been lost. The Schüfftan process offered the only possibility for a practical solution and this was used a great deal. With the help of partially finished constructions and miniature Schüfftan models, not only were parts of the overwhelming street scenes shot, but the atmospheric cathedral scenes as well. With Schüfftan shots, the visual trademark is dictated entirely by how the camera is adjusted, and how lighting is used for model constructions. Unusually difficult were the visionary shots of the Moloch-machine, also produced with the help of the Schüfftan process. Other shots occurring with the course of movement, for which the Schüfftan process was not applied, were completed using model constructions. These included the shots of the traffic-congested main thoroughfare, the explosion in the heart machine room, and the blanket of dust.

Whether shooting model constructions or building models, whether lighting a scene or setting adjustments for equipment, the utmost precision was necessary. To illustrate the difficulty involved in making such shots: it took nearly 8 days to make 40 meters of film capturing model-generated scenery, since every frame had to be shot individually, and 40 meters of film contain approximately 2,100 frames. In the actual film, this amounts to 10 seconds of footage [By these figures, it is clear that Metropolis should be projected at 20 frames a second.]

By far, the cameraman's most interesting job was designing the light effects for the scene in which the android is brought to life in the laboratory of the inventor, Rotwang. In the film this occurs during a transfer of electric currents that pass between the android and Maria's human form. Electric currents of this kind usually remain invisible. Here, however, to emphasize this fantastic-secretive process, they had to be visible to the eye. Making this shot work called for weeks of preparatory experiments in the laboratory, and making equally long calculations connected with the shooting. The photographic chemistry was anything but unimportant, and while preparing this shot the strangest of technical aids were used.

An in-depth description of the process would too time consuming here, as well as counterproductive. It should only be kept in mind that concealing iridescence, soft soap, vignettes, and complicated technical constructions of one's own design played a decisive role. For days on end, workers had to be versed in operating equipment that demanded accuracy based on dealing with fractions of seconds. Individual filmstrips were exposed as often as 30 times and people with knowledge of photography know exactly what this means. With works of this nature, everything depends on meticulous calculations, highly precise working methods and equipment and most of all, on the nerves and patience of the cameraman. I can safely assume that shots like these were never shown before.

Source: [Cinefantastiqueonline.com](http://Cinefantastiqueonline.com) (Blog by Lawrence French, May 15, 2010)

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For more examples of special effects in *Metropolis*, click [here](#) (Part 2 of the documentary, **The Metropolis Case**, a British adaptation of Enno Patalas' "Der Fall Metropolis").

# WALTER SCHULTZE-MITTENDORF

## The Birth of the Female Robot in METROPOLIS

Problems of form? No! Expressionism lived. Technological form had been discovered as motif for painting and sculpture. Primary, in this case, was the question, 'What material?' I thought at first to have real metal – chased copper plate. That meant searching for and finding a suitable chaser to execute the work. 'Complicated,' I thought, when Fritz Lang tried to interest me in the work. But which material really?

An accident helped us. A workshop making architectural models gave us decisive assistance unintentionally. I went there because of another job. My attention was drawn to a little cardboard box labeled 'Plastic Wood – trade sample.' A postal parcel. This 'trade sample' was not interesting for the workshop and was given to me. One trial brought the proof straightaway that the material for our 'machine creature' had been found. 'Plastic wood' turned out to be a knead-able substance made of wood, hardening quickly when exposed to the air, allowing itself to be modeled like organic wood.

Now it needed a procedure that was not very pleasant for Brigitte Helm: namely the making of a plaster cast of her whole body. Parts resembling a knight's armor, cut out of Hessian, were covered with two millimeters of the substance flattened by means of a kitchen pastry roller. This was then stuck onto the plaster Brigitte Helm, like a shoemaker puts leather over his block. When the material hardened, the parts were polished, the contours cut out. This was the rough mechanism of the 'machine creature' that made it possible for the actress to stand, to sit and to walk. The next procedure was furnishing it with detail to create a technological aesthetic. Finally we used 'Cellon' varnish mixed with silver bronze and applied with a spray gun, which gave the whole its genuinely metallic appearance, so it even seemed convincing when looked at from close range. The work took many weeks however. In those days, films were carefully prepared and thus the realization of a piece of work unusual for a film like this one was ensured. In striking contrast to the present-day German film industry!

Source: [Cinefantastiqueonline.com](http://Cinefantastiqueonline.com) (Blog by Lawrence French, May 15, 2010)

## FRITZ LANG ABOUT SPECIAL EFFECTS IN METROPOLIS

(A recorded discussion with Willy Ley, Tonio Selwart, and Herman G. Weinberg, originally published in *Cahiers du Cinéma* in 1965. This discussion is part of an online blog by Lawrence French on “Director Fritz Lang on the Making of Metropolis” in [Cinefantastiqueonline.com](http://Cinefantastiqueonline.com)

**FRITZ LANG:** You know, *Metropolis* was born from my first sight of the New York skyscrapers in October 1924, before I went to Hollywood where UFA was sending me to study American methods of production. It was terribly hot at that time. While visiting New York I felt it was the crucible of the multiple and confused human forces, with blind men scrambling around in the irresistible desire to exploit one another, thus living in perpetual anxiety. I spent an entire day walking the streets. The buildings seemed to be a vertical veil, very light and scintillating, a luxurious backdrop suspended from the gray sky to dazzle, distract and hypnotize. At night the city gave only the impression of living; it lived as illusions do. I knew that I must make a film of all these impressions. On returning to Berlin, in a burst of energy, Thea von Harbou (Lang’s wife) started to write the script. We imagined, she and I, an idle class living in a great city thanks to the subterranean work of thousands of men on the verge of rebellion, led by a daughter of the people. To prevent this rebellion the head of the city asks a scientist to invent a robot in the image of the girl in question. So the robot, Maria, turns against her people and incites the workers to destroy the machine that is the heart of the city, which controls it and gives it life.

I have often said that I did not like *Metropolis* and this is because I can’t accept today the leitmotif of the message of the film. It is absurd to say that the heart is the intermediary between the hands and the brain, that is, of course, between the employee and the employer. The problem is social and not moral. Naturally, during the shooting of the film, I liked it, if I hadn’t I couldn’t have continued to work on it. But later I started to understand what didn’t work. I thought, for example, that one of the faults was the way I had shown the work of the man and the machine together. You remember the clocks and the man who works in harmony with them? He became, so to speak, a part of the machine. Well, that seemed to be too symbolic, too simplistic in its evocation of what is called “the evils of mechanization.” Now, several years ago, I had to revise my judgment again at the sight of our astronauts in their promenade around the world. They were scientists but still prisoners of the space capsule, nothing else—almost a part of the machine that was carrying them.

*Lang looks at more photos from **Metropolis**: the children fleeing the flooded underground city, the robot Maria, the revolt of the workers in the chamber of the machine and the immense stadium used by the children of the ruling class.*

**FRITZ LANG:** See, here's a shot by Shufftan, it's Eugene Shufftan who did it. You asked me, Willy, what technical problems we encountered. Well, that scene we shot thanks to mirrors. Shufftan scratched the glass on certain parts of the mirror; then he placed it facing the camera lens so that part of the set—constructed to human scale—appeared in the mirror, which also reflected a miniature set representing the machines in motion. These miniatures extended the real set, because it would have been too costly and too complicated to build for such a short scene. This combination of reality and artifice was then filmed (instead of being done in the lab like it would be now), and that was due to the ingenuity of Shufftan.

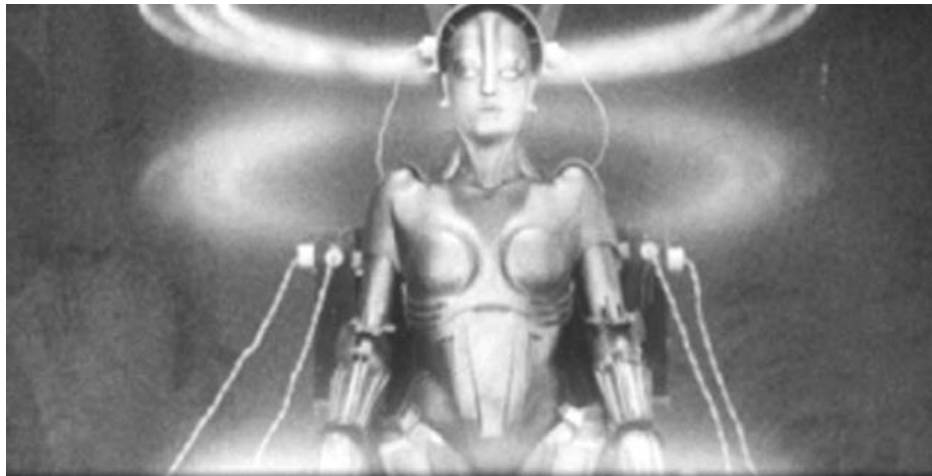
*Lang looks at a photo of the cityscape of **Metropolis**.*

**FRITZ LANG:** We constructed a miniature set of the streets about seven or eight feet long, in an old studio with glass walls and we moved the little cars by hand, inch by inch, one frame per movement, filming image by image. We moved the planes and photographed them in the same way. This scene that takes only one or two minutes on the screen took six days to shoot! Ultimately the worse difficulties we encountered were not in the shooting but in the lab. The cameraman had told the technician to develop the film normally. But the head of the lab, knowing the time we had spent filming this short scene, decided to develop it himself. No one had thought it necessary to tell him that for reasons of perspective, the cameraman had filmed the background a little out of focus to give the impression of great distance. The head of the laboratory started to develop the negative focusing the background and not the foreground. The scale of dimensions was then destroyed. I tried to keep my calm. "These things happen, my children," I said, "Let's start again." And we did. (The first thing I discovered about making films is that you never make them alone. Your crew helps you. And I had a remarkable crew.)

As for the videophone scene, it was done by projecting a part of the film shot previously in the rear of a telephone apparatus, across a translucent screen, one foot by two. This was the first rear projection and the first transparency. We didn't realize the importance, the scope of what we had done, for if we had we would have made a fortune patenting a process universally employed today. At the time we only knew that there was a problem that had to be solved. My cameraman, Gunther Rittau, was determined not to fake the



shooting; he used his intelligence to arrive at this solution: he synchronized the camera with a projector that was to project the picture of a man on the videophone. That was done with linked rods connected by mobile joints going from the camera to the projector, which were, because of the shooting stage, rather far from each other. Then, when the scene started, the two machines worked at the same time in perfect synchronization. The flooding of the workers city was real, shot in normal scale. Hoses at street level projected water like geysers.



The robot, galvanized by Rotwang's scientific machinery

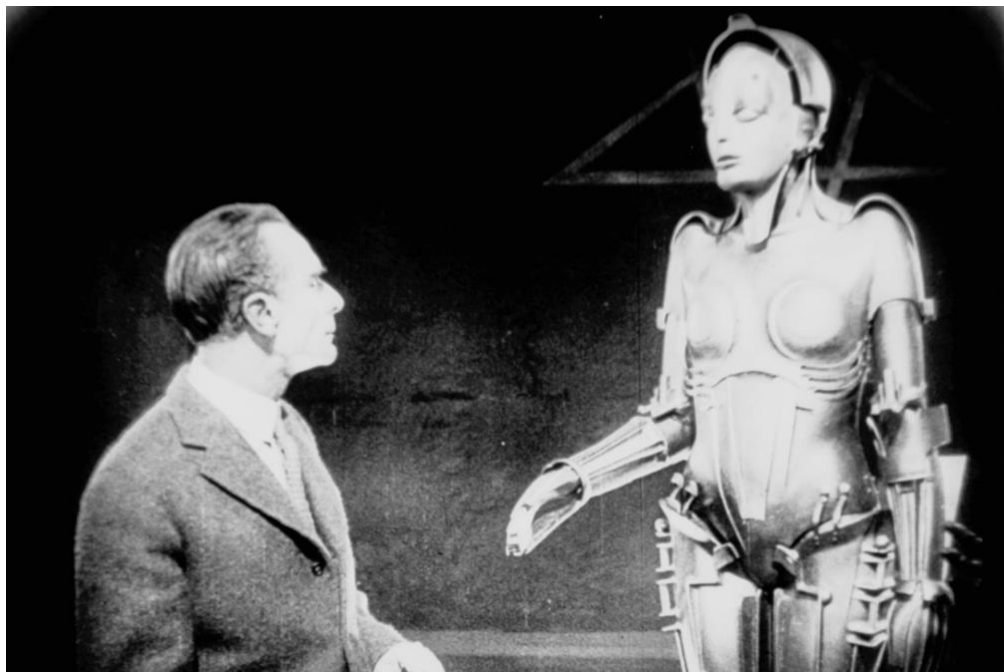
Another camera effect concentrated on creating the robot Maria. The concentric rings of light that surround her and move from top to bottom were in fact a little ball of silver rapidly turning in a circle and filmed on a background of black velvet. We superimposed those shots, in the lab, over the shot of the robot in a sitting position that we had filmed previously.

The city lit up at night was done with an animated drawing. The way we filmed the explosion of the heart machine was one of the first uses of the subjective camera, giving the audience the same impression that the actors feel of the shock. The camera was attached to a swinging pulley on a vertical board that advanced toward the machine on the platform then moved back to give the effect of the explosion.

Sergei Eisenstein visited me in the studio and we had a controversy about the moving camera versus the fixed camera, but we weren't able to discuss it for long because of my shooting schedule. I planned to see him several days later, but he had already left Berlin and I never saw him again.

## The Creation of an AI Robot in 1927

To study the many special effects used to transform Maria into a humanoid robot, replay the scene [here](#).





Raoul Hausmann, *Mechanical Head (The Spirit of the Age)*, 1920



Oskar Schlemmer created the *Triadic Ballet* in 1922



## Technical Rationality and the Culture Industry




### **THEODOR W. ADORNO, *The Dialectic of Enlightenment***


In: Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment* (Stanford: Stanford University Press, 2002), 95.


Technical rationality today is the rationality of domination. It is the compulsive character of a society alienated from itself. Automobiles, bombs, and films hold the totality together until their leveling element demonstrates its power against the very system of injustice it served. For the present the technology of the culture industry confines itself to standardization and mass production and sacrifices what once distinguished the logic of the work from that of society. These adverse effects, however, should not be attributed to the internal laws of technology itself but to its function within the economy today. Any need which might escape the central control is repressed by that of individual consciousness.




## The Creation of an AI Robot by ChatGPT//DALL-E in 2024

 I'll create an AI robot with a futuristic design inspired by the style of *Metropolis*. It will have a sleek, metallic body with art deco elements, reminiscent of the iconic robot Maria from the film. The robot will have a humanoid form with smooth, polished surfaces, intricate details, and glowing eyes, capturing the essence of the 1927 movie's aesthetic.

I'll get started on this now.





 Edit image...  



**The boundary between science fiction and  
social reality is an optical illusion.**

**Donna J. Haraway**