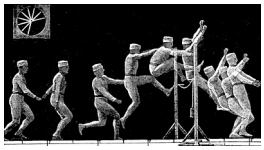
Scientific and Medical Films in the 1920s-1930s

by Andreas Killen

From its origins in the research of Etienne-Jules Marey and others into animal and human locomotion, cinema served as a tool for the analysis of bodies in motion. Even as it developed into the dominant medium of modern mass entertainment, scientists, physicians, and researchers continued to exploit what Hugo Münsterberg extolled as the "incomparable intensity" and scientific value of the moving image. From the perspective of the history of science, the film apparatus - however revolutionary it later came to appear - represented simply a further elaboration of those "hundreds of little machines" devised during the 19th century, all, as Jean-Louis Comolli has written, "destined for the more or less clumsy reproduction of the image and movement of life."



Instanteneous photography: Man jumping over a barrier, taken from: Marey. 1883. La station physiologique de Paris, 276, fig. 2.

But what specific purposes did scientific and medical films serve? On the most basic level, scientists and medical specialists embraced film as a teaching tool, a means of documentation and analysis for didactic ends. Motion pictures allowed physiological and clinical phenomena to be fixed and objectified with unequaled precision, thus facilitating instruction about processes otherwise difficult to represent in the lecture hall.

A common theme of such instructional films was that of movement and its disorders. Robert Janker's x-ray films of the movement of head and neck, or of normal and pathological breathing, illustrate this genre and its claim to heightened objectivity and transparency. More self-reflexively, the incorporation of sound into his film on the physiology of speech is marked by a moment wherein the voice of the man depicted speaking informs us that increasing the film speed from 12 to 24 frames per second "heightens the scientific possibilities" of the medium. [Röntgentonfilm der Sprache ("X-Ray Film of Speech")]. Given the still primitive state of sound technology, however, increasing the speed still further to 48 frames per second, as we are subsequently informed, results in the loss of sound.

Excerpt from the movie: Röntgentonfilm der Sprache (00.30 min.)

Scientists and clinicians also conceived of film as an analytic tool. Motion pictures in this sense constituted a form of evidence, diagnostic as well as forensic. Kurt Boas' account of using film in intelligence-testing (1908) anticipated Wolfgang Köhler's better-known filmic intelligence tests of apes (1914-17) by several years. Boas and others also valued film as a kind of lie-detector, a means of uncovering, for instance, cases of simulation among medical patients or suspected malingerers. The psychotechnician Walther Poppelreuter recommended testing visual disturbances by filmic means. An example of such a use is G. A. Brecher's Optisch ausgelöste Reflexe am Kaninchen ("Optically Produced Reflexes in Rabbits"), which demonstrates a test for a disorder of the visual function with a possible connection to an underlying neurological problem.

Finally, scientists utilized the medium as a tool of research and experimentation. Psychologists like Karl Marbe saw film as inherently valuable for conducting research into processes of optical stimulation and visual perception, while Münsterberg sought to harness the moving image as a test-medium by conducting filmic tests on tram-drivers. The use of film to document and analyze disturbances of movement and behavior as a result of stimulation or elimination of brain tissue is illustrated in G. Schaltenbrand's "Erzeugung extrapyramidaler Bewegungsstörungen durch Bulbokapnin beim Affen" ("Production of Extra-Pyramidal Disturbances of Movement in Apes by Means of Bulbocapnine", 1938). (The drug bulbocapnine was investigated for several decades for its properties of inducing catatonia.)

Apart from these more specialized uses of the medium, scientists and physicians also sought to use it as a tool of popular enlightenment and a means of educating the public on a variety of scientific and hygienic themes. Such projects reflected the post-World War I realization of film's immense potential for reaching broad audiences. In the 1920s, for instance, the *Soviet Studio for Popular-Scientific Film* produced the film "Bedingte Reflexe bei Tieren" ("Conditioned Reflexes in Animals"), combining live action with animation and featuring Pavlov explaining the principle of the conditioned reflex (see also Vöhringer. 2001. Pudovkin's "Mechanics of the brain").

Excerpt from the movie: Bedingte Reflexe bei Tieren (Pawlow)

These possibilities were also developed by the National Socialist regime. The so-called "instructional film movement" that had emerged in Germany during the 1920s was institutionalized by the Nazis with the creation of the *Reich Office for Teaching Film* in 1934. Meanwhile, key figures from that movement also branched out into making so-called "enlightenment films." One pioneer in this field was the neurologist and eugenicist Curt Thomalla, who eventually became medical advisor within Goebbels' *Ministry of Popular Enlightenment and Propaganda*. Thomalla oversaw the regime's campaign of medical propaganda, under the auspices of which the implications of research such as Janker's x-ray film-aided studies of normal and pathological breathing found their way into a variety of eugenically-themed popular-scientific films.

A leading role in both the instructional film and the enlightenment film movements was played by members of the psy sciences - neurologists, psychiatrists, and psychologists. Already in 1919, Thomalla called specifically for the creation of a neurological-psychiatric film archive as part of *UFA*'s cultural-film department (*Kulturfilmabteilung*) that he had assumed direction of during the war. Neurologists embraced the medium early on as a means of analyzing the motor disturbances, epileptic convulsions, and hysteric fits of patients. During the war leading doctors had been particularly interested in filming war neurotics and soldiers suffering from brain injuries.

An interesting dimension of such films was the depiction of hypnosis in several of them. The neurologist Max Nonne, for instance, made a film demonstrating the use of hypnosis to treat soldiers suffering from war neurosis. Nonne thereby partially rescued hypnosis from the aura of disrepute surrounding it. Yet many scientists remained skeptical about the authenticity of hypnotic states. This was heightened by the emergence after the war of a genre of feature films (notably "The Cabinet of Dr. Caligari") that exploited the oft-lamented theatrical aspects of hypnosis. Thomalla addressed this issue in an article in 1923 in which, responding to the release of Fritz Lang's "Dr. Mabuse, the Gambler," he wrote about the need to rehabilitate, through filmic means, the image of the doctor and of clinical hypnosis in the public eye. In 1924 he followed up on this by co-producing a popular-scientific film on hypnosis for UFA. In doing so he was engaging with a larger cultural debate, concerning the nature of film spectatorship and its possibilities as well as its dangers, that had been prompted by film's transformation into a mass medium. Claims for the scientific and educational value of motion pictures were continually shadowed by anxiety concerning the effects and influence of the filmic medium itself, which - in its popular form - Hugo Münsterberg and others likened to a kind of hypnosis.

This is one of the contexts within which Emil von Skramlik's "Tierische Hypnose" ("Animal Hypnosis", 1920) may be considered. Skramlik later made a series of films on the physiology of frogs and contributed to the film "Genussmittel Tabak," a Nazi-era work of medical propaganda concerning the dangers of smoking. His early film "Tierische "Hypnose" is a model of scientific sobriety serving to demonstrate the authenticity of animal hypnosis. This condition had been a subject of scientific controversy since the second half of the 19th century. Disputes surrounded the location of the condition in the animal's body – some claiming it was the brain, others the spinal cord - while certain scientists argued that it was more akin to cataplexy than hypnosis. This controversy was part of the lively dispute surrounding hypnosis more generally. Demonstrations of animal hypnosis may have helped naturalize hypnosis as properly scientific.

Excerpt from the movie: Tierische Hypnose (00:46 min.)

Insofar as animal hypnosis involved the restraint or fixing of the animal subject's visual field, Skramlik's film can also be situated within a larger dialogue about the non- or popular-scientific forms of the medium, much of which centered on the psychological effects of film spectatorship. The following year *UFA* produced another film, also titled "Tierische Hypnose," that was intended for a lay audience.

Skramlik's film points to a feature shared by many of the films mentioned here. By demonstrating both the reality and the value of hypnosis as a technology of the subject it underlines a common endeavor of the scientific film in its different guises. Whether they address hypnosis, the study of conditioned reflexes, the effects of administering bulbocapnine to an ape, or, as in the case of one of Janker's films from 1936, the influence of electricity on the heart and tissues of a narcotized cat, these films repeatedly deployed means for making animal or human subjects amenable to knowledge, treatment, and manipulation. In them, the filmic medium itself thus asserts its claim to a status beyond that of simply another means for the "more or less clumsy reproduction of the image and movement of life."

Sources

Kurt Boas. 1909. Intelligenzprüfungen mittels des Kinematographen. In: Zeitschrift für Psychotherapie, 1:364

Kurt Boas. 1918. Über die Verwendung des Kinematographen in der forensischen Praxis. In: Archiv für Kriminologie, 69:141-4

Karl Marbe. 1910. Theorie der kinematographischen Projektionen. Leipzig: Barth

Hugo Münsterberg. 1916. The Photoplay. A psychological study. New York

Curt Thomalla. 1919. Ein psychiatrisch-neurologisches Filmarchiv. In: Zeitschrift für die gesamte Neurologie und Psychiatrie, 45:86-97

Curt Thomalla. 1923. Medizin und Arzt im Spielfilm. In: Der Kinematograph, 805

Curt Thomalla. 1927. Aus den Memoiren des deutschen Lehrfilms. In: Film-Kurier, 9:246 (8.10 1927)

MPG Archive I/1A/#1042-44. Herstellung und Aufführung von Filmen und andere Fragen des Filmwesens

Secondary Sources

Lisa Cartwright. 1995. Screening the Body: Tracing Medicine's Visual Culture. Minneapolis

Jean-Louis Comolli. 1980. Machines of the Visible. In: The Cinematic Apparatus, eds. T. de Lauretis and S. Heath, 121-42. New York

Marcus Krause and Nicolas Pethes, eds. 2007. Mr. Münsterberg und Dr. Hyde. Zur Filmgeschichte des Menschenexperiments. Bielefeld

Adolf Nichtenhauser. 1953. Films in Psychiatry, Psychology and Mental Health. New York

Klaus Podoll. 1998. Geschichte des wissenschaftlichen Films in der Nervenheilkunde in Deutschland 1895-1929. In: Fortschritte der Neurologie, Psychiatrie 66:122-32

Klaus Podoll. 2000. Geschichte des Lehrfilms und des populärwissenschaftlichen Aufklärungsfilms in der Nervenheilkunde in Deutschland 1895-1929. In: Fortschritte der Neurologie, Psychiatrie 68:523-29

Ulf Schmidt. 2002. Medical Films. Ethics and Euthanasia in Nazi Germany, 1933-1945. Husum

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