CINEMA NON FACIT SALTUS: EARLY GERMAN FILM AND THE
CINEMATIC PSYCHE

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ABSTRACT

This dissertation returns to scientific and cultural discourses of the late nineteenth and early twentieth centuries to identify an epistemic shift in the relationship between cinema and the psyche— from the physiological to the psychological and from the mechanical to the narrative. It locates the fulcrum for this relationship in a history of “continuity,” a term that has traditionally been deployed in film theory to describe the conventions of montage used to establish the “narrative space” responsible for a film’s “subject-effects.” By tracing the migration of concepts of continuity from scientific discourses to cultural discourses, the dissertation argues that opposition to narrative cinema by members of the Kinoreformbewegung in the early twentieth century marked a displacement of the dangers of film from physiological continuities to psychological continuities.

Analysis turns from the redefinition of what the psyche was to how it was trained. Beginning with pedagogical theories of the late eighteenth century the dissertation considers cinematographic technologies’ transformation of literary education (Bildung). Apparatuses such as the tachistoscope broke down texts into letters and grammatical protocols and entailed a movement from meaning to mechanics that would later be derided by gestalt psychologists as a “machine theory.” However, this disassembly of the continuities of reading, narrative, and thought into empirically defined quantities came at a steep price—it could show how unities broke down into parts, but not how the parts could be reassembled as a whole. The answer to this problem, as the chapter argues, was also found in the cinematograph. Through an examination of psycholinguistic experiments conducted by Benno Erdmann, Friedrich Schumann, James McKeen Cattell,
and others, the chapter argues that cinema provided a logic for both dismantling and rebuilding psychic functions.

The final chapter investigates cinema’s role in the emergence of new psychopathologies. Through an engagement with case studies by Viktor Tausk, Sigmund Freud, and the psychiatrist-turned-cinema-reformer Robert Gaupp, the chapter contends that narrative cinema forced a confrontation with the possibility that the continuity of ego boundaries (Ichgrenzen) could be cinematographically reasserted where textual operations failed.
For Beth.
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Like the early films this dissertation considers, there was a lot of cutting and editing, flickering and disorientation, and careful management of volatile stock, required to arrive at a coherent work ready for presentation. The hands involved in ensuring the continuity of this dissertation were many—though all of them left an indelible and luminous signature on the final outcome, with some intervening when the shutter was closed, between frames, in intervals as important to the success of the enterprise as the visible content. I would foremost like to thank my tireless adviser, advocate, and friend, Tom Levin, whose energy has been boundless and whose standards could not be compromised, who always kept an open office door, green Skype status, and free seat on the train for me. I would like to thank Devin Fore, Mike Jennings, Nikolaus Wegmann, and the faculty of Princeton’s German Department for their unfaltering support and encouragement, time, and invaluable responses to all inchoate iterations of this project, and for always demanding my very best. Perhaps most importantly, I need to thank the best group of friends this world has to offer, some of whom I knew long before coming to graduate school, and some whose friendship alone would justify my time at Princeton. This includes Shon Feder, Adam Kay, and Gary Ferrini, who stand at the origin of any of my present and future intellectual undertakings. Thank you to Peter Kuras and Leif Weatherby who served as an engine in this long process, particularly when I was overheating. Thank you to my Berlin posse, Harun Maye, Cornelius Reiber, Erika Thomalla, Mladen Gladic, Philip Albers, and Christina Vagt, who always kept a clean bed, cold beer, and warm word for me whenever I needed it. I would also like to thank the members of the IKKM in Weimar, and especially Bernhard Siegert, for facilitating my research, hosting me those many times, and for offering a truly inimitable intellectual environment. Thanks are also in order to the institutions that have supported my work, including the Princeton University Graduate School, the Fulbright Commission, and the Deutsche Kinemathek. Without these sources of generosity, it is not an exaggeration to say that this dissertation would have forever remained a mere idea. And finally, as many apologies as thanks are due to Beth Clevenger, who dealt with academics all day and would still graciously read my drafts at night—to say nothing of being the best person I know.
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INTRODUCTION

The history of early cinema is also a history of scientific psychology, positioned at a point of convergence and upheaval in a centuries-long discourse on continuity. The chasm between the discrete and the continuous has stood like dark matter at the center of the divide between empirical sciences and philosophy since the inception of each. To make measurable means to divide, quantify, and render discontinuous speculative unities that characterize the smooth surfaces of philosophical entities. Meanwhile, the ability to make the results of empirical measurement more than an accumulated morass of data demands that an ideational continuity supervene upon observations. Where discourse has not been marked by disciplinary acrimony, pitting empiricist against idealist, and scientist against philosopher, an abiding optimism about the possible intersection between facts and ideas—an a priori continuity of the empirical universe—has prevailed. Linnaeus expressed this faith at the conclusion of his section of *Philosophia Botanica* on the “fragmentary” organic systems that he and his predecessors had observed in plants, writing “Defectus nondum detectorum in causa fuit, quòd Methodus naturalis deficiat, quam plurium cognitio perficiet; *Natura enim non facit saltus*” [The absence of things not yet discovered has acted as a cause of the deficiencies of the natural method; but the acquisition of more things will make it perfect; for nature does not make leaps.].\(^1\) Nature may not have been characterized by leaps, but its accessibility to scientific observation demanded them, using instruments to parcel up the perceivable universe.

The core maxim, *natura non facit saltus*, in its long history of reiterations, has served as an aegis under which both philosophical inquiry and empirical, experimental

research could proceed in tandem, but also as a reminder of their historical incommensurability. For Leibniz it expressed an irreducible continuity of nature in the face of the discrete, potentially infinitely divisible unities, and justified the application of “evolving methods” of infinitesimal calculus to physics, while Kant later claimed that certain “logische,” empirically observable regularities “setzt aber ein transscendentales voraus (lex continui in natura),” which must “auf reiten transcendentalen und nicht empirischen Gründen beruhen.” To have laws, and therefore, for a field of inquiry to become a science, the uniformities of observation had to derive from principles prior to perception. It was for precisely this reason that Kant famously denied the possibility of scientific psychology in his 1786 work, *Metaphysische Anfangsgründe der Naturwissenschaft*; a prohibition that would last until Johann Friedrich Herbart’s publication of *Psychologie als Wissenschaft: neu gegründet auf Erfahrung, Metaphysik und Mathematik* in the 1820s. The two primary reasons for Kant’s foreclosure on hopes for a science of psychology were that observations of psychological states could not be mathematicized, as could be observations in other empirical sciences, and the object of such an empirical observation was observation itself. In short, the continuities of

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experience could not be properly subjected to the discontinuities of empirical study, and even if they could, resisted *a priori* uniformity; the very nature of experience being definitionally at odds with the realm of the axiomatic. Psychology thus represented the most profound and intransigent rift between the discontinuities of science and the continuities of perception, thought, and experience.

The scientific revolution in psychology during the nineteenth century was brought about largely by machines. First, through the introduction of psychometrical instrumentation based on the development of the electromagnetic galvanometer and the tachistoscope, but secondly, through the reconceptualization of the psyche, and all of its attendant phenomena, according to principles of mechanics. The psyche therefore became measurable by machines by being treated as itself a physiological machine. This opened the door to the field of experimental psychology, submitting the once mystical unities of experience to discrete units of measure as defined by new instrumentation. Yet throughout the nineteenth century, scientific psychology remained beleaguered by the epistemic schism between discontinuity and continuity, as psychometric observation repeatedly proved incapable of reproducing or adequately explaining the core unities of experience. It was only with the introduction of the cinematograph, itself the byproduct of innovations in psychophysical instrumentation that a scientific and cultural resolution to the problems of continuity became evident—and likewise begot a host of new cultural and scientific problematics. It is these problematics, generated by the success and ability of film to generate a sense of “subject-effects” in its first twenty years of existence that is the subject of this dissertation.
In perhaps his most influential essay on the “cinema of attractions,” Tom Gunning wrote that audiences around 1900 “went to exhibitions to see machines demonstrated…rather than to view films.” Gunning’s effort to liberate early film from what he called the “hegemony of narrative films” had a secondary implication: it denied the possibility of subject-effects in early cinema. With Gunning’s intervention, early films were reconceived as sites of technological fascination instead of as a “primitive sketch of narrative continuity.” The absence of this continuity meant that audiences looked at but did not identify with what films depicted. Early film after Gunning was decidedly un- and even anti-psychological—the watchword of subjective identification being “continuity.” Films could thus be theorized as simulating the psychological space of their audience only at the point that they instituted techniques for masking both the technological conditions of their production and for eliding the seeming coherence of the diegesis with the coherence of the viewer. However, neither the continuities of film nor the psychological and perceptual continuities to which it supposedly bore some relation were historically stable concepts. Indeed machines had come to represent an indefatigable constancy, capable of twenty-four hour production cycles that were idealized precisely on account of their inhumanity. And much of nineteenth experimental psychology had done the work of likening the physiological operations of the psyche to an immensely complex

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5 Ibid., 64.

6 Ibid., 65.

7 In his latest extended essay on the industrial, cultural, and technological history of sleep and the development of industrial and post-industrial capitalism, Jonathan Crary notes that “There is a well-known critical tradition, going back to the late nineteenth century, which identifies the standardization of experience as one of the defining attributes of Western modernity. Initially, the idea of routinization was drawn from the industrial workplace and its requirement of the continuous performance of repetitive actions and tasks” in *24/7: Late Capitalism and the End of Sleep* (Brooklyn: Verso, 2013), 76.
series of mechanical sequences. Yet the pristine, continuous contours of ideational and psychological space, especially when confronted with the instrument-minded, experimentally driven urge to model psychic operations, were difficult to reconcile with an infinitely divisible universe of discretely quantifiable units of measure and individual moving parts. Thus, if cinematographic mechanisms were to create a space of psychological identification instead of a mere spectacle of technological wonderment, they had to not only erase the evidence of their own technological operations, but the impression that it was the mechanical operations of the viewer that were excited. Film’s overwhelming success at doing just this is precisely the reason it went from being seen as a bad habit to a psycho-cultural menace of the highest order.

It was not simply the case that the psychological space of the viewer going to see “attractions” and the operations of those attractions coincided once there existed a standard repertoire of editing devices for establishing narrative continuity. The legacy of mistrust in the early German reception and criticism of filmic influences on the psychology of its viewers demonstrates the degree to which the model of the machine and the cognitive processes of the viewer were already co-implicated in a scientific and cultural history of media-technologies. Models of the psyche in experimental psychology were developed according the operations and measures of proto-cinematic and cinematic instrumentation, and the cultural and pedagogical reception of the cinema as a psychosocial problem deployed experimental-psychological models of the psyche as evidence for cinema’s maleficence. As it turns out, going to “see machines demonstrated” was to witness the conditions by which the psyche itself had been modeled, even if the
logic of those conditions changed with the advent of diegetic cinema in the early twentieth century.\textsuperscript{8}

\footnotesize
\textsuperscript{8} Ibid., 66.
CHAPTER 1
Mind after Matter: From Physiological to Psychological Films

A much more interesting objection is that a syllogism is a purely mechanical process. It proceeds according to a bare rule or formula; and a machine might be constructed which would so transpose the terms of premises. This being so (and it is so), it is argued that this cannot be thought; that there is no life in it...9

Cinematic Form and Reform

Between 1907 and 1917, film in Germany and Austria was transformed from an itinerant attraction in variété theaters and traveling cinemas (Wanderkinos) into an increasingly permanent fixture of urban entertainment in storefront cinemas (Ladenkinos) and cinema palaces (Kinopaläste).10 During this time, cinema’s institutionalization was

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10 By 1910 permanent theaters exceeded Wanderkinos, with 77 cinemas in Berlin alone. Between 1910 and 1913, after the opening of the Gaumont-Palast in Paris in October of 1911, there was a shift towards larger, more comfortable Kinopaläste, shuttering many of the smaller theaters. This was largely due to the practices of film distribution and the emergence of the Monopolfilm, which concentrated the lending and screening rights to certain theaters and distributors and placed regional controls on who could show which films and when. Prior to this, travelling cinemas satisfied a demand for variety through the very fact that they travelled, while more permanent, smaller theaters could sell films to other theaters after screening them. One of the economic explanations for the success of the Monopolfilm and its corresponding system of centralized distribution was the introduction of star films, which marketed a celebrity, such as Asta Nielsen in the leading role—the first of these often recognized as her 1910 film Abgründe, distributed in Germany exclusively by Ludwig Gottschalk and his Düsseldorf firm, Film-Manufaktur. This simultaneously guaranteed an interest in a single film or series of films and meant that only certain theaters could show them. Monopolfilme, driven by the marketing of celebrities, were also Autorenfilme, signaling a turn on the part of the viewership watching film for film’s sake, motivated to see whatever film was new, to audiences watching longer, more diegetically involved films. A thorough introduction to the history and economics of early cinemas in Germany can be found in Corinna Müller’s, Frühe deutsche Kinematographie: formale, wirtschaftliche und kulturelle Entwicklungen, 1907-1912 (Stuttgart: Metzler, 1994); Kinööffentlichkeit (1895-1920): Entstehung – Etablierung – Differenzierung, eds. Corinna Müller and Harro Segeberg (Marburg: Schüren, 2008); Thomas Schorr, “Die Film- und Kinoreformbewegung und die deutsche Filmwirtschaft. Eine Analyse des Fachblatts ‘Der Kinematograph’ (1907-1935) unter pädagogischen und publistizistischen Aspekten,” (Dissertation, Universität der Bundeswehr München, Institut für Medienpädagogik, 1990); Janet Bergstrom, “Asta Nielsen’s Early German Films,” Before Caligari: German Cinema, 1895-1920, eds. Paolo Cherchi Usai and Lorenzo Codelli (Pordenone: Edizioni Biblioteca dell’Immagine, 1990), 162-184; Thomas Elsaesser, “Wie der frühe Film zum Erzählkino wurde. Vom kollektiven Publikum zum individuellen Zuschauer,” Erlebnisort Kino, ed. Irmert Schenk (Marburg: Schüren 2000), 34-54; Thomas Elsaesser and Michael Wedel, “Distribution,” Encyclopedia of Early Cinema, ed. Richard Abel (New York: Routledge, 2006), 390-392; and Peter Lähn, “Afgrunden und die deutsche Filmindustrie. Zur Entstehung des Monopolfilms,” Schwarz Traum und weisse Sklavin: Deutsch-dänische Filmbeziehungen, 1910-1930, ed. Manfred Behn (München: Edition Text + Kritik), 15-22.
met with institutional criticism—in the form of state censorship and a proliferation of conservative religious, medical, juridical, and bourgeois pedagogical (bildungsbürgerliche) associations, initiatives, and publications that have come to be termed the “cinema reform movement” (Kinoreformbewegung). Whether or not these cultural responses to the potentially deleterious effects of cinema can be legitimately characterized as a part of a monolithic Reformbewegung, they have nonetheless come to occupy an established area of inquiry for contemporary scholarship on early German and Austrian cinema.11 What is evident in texts and secondary literature about the reception and theorization of early cinema on the part of its social critics is that the development of cinema as a narrative medium, and as a locus for a public, collective, visual experience was accompanied by a preoccupation with its mass-psychological ramifications. In large part these concerns were limited to versions of the banal objection that the native subjects for film were sex, suicide, and the unredeemed criminal life (Verbrecherleben), capitalizing on the base desires of viewers and inuring an international audience to a hyperbolic vision of eroticism in darkened rooms filled with smoke, alcohol, and

11 For sourcebooks and historical overviews that include the writings and context for the Kinoreformbewegung, see Prolog vor dem Film: Nachdenken über ein neues Medium, 1909-1914, ed. Jörg Schweinitz, (Leipzig: Reclam, 1992); Fritz Güttinger, Stummfilm im Zitat der Zeit (Frankfurt: Deutsches Filmmuseum, 1984); Kein Tag ohne Kino: Schriftsteller über den Stummfilm, ed. Fritz Güttinger (Frankfurt: Deutsches Filmmuseum, 1984); Herbert Birett, Der [sic] Kino in Deutschland bis 1914 (München: Q-Verlag, 1994); Helmut H. Diederichs, Anfänge deutscher Filmkritik (Stuttgart: R. Fischer + U. Wielerroither, 1986); Thomas Elsaesser, Filmgeschichte und frühes Kino: Archäologie eines Medienwandels (München: Edition Text + Kritik, 2002); A Second Life: German Cinema’s First Decades ed. Thomas Elsaesser (Amsterdam: Amsterdam University Press, 1996); and Kino-Debatte: Texte zum Verhältnis von Literatur und Film, 1909-1929, ed. Anton Kaes (Tübingen: Niemeyer, 1978). Collectively these texts demonstrate the degree to which the objectives and intellectual commitments of the Kinoreformbewegung were not singular, but ran the gamut from a total opposition to film, the limitation of film viewership to adult men, stricter content censorship, to calls for the production of artistically worthy films that might fully realize the potential of the medium and produce viewers who were no longer interested in Schundfilme.
women.\textsuperscript{12} Many writers and critics affiliated with the \textit{Kinoreformbewegung} lamented the salacious content of films such as \textit{Die weiße Sklavin} (1910) and the detective series \textit{Stuart Webbs}, produced in the 1910s, from which they extrapolated to a crisis of civilizations. They argued, for instance, that dramatic films promoted “eine lüsterne Erotik,” and that “Zerrbilder von Elend und Not, Armut und Krankheit erzeugen quälende Gedanken über die Ungerechtigkeit der Welt.”\textsuperscript{13} This threatened not only the integrity of individual desires and the education of youth, but also the coherence of social institutions. And it is precisely the idea of integrity, at the level of the logic underlying thought and as a source for individual autonomy, that demands a re-engagement with such critics—critics whose theoretical interventions have otherwise been relegated to a history of retrograde techno-catastrophizing and soothsaying.

The motive for returning to a history of marginal figures who positioned themselves as conservative sentries guarding the walls of old cultural and pedagogical theories is that their criticism indicates a shift in thinking about the psyche as an artifact of media-technologies. Unlike the earliest commentaries on the potential dangers of film, focused primarily on the physiological overload caused by concentrated exposures to bright, fast-moving, flickering images, critics of the reform movement, beginning around the 1910s, started to be concerned with its psychological effects, even where they mobilized the nomenclature of older nerve theories. \textit{Physiological} discourse largely

\textsuperscript{12} This complaint about the sexualized setting of \textsl{Kinos} and the correspondingly scintillating content of films was nearly ubiquitous in early appeals to reform the production and regulation of film. There was a common call from a myriad regional organizations and \textsl{Sittlichkeitsvereine} like the Verein zur Hebung des Kinematographenwesens in Leipzig as well as articles in journals like \textsl{Bild und Film} to limit the content of films to educational topics, control the age and gender of the audiences, and control the importation of foreign films, which were thought to undermine efforts to educate children and citizens in the German cultural and literary tradition as part of a \textsl{Bildungs} program. For more on this see Sabine Hake’s \textsl{The Cinema’s Third Machine: Writing on Film in Germany, 1907-1933} (Lincoln, NE: University of Nebraska Press, 1993), 27-42.

mutated into *psychological* discourse—something that has been partially obscured by the dominance of what Klaus Kreimeier has referred to as the “Nervositätsdiskurs” in recent works on technology in modernity.¹⁴

The earliest responses to film fixated on cinema as purely a mode of stimulus, causing physiological excitement or over-excitement in the viewer, who was conceived of as a complicated series of mechanisms for managing energetic inputs and outputs. The very “illusion” of movement in cinema, attributed to “after-images” (*Nachbilder*) or “blending” (*Verschmelzung*) around 1900, was seen as a failure of the perceptual mechanism.¹⁵ It was only as a faltering psychical apparatus that such visual continuities could be achieved—that it was treated as a failure to perceive the individual stimuli as separate instead of moving reaffirmed the mechanical nature of the psychical device in much the same way that Heidegger famously described the conspicuous malfunction of a *Werkzeug*.¹⁶ Apparent motion was not an ability to assemble distinct inputs continuously, but defined the psychic machine’s *limitations* in recognizing discontinuities.

The purpose of this chapter is not to add further to an already rich body of texts in the “Nervositätsdiskurs,” but rather, to suggest that the earliest engagements with the

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¹⁴ Klaus Kreimeier, *Traum und Exzess: Die Kulturgeschichte des frühen Kinos* (Vienna: Paul Zsolnay Verlag, 2011), 90. There is a wealth of excellent literature on discourses of nerves and nervousness in Germany around the turn of the twentieth century, suggesting that literary, scientific, and philosophical conceptions of human perception and consciousness were transformed by electrification and new technological conditions. On this topic see, for instance, Joachim Radkau, *Das Zeitalter der Nervosität: Deutschland zwischen Bismarck und Hitler* (München: Hanser, 1998); Andreas Killen, *Berlin Electropolis: Shock, Nerves, and German Modernity* (Berkeley, CA: University of California Press, 2006); and Michael Cowan, *Cult of the Will: Nervousness and German Modernity* (University Park, PA; Pennsylvania State University Press, 2008).

¹⁵ Journals of experimental psychology from the late 1890s through the early 1900s were topically dominated by problems of apparent motion (or *optische Täuschungen*), and particularly the perceptual effect of *Verschmelzung*. Both the journal *Philosophische Studien* edited by Wilhelm Wundt and *Zeitschrift für Psychologie und Physiologie der Sinnesorgane* founded by Hermann Ebbinghaus and Arthur König were filled with articles and reviews about apparent movement experiments by Wundt, Theodor Ziehen, Carl Stumpf, Ernst Dürr, Oswald Külpe, and Paul Linke, to name only a few major figures in the field.

psychology of film by psychiatrists, psychologists, doctors, and analysts, which very often came in the form of conservative screeds by reformers, reveal an anxiety about the emergent logics of continuity produced within the cinematic dispositif, and one profoundly tied to disputes about the measurement and modeling of the psyche. That the psyche even came to be hypothesized as a scientifically observable unity that could be methodically disassembled and measured was itself a source of worry that was transmitted to arguments about the psychology of film at the end of the nineteenth century and early twentieth century.

Experimental psychologists, while far from marching in theoretical lock-step, contended that the appearance of movement in projection was “von der Ermüdung des Sehorgans und zwar aller Wahrscheinlichkeit nach der Netzhaut selbst bedingt.” Cinema’s success, according to this view, was definitionally a failure of the perceptual apparatus and therefore necessarily harmful. Illusions of movement were evidence of a limitation and break down of the physiological apparatus. Such risks, however, were predicated on a specific mechanical model of psychic and cinematic continuity and their perpetually mirrored relationship to one another. That cinema would later be recognized (as well as feared) for reproducing the proper functions of the psyche in the 1910s indicates a radical reconception of the mediating operations of both cinema and the psyche. The moving images of the earliest films were not thought to wreak their havoc through the replication of interior, subjective space, because their effects were the mere malfunction of the apparatus. Paradoxically, the psyche was mechanically

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indistinguishable from the cinematograph, and also was compelled to a hallucination of
difference through the continuities of apparent motion. One was at same time witnessing
the similitude of mental and mechanical operations through the illusion of a special
psychological property of the psychic machine that was also the result of its failure. The
proof for this general view was taken from existing scientific psychology, which, in a
vertiginous exchange between instruments and what they measured, was found in
experiments on movement. They used pre-cinematic devices to examine the
physiological conditions for illusions of movement, which were then treated as analogous
to the conditions of psychological continuity.

Wilhelm Wundt, as only one influential instance, offered a strong refutation of
Eduard Zeller’s use of Weber’s law of perceptual thresholds as a “Princip der Relativität
aller psychischen Zustände” and therefore evidence that “psychische Vorgänge seien
nicht messbar”—essentially disputing the basic precepts of the field of psychophysics.18
Zeller had made a two-part claim that “die Sinnesempfindung” was “eine
Bewusstseinserscheinung und als solche durchaus verschieden von den mechanischen
Bewegungen.”19 In short, Wundt replied lovelessly that both formulations of Zeller’s
objection “gehen von der Fiktion aus, es gebe eine Welt außer uns und eine Welt in uns,
die sich zwar an ihren Grenzen berühren, in ihrem inneren Zusammenhang aber nichts
mit einander gemein haben” and that this “Fiktion ist unhaltbar.”20 According to Wundt,
the character of the movements in the machine and the impression of movement in the
audience were not qualitatively, but only quantitatively different. Experiments on the

251, 252.
19 Ibid., 253.
20 Ibid., 254.
perception of apparent motion using pre-cinematic instruments, such as the pedascope and tachistoscope, functioned as much to show how the psyche worked like the instruments as to show how the psyche was physiologically affected by them. The climate for arguments at the end of the nineteenth and beginning twentieth century, especially with respect to the all-important matter of apparent movement, was one in which “Das Gehirn und damit das Bewusstsein werden zu einem Apparat unter anderen; das Nervensystem als Ganzes erscheint als ein viel komplexes Netz.”21 As an “attraction,” the earliest cinema offered a mere source of stimulus, whose hierarchy of cogs and shutters governing limited internal interactions among parts, were an analogy for the mechanical ordering of mental operations. Once the “attraction” of film was diegetic, however, the invocation of its physiological effects and the relationship between mechanical operations and subjective continuities became much more complex.

Critics of the Kinoreformbewegung coupled charges about the insidiousness of the content of film dramas (Kinodramas) with the scientific authority of psychophysical language in order to indict or express concern about the cinematic medium’s distortions of the conditions of perception. Film engineered physiological circumstances that made the viewer more susceptible to the influence of the content. These new conditions were thought to simultaneously produce sensorial and intellectual enervation and to facilitate the delivery of imperceptible messages through suggestion, simulation, and hypnosis—as well as simply damaging the normal functions of sensory organs. As the clinical psychiatrist Robert Gaupp commented in 1911, “Allein der Kinematograph wirkt

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The rapid succession of images, he argued, denied the viewer the time for “Nachdenken” afforded by reading, which, in addition to the primary effects on the eyes and mind, represented one of the “Angriffe auf unser Seelenleben”—turning the content of the narrative into “verhängnisvolle[] Suggestion für die willenlos hingegebene Psyche des einfachen Menschen.” Suspicion about film’s role in the maturation or distortion of psychic processes was tied to a methodological and theoretical overlap with areas of scientific inquiry which were quite frequently concerned with the physiological outcomes of repeated exposure to various media, such as novels and films. However, as Gaupp’s text makes clear, by framing disturbances of the nerves and physical processes as problems of contemplation or reflection (Nachdenken—literally, “after-thinking”), the continuity of mechanical processes was not the sole source of psychic autonomy. Physiological well-being was a condition of possibility for preserving psychic continuity, but not continuity itself. Nachdenken connotes a technique for engaging with media-technologies, whereby what is experienced is retroactively submitted to a second order thinking that makes sense of or unifies multiple discontinuous elements. It is a specific logic, bound to practices of reading that systematizes input as support for a whole—it provides a kind of cognitive syntax. However, while the audience was denied the medial technique of Nachdenken in Gaupp’s account, the idea that film could nonetheless structure the psyche (even if negatively) through “Suggestion,” signals an early theorization of the relationship between machine logic and mental logic that was not merely the reduction of the mind to a machine. Gaupp’s analysis anticipates accounts of

23 Ibid., 364, 365.
diegetic cinema that explain the relationship between psychophysical visions of the psyche with the mental continuities of a psychological space of signification.

Worries about nefarious mechanical influence and psychological suggestion arising from technologies of entertainment, informational transmission, and mediation occurred within an echo chamber theorizing the effects of modern life. These cultural anxieties have been a wellspring of materials for contemporary scholarship on the culture of nerves and electrification at the beginning of the twentieth and end of the nineteenth century. Indeed, cultural prognostications regarding the degenerative influence of media had a lineage of well-established precedents in fin-de-siècle Europe as well. The most famous of these being what William James lambasted as Max Nordau’s “bulky book,” *Entartung*, in which he decried the diminished capacity for “Aufmerksamkeit” related to a “gewachsene nervöse Reizbarkeit” that has received significant and various “attention” of its own in the last 20 years. What was unique to film criticism amid the riot of techno-dystopianism around 1900 is that its criticism was also a vehicle for attempting to reconcile mechanical models of the psyche with psychological idealism. Per se film critiques seemed to reproduce a popular form of cultural mania related to technology and its influence on human capacities. More importantly, however, it surreptitiously

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constructed a film-specific model of psychic continuity that made psychology legible in its contingency on media-technologies.

Much later, a strong current in film theory throughout the 1960s, 70s, and 80s associated with canonical theorists such as Christian Metz, Stephen Heath, Jean-Louis Comolli, and Jean-Louis Baudry explained cinematic subject-effects by positing a structural analogy between the operations of the psyche and those of narrative films. Within such an analogy the “equipment becomes a metaphor (as well as the real source) for the mental process instituted.”26 There was little attempt, however, to historicize the so-called cinematic “psyche” as itself a historically contested, scientific postulate informing the debate about the nascent filmic medium. In large part, what has been termed “apparatus theory” approached film as already having a stable viewer-subject who was influenced, but not determined by media-technologies. The later cinematic dispositif of the 1970s may have situated and stabilized the viewer as a part of a more universal ideological complex that manufactured a “fantasmatization of the subject” in tandem with a “maintenance of idealism,” but only as a viewer whose basic subject-effects were already in some way modeled on the cinema.27 Film in this construction doubled down on the enthroned status of the perceiver, but did little to address the contingency of that model of the subject it reaffirmed. The conflict inherent in early film criticism was precisely in its profound demystification of subject-effects through recourse to the mechanical analogies of filming and projection. By establishing the possibilities for

27 “Ideological Effects of the Basic Cinematographic Apparatus,” 46.
continuity in mechanical operations and a corresponding logic early on in the interaction between experimental psychology and film criticism, the emergence of diegetic film could be explained as part of an existing parallelism between cinema and psyche. That later film theories found in the cinema a vindication of the western ideology of “representation” and “specularization,” neglects a history of cultural and psychological discourse on the nature of the psyche in which speaking of the subject was already to speak of the cinema.28 Baudry claims that “continuity is an attribute of the subject” replicated in film by masking discontinuities to create a narrative, synthetic unity, and in turn he overlooks the fact that the original unity attributed to the psychologized subject was the consequence of theorizations relying on cinematographic media-technologies. In order to mask discontinuities, one had to first conceive of continuity in terms of discontinuity—something which was the exclusive province of psychophysics as an enterprise possessed by accounting for the apparent unities of movement through mechanisms of discontinuity. One could argue, against the presupposition that film improved to better reflect the demands of the viewer, that the model of the viewer evolved to better reflect the demands of film.

*Continuous by Design: Engineering Machines and Sensoria*

In 1910 the experimental psychologist and pedagogical theorist Karl Marbe began his influential book on the physiological principles of the cinematograph by claiming:

Nachdem sich seit langer Zeit die wissenschaftliche Theorie und Praxis im Gebiete der Mathematik, Medizin und der Naturwissenschaft gefördert haben, macht diese Schrift heute in einer Blütezeit der Technik den Versuch, die

28 Ibid.
Psychologie und die Technik in der Lehre von den Kinematographischen Projektionen in Zusammenhang zu bringen.\textsuperscript{29}

In the “Blütezeit” of technological advancement, the cinematographic projector became a proxy for thinking about the relationship between physiological mechanisms and subjective qualitative properties. This was the case because the mechanical operations of the cinematograph had been calibrated to conjure visual and cognitive effects that concealed those very operations. Scientific treatises on the cinematograph, then, worked like projects of reverse engineering, suggesting adjustments for the mechanisms of the camera and projector to produce desired cognitive states. On this basis Marbe could make the normative claim about cinematographic presentations that “Sie sollen in uns den subjektiven Eindruck einer kontinuierlichen ohne störende Unterbrechungen verlaufenden Szene darstellen.”\textsuperscript{30} His contention about the necessity of a nexus between technical, scientific, and psychological investigation regarding the cinematograph thus demonstrates a tendency to, if not conflate, then at least to treat as parallel the relationship between physiological processes and mental states on the one hand, and mechanical, cinematographic operations and the diegetic space (“Szene”) on the other. In Marbe’s study, the cinematograph becomes the premise for considering the nature of perceptions of movement and the seeming stability and continuity of mental states

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\textsuperscript{29} Karl Marbe, \textit{Theorie der kinematographischen Projektionen} (Leipzig: Verlag von Johann Ambrosius Barth, 1910), 3. With Oswald Külpe, Marbe co-founded the experimental psychology lab at the University in Würzburg in 1896. As a member of the Würzburg school of psychology, Marbe was an exponent of both a method of systematic experimental introspection as well as an understanding of higher order volitional processes as deriving from an imageless causality in the psyche. His most significant contribution to the history of psychology was arguably his monograph on the experimental psychological study of judgment, \textit{Experimentell-psychologische Untersuchungen über das Urteil} (Leipzig: Engelmann, 1901). George Mandler calls this work of Marbe’s “the first unified study of complex thought processes” in his book \textit{A History of Modern Experimental Psychology: From James and Wundt to Cognitive Science} (Cambridge: MIT Press, 2007), 80. Whether or not it was actually the case that Marbe’s study was the first, it does indicate his critical position in what I have termed the transition from physiology to psychology, not least because of his work on illusions of movement.
\textsuperscript{30} \textit{Theorie der kinematographischen Projektionen}, 7.
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emerging from discontinuous inputs. At issue was the nature of the relationship between multiple distinct, but mutually dependent levels of analysis; proceeding from the presupposition of an objective world marked by its unity and continuity, to mechanical intervals of measure that could be used as data points quantifying stimuli, to a conceptual unity that could account for the apparent continuity of consciousness.

From its inception, literature about the proper function of the cinematograph centered on a chiasmic interaction between the operations of filmic presentation and the sensorial and psychological conditions produced in the viewer. Both practical interest on the part of the film industry in “improving” the experience, as well as social, moral, and psychological conversations about the impacts of film took as a their starting point an assumption about the ideal union of the mechanical conditions of presentation and the corresponding perceptual and cognitive continuities they produced. This is apparent in the comprehensive 1913 overview of the history and function of cinematographic apparatuses in Germany by Carl Forch, in which the operations of the various mechanisms were treated as inseparable from their perceptual effects. In a section on flicker and the design of the shutter (Verschluß) and the related mechanisms for advancing the filmstrip in front of the light source at regular, but discontinuous intervals, he writes:

Ein guter Aufnahmeapparat muß also einen Verschluß besitzen, bei dem das Verhältnis der Belichtungszeit zur Dauer einer vollen Periode unabhängig von der Drehgeschwindigkeit des Werkes verändert werden kann. Anders bei dem Vorführungskino. Dort soll die Dauer des Filmstillstandes völlig ausgenutzt werden, aber es machen später näher zu behandelnde physiologische Erscheinungen es wünschenswert, daß entweder die Dunkelpausen etwas aufgehellt oder umgekehrt die für die Beleuchtung zur Verfügung stehende Zeit durch eine oder mehrere kurze Dunkelpausen unterbrochen wird.31

31 Carl Forch, Der Kinematograph und das sich bewegende Bild: Geschichte und technische Entwicklung der Kinematographie bis zur Gegenwart (Leipzig: A. Hartleben’s Verlag, 1913), 51. There were various
The very terms for the discussion of the apparatus’ mechanisms were, especially in 1913, with the explosion of long-format narrative film (and particularly with respect to the design of shutters), guided by the conditions for perceptual continuities allowing for an uninterrupted space of signification and narrative—albeit through meditations on how to control the periods of pause, darkness, and discontinuity. While earlier commentators had remarked on the quality of films and the sometimes harsh experience of early cinematographic presentations, Forch appears to be among an early group of researchers and psychologists who identified the technical objectives for the further development of the apparatus with the production of a continuous, uninterrupted perceptual state based on discontinuity. Siegfried Zielinski has summarized these technical improvements as part of a larger constellation of related developments connected to both narrative cinema and projects of mechanical vision:

Without changes to the material basis of this medium, the expansion of the single film event into a full evening’s entertainment would have been impossible. Only with the doubling and tripling of the brightness volume enabled by the introduction of the three-bladed projection shutter at the beginning of this century—systematically described in Karl Marbe’s history of cinema projection—guaranteed relatively flicker-free pictures on the screen. The physical fatigue resulting from eye-strain, characteristic of the first years of film, was thus ameliorated… Such modifications to the apparatus were not motivated by the production of filmic entertainment alone. Cinematographics had originated from various social spheres of media utilization, and similarly, these areas of social

schools of thought about the best design for shutters and the intermittent mechanisms for advancing the film strip. Rouleau shutters or roll-blind shutters slid in front of the aperture from the sides during the advancement of the film strip, while rotating shutters were bladed, continuously turning and synchronized to cover the light source while the pawl or Klaue pulled the film strip forward intermittently with each quarter rotation of the Geneva drive. There were also slit shutters and a number of other mechanisms for blocking the light source during the movement of film, ensuring that the apparent movement of the image did not result from the movement of the image itself, but instead from the succession of multiple static images. There were a number of manuals and histories of cinematographic devices available at the time, one of which was Karl Wilhelm Wolf-Czapek’s *Die Kinematographie: Wesen, Entstehung und Ziele des lebenden Bildes* (Dresden: Union Deutsche Verlagsgesellschaft, 1908).
praxis continued to be co-factors in the development of seeing via the new machines.32

Technological modifications in the field of moving images did not advance toward a predetermined perceptual or narratological telos. Likewise, as Deac Rossell is right to point out, a “symmetrical consideration” of early cinematic artifacts “rejects technological determinism in which there is only one ‘right’ solution” to the problem of continuous movement.33 Projection technologies instead participated in a broad social, scientific, and cultural field that was as much involved in defining cognitive and perceptual unities, as they were in producing them in theaters.

Instances of apparent motion and the devices for manufacturing them came to occupy a central position in understanding how the psyche worked, because they were thought to provide a controlled setting for investigating the transition from discontinuous mechanical operations to states of continuous consciousness—they presented the problems of empiricism in miniature, namely, how one can get from the discreet to the conceptual. In the case of experimental psychology, there was an imperative to understand the continuity of mental states in terms of discontinuous intervals of measure, while in film the objective was to arrive at states of perceptual continuity by calibrating the functions of discontinuous filming, editing, and projection. The outcome was that the state of continuity produced by films was linked in literature, both about films and scientific psychological treatises, to specific operations of the device that produced them. However, the relationship between the mechanical operations for producing the illusion of movement and diegesis, and the illusion itself, were by no means fixed. Theories of

mechanical causality that guided initial attempts to model psychic operations demanded that one be able to account for perceptual outputs according to inputs. Perhaps the most frequently used example was Gustav Fechner’s innovation on Weber’s Law laying the groundwork for all future psychophysical investigation. Although Fechner complicated the law of proportional correspondence between stimulus and perception by demonstrating a threshold value [Schwellenwert] determined by a logarithmic relationship between stimulus and sensation, it was still a model based on mechanical correspondence. The “Zustände der Reizbarkeit des Organismus” stood in relation to the world of inputs that was “nicht unveränderlich,” but was nonetheless one of mechanical causality—perceptual states were a function of the intensity of stimuli. The presence of images further complicated the apparently direct relationship between inputs and outputs, and especially the impression of movement, which was bound to a shift in the conceptualization of the psyche as a kind of image machine. With this, the very idea of the machine changed with respect to psychology, involving a more nuanced engagement with what it would mean for the psyche to be mechanical.

Reflecting on the earlier histories of psychophysical research in apparent movement in 1898, Marbe noted that the property of perceptual continuity linked to the illusion of movement was primarily marked by the interval—that is to say, by the absence, break, or cut. In fact, this early work seems to suggest that the notion of continuity itself could only be of a logical order, meaning that it functioned as a process of systematic exclusion, structured primarily by periods in which no image was presented. From these absences a secondary cognitive space could emerge according to a

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syntax based on those intervals. Yet Marbe did not use the term “Logik” and instead remarked on the “Optik,” an idea pursued by Simon Stampfer, who first deployed the phrase “strobozkopische Scheiben.”

36 Reference to the optical in terms of the organization of the psyche, as has been much commented upon in Freud’s transformation from an “echo of Fechnerism” in his early model of the psyche to a psychoanalytic, hermeneutic model, bespeaks a shift from a bloody-minded materialist attitude of psychical causality to a syntactical or logical ordering. Moreover, Freud’s departure around 1900 from a thermodynamic or mechanical model of the psyche to one ordered by language, logic, and syntax drew on the heuristic power of “optics,” which had already found expression in Fechner’s reckoning with how images became present to consciousness.

37 In Marbe this shift was expressed through a focus on the “Abstand” as a critical part of a continuous experience, which, in the context of later film criticism becomes a theoretical lynchpin in the understanding of film as diegetic, and therefore psychological, rather than merely physiological. In a sense, the “Abstand,” as evident in Freud, indicates the move

36 Simon Stampfer, Die strobozkopischen Scheiben; oder, die optischen Zauberscheiben, deren Theorie und wissenschaftliche Anwendung (Vienna: Trentsenky & Vieweg, 1833). This became a part of the nineteenth century scientific vocabulary and Stampfer was credited with inventing the Stampfer Disc independent of Joseph Plateau and his Phanakistoscope


38 In Elemente der Psychophysik, Fechner accounts for the complexity of a mental image, which can only resolved by passing through the mental apparatus, by describing the effect of a prism, which indicates parts of the electromagnetic spectrum that are otherwise invisible. With the use of the prism, the presence of ultraviolet light is represented, though not revealed, as its frequency is decreased. The example becomes profoundly useful for later thinking about the relationship between conscious material and unconscious material as a function of the mental apparatus rather than the material itself. Fechner writes: “die sog. ultraviolettten Strahlen, welche bei Anwendung gewöhnlicher Prismen unter gewöhnlichen Maßregeln nicht sichtbar zu machen sind, und auf deren Dasein man früher nur aus ihren chemischen Wirkungen schloß, neuerdings durch geeignete Maßregeln sichtbar zu machen vermocht, indem es dazu nur nösig ist, sie in hinreichender Stärke zur Wahrnehmung zu bringen...In der Tat wird der ultraviolette Teil des prismatischen Spektrums bei Anwendung von Bergkristallprismen, welche den betreffenden Farbstrahlen ein reichlicherem Durchgang gestatten, als Glasprismen, noch sichtbar erhalten, wo bei Anwendung von Glasprismen nichts mehr davon wahrunnehmen ist...Ein Beweis, daß aber auch durch Glasprismen die üerviolette Strahlen durchgehen und nur wegen zu geringer Intensität nicht mehr erkannt werden, liegt darin, daß man sie auch in dem durch Glasprismen erzeugten Spektrum noch durch die von Stokes entdeckte Fluoreszenz sichtbar machen kann” (239).
from *positivism* to *hermeneutics*—from perceptual and mechanical images as verification or proof to dense, associative objects of interpretation. In other words, there was an increasing recognition of the breaks and pauses essential to the process of signification.

In his matter-of-fact estimation of whether it is the breaks or the continuousness of the mechanical movements that accounts for the impression of movement in the subject, Marbe writes:

> Diejenigen aber, bei welchen der Eindruck bewegter Objecte erzeugt wird (und dies sind ja die interessanten und wichtigsten), beruhen noch auf einem zweiten Moment, nämlich darauf, dass wir unter Umständen *continuirliche* Bewegungen zu sehen glauben, auch wenn die einzelnen auf einander folgenden Bildphasen nicht auf neben einander liegende Netzhautstellen fallen. Wenn ein objectiver Gegenstand vor unserem Auge auf- und ab- schwingt, so beleuchtet er die entsprechenden neben einander liegenden Netzhautpunkte. Wenn wir mittels des Stroboskops aber den Eindruck eines auf- und abschwingenden Punktes erzeugen wollen, so dürfen die nach einander die Netzhaut beleuchtenden Punkte einen gewissen *Abstand* von einander haben, ohne dass dadurch der stroboskopische Effekt verteilt würde. Wir können diese Thatscache auch so ausdrücken: *Wenn wir Bewegungen stroboskopisch darstellen, so dürfen mehrere Bewegungsphasen ausfallen, ohne dass wir es bemerken.*

Marbe realized that the appearance of movement hinged as much on the frequency of breaks between stimuli as it did on the speed of their succession. Albeit a seemingly minor observation, it was of inestimable importance for the later interpretations of how film produced both perceptual and diegetic continuity. The “Abstand” was essential to the continuous for both producing scientific conceptions of the psyche from empirical data, but also for producing perceptual experiences of movement and, later, diegesis. By introducing the idea of the calculable absence to the experience of a continuous state, Marbe prefaced a change that would take place 15 years later with respect to cinema, whereby criticism and interpretation of films would relocate their point of engagement with the medium from *physiological* effects to *psychological* effects—from a

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mechanical-causal mode of continuity to a model of continuity as an unbroken space of *signification*. This was a change, however, that hinged largely on concepts of moving images that were already present in purely mechanical understandings of the relationship between continuity and discontinuity.

In an early, remarkable work on kinematics (what could be called the logics or grammar of machines), the instructor of mechanical engineering at the Berlin Royal Technical Academy, Franz Reuleaux, explained mechanical operations in terms of limitations (*Beschränkungen*), through which a specific set of modalities of machine articulation became possible. By establishing and combining limitations on the range of individual movements of parts within a machine and then sequencing them, a machine syntax could be elaborated that had deep implications for the interpretation how the mind worked for experimental psychologists, and more generally, as extrapolated by Reuleaux, for a larger cosmology.\(^40\) The movement of the machine was not located in a single part, but in the *operations* of multiple parts, which entailed not only what could be called a mechanical *Gestalt*, whereby all of a machine’s movements were irreducible to any single operation, but were also tied to its perception as having a single function.\(^41\) The

\(^{40}\) In his most recent book *The Cylinder: Kinematics of the Nineteenth Century* (Berkeley: University of California, 2012), Helmut Müller-Sievers dedicates a substantial part of his analysis to Reuleaux, who he identifies as an overlooked figure in the philosophical and literary history of machines, both as a thematic principle of modernization and a determinative factor in the creation, organization, and printing of texts. As the title of the book indicates, Müller-Sievers focuses on the “cylinder” as the critical industrial element of the nineteenth century for the continuous mechanical transmission of energy, and therefore, for the understanding of everything from the serialization of novels to philosophies of labor. Against the temptation to see only the simultaneous convergence of and antagonism between machinic and human functions, the book finds in Reuleaux, and his theorizations of cylindrical motion in particular, a kind of motion “qualitatively discontinuous with the motion of the human body,” but nevertheless central to human meaning-making and to the project of scientifically quantifying *Lebenskraft* (66).

\(^{41}\) Müller-Sievers also claims, as others have, that Heidegger’s understanding of *Gestell* was derived, at least in part, from his reading of Reuleaux, for whom the term also figures prominently. In a footnote, he mentions that in Heidegger’s preparatory notes for “Die Frage nach der Technik,” in a section entitled “Das ‘Automobile’ (in wesentlichem Sinne),” there is “likely” a direct citation about “Drehbewegung” from Reuleaux, “who he was reading at the time” (174). Martin Heidegger “Die Frage nach der Technik” [1953]
unity of function, and the appearance of a single movement, or *Gestalt*, was made possible by a technological *Gestell*, for both Reuleaux and for his later readers, such as Heidegger. What was present in Reuleaux, and either accidentally or intentionally re-expressed by Heidegger in his reflections on the origins of art, was a relationship between a *Gestell* that defined the limitations and possibilities structuring an image of movement, but which emerged only through the synchronized intervals and restricted operations of linked mechanical movements.\(^{42}\) The conceptual and visual whole produced by the totality of a machine’s work, whether a cotton gin or a cinematograph, was as much

\(^{42}\) There is also a strong case to be made that the notion of *Gestell* is closely related to *Gestalt* as found in gestalt psychology, which was perhaps a product of Heidegger’s relationship with Husserl, but also bears a strong conceptual resemblance to work by gestalt psychologists such as Kurt Lewin and was later cited by Rudolf Arnheim, who had repeatedly identified Heidegger as a thinker important for his work. This creates a kind of lineage from Reuleaux through gestalt psychology, in which the conditions for perception and ideation are interestingly rooted in theories of mechanics, particularly in the case of art. In the “Zusatz” to his essay “Der Ursprung des Kunstwerkes” \([1935/36]\) Heidegger writes “Gemäß dem bisher Erläuterten bestimmt sich die Bedeutung des auf S. 51 gebrauchten Wortes ‘Ge-stell’: die Versammlung des Her-vo-r-bringens, des Her-vor-ankommen-las-sens in den Riß als Umriß (*peras*). Durch das so gedachte ‘Gestell’ klärt sich der griechische Sinn von *morphe* als Gestalt. Nun ist in der Tat das später als ausdrückliches Leitwort für das Wesen der modernen Technik gebrauchte Wort ‘Ge-stell’ von jenem Ge-stell her gedacht (*nicht* vom Büchergestell und der Montage her). Jener Zusammenhang ist ein wesentlicher, weil seingeschicklicher. Das Ge-stell als Wesen der modernen Technik kommt vom griechisch erfahrenen Vorliegenlassen, *logos*, her, von der griechischen *poiesis* und *phusis*” \((72)\). Martin Heidegger, “Der Ursprung des Kunstwerkes \([1935/36]\)” in *Gesamtausgabe 5: Holzwege* (Frankfurt a.M.: Vittorio Klostermann, 1977). Although he is not expressly concerned with the genealogy I am outlining here, Bernhard Radloff has nonetheless commented on the relationship between *Gestell* and *Gestalt* in a way that deepens the sense of connection to Reuleaux’s machine grammar and gestalt psychology: “What is essential to the *Riß*—the inscription of limit, as determined by the work’s own self-manifestation—however, is the revelation of the self-reserve of the earth in the differentiated and sited singularity of beings. Because the artwork manifests the in-each-case-differentiated and self-reserved differentiation of the being of beings, it is strange to hear its being-in-the-gestalt brought into relation to the *Gestell*, for this becomes Heidegger’s name for the essence of technology. *Gestell* implicates a technological order of the functional determination and availability of beings.” In *Heidegger and the Question of National Socialism: Disclosure and Gestalt* (Toronto: University of Toronto Press, 2007), 360. This relationship between *Gestell* and *Gestalt* in Heidegger and in modern discourses on vision more broadly is explored in David Kleinberg-Levin’s *The Philosopher’s Gaze: Modernity in the Shadows of Enlightenment* (Berkeley: University of California, 1999) where he writes, “The history of the West is a story of the increasing reification of the perceptual *Gestalt*. Thus, in modernity, the *Gestalt* becomes a manifestation of *Gestell* \((120-21)\). He also writes of the release of the figure-ground *Gestalt* from the “disfigurements” of *Gestell* \((120)\).
defined by the intermittence, limitations, and confinement of individual movements, as it was by continuous movement. A profound example of an intermittence or discontinuous mechanism in filmic projection that illustrates the internal discontinuities and Gestell necessary for the impression of continuous movement and thus filmic narrative is the Maltese Cross mechanism (Maltesekreuzantrieb). The Maltese Cross or Geneva Drive as it is also called, used the interaction between the continuous rotation of a disc and its intermittent engagement of a driven disc to advance the filmstrip at regular intervals—eventually projecting 24 frames per second. It was this intermittence at the heart of the mechanism that was largely responsible for the impression of visual continuity and apparent motion, as it was necessary to stop the filmstrip with each cell to avoid blurring or flicker. Thus, the realization by Marbe and others that the perception of continuous motion was tied to the regulation of discontinuities in the movement of the images led to a larger, paradoxical recognition of a fundamental regulation of discontinuity at the heart of notions of both perceptual and narrative continuity. Limitations (Beschränkungen)—the rules governing the breaks (Abstände) of mechanical components—acted as a logic in the sense that they made certain movements possible and excluded others, making way for the assembly of “chains” (Ketten) that eventuated themselves in a single, perpetual movement that unified the function and idea of the device as a whole. This is a function that would be a guiding premise for the understanding of filmic apparatuses and would

43 The invention of the Maltese Cross is often attributed to the German pioneer of filmic devices and industry, Oskar Messter, who was granted a patent for the mechanism in 1902. However, Klaus Kreimeier has noted that in Messter’s own diaries he rejected the claim that he was solely responsible for its invention in The Ufa Story: A History of Germany’s Greatest Film Company, 1918-1945, trans. Robert Kimber and Rita Kimber (Berkeley: University of California Press, 1999), 12. The necessity of intermittence mechanisms was already recognized in the design of film projectors prior to the introduction of the Maltese Cross and was generally satisfied by the use of claw-and-cam systems until the turn of the century. For more on the history of these mechanisms see Leo Enticknap’s Moving Image Technology: From Zoetrope to Digital (London: Wallflower Press, 2005).
inform the reception of earlier histories of stroboscopic effects conducted by Faraday, Stampfer, and Wheatstone.

In Reuleaux’s enormous tome, natural, mechanical, cosmological, perceptual, and mental operations participate in a mechanical logic producing continuities that are the effect of limitations, breaks, and the assembly of a syntax responsible for the impression on the part of the observer of a single movement. On the rotating mechanisms of the *Axoide* and *Cykloide*, as well as gear wheels (*Zahnräder*) that were all-important for the principles of cinematographic projection, Reuleaux wrote:

In the long passage, Reuleaux is identifying a relationship between the limited individual movement that produces the overall operations of the machine and the idea of the machine, which omits the specific arrangement of multiple, sometimes discontinuous movements, in favor of a smooth conceptual image of the whole. Nature was marked by movement since the pre-Socratics, even where (or even especially where), it was thought merely an illusion, as Parmenides had claimed. Yet the impression of its continuity was a mental construct and a tendency of the mind to abstract and unify discontinuities.

The transmission or production of such a continuity in consciousness, or of consciousness, however, bore traces of the specific character of the technological arrangement that produced it. Peter Berz writes of the “allgemeine Grammatik der Maschinenbewegung” elaborated by Reuleaux that “Die Maschine des 19. Jahrhunderts rollt, läuft, kurbelt und ist in kontinuierlichen Kurven anschreibbar. Aber was sperrt,

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44 Franz Reuleaux, *Kinematik: Grundzüge einer Theorie des Maschinenwesens* (Braunschweig: Friedrich Vieweg und Sohn, 1875), 87-88. Emphasis mine. This observation by Reuleaux is echoed many years later in Ludwig Wittgenstein’s reflection on the errors in the conception of the machine as “geometrische Abstraktionen” or what he call the “Maschine alsSymbol.” Wittgenstein, in his attention to the underlying logic at work in assumptions about how machines work and the relationship between unified ideas of mechanical functions versus their actual operations, reverses the analysis of this passage. Rather than a form of necessity, where the machine is a single idea or image concentrated in a symbol, he comments on the contingency inherent to the machine, suggesting that the deterministic associations of the “mechanical” are only the function of their value as symbols and are actually marked by indeterminacy: “Die Maschine als Symbol ihrer Wirkungsweise: Die Maschine—könnte ich zuerst sagen—scheint ihre Wirkungsweise schon in sich zu haben. Was heißt das?—Indem wir die Maschine kennen, scheint alles Übrige, nämlich die Bewegungen, welche sie machen wird, schon ganz bestimmt zu sein…. Wenn wir aber bedenken, daß sich die Maschine auch anders hätte bewegen können, so kann es nun scheinen, als müsste in der Maschine, als Symbol, ihre Bewegungsart noch viel bestimmter enthalten sein, als in der wirklichen Maschine” *Philosophische Untersuchungen* [1953] (Oxford: Blackwell Publishing, 2001), 66. It is also worth mentioning that the term “Phoronomie,” was already a part of the Kantian theory of motion that was elaborated in precisely the work where Kant denied the possibility that psychology could be scientific. Immanuel Kant, Immanuel Kant, *Metaphysische Anfangsgründe der Naturwissenschaft* (Hamburg: Meiner Verlag, 1997).

45 Parmenides’ fragment 8 has been interpreted as an argument for the illusory nature of change. Change would require creation *ex nihilo* and thus must be illusory. In John Palmer’s, *Parmenides and Presocratic Philosophy* (Oxford: Oxford University Press, 2009), 30-31.
aufhält, hindert, einklinkt, ausklinkt, plötzlich abläuft und wieder stoppt, gehört nicht zur Maschine.”

This attribution of continuous movement to mechanical operations in opposition to the necessary discontinuities for producing that movement (one need only think here of pistons’ alternation or a Maltese cross) indicates a preliminary step towards not only a notion of how the disjunction between the real operations of a machine and a perceptual continuity of a single image of movement could occur, but also of the medial nature of such an occurrence. Although the purpose of the apparatuses he describes was not to create images, Wolfgang Schäffner notes that “Die rollende, rotierende Maschine scheint für den Kinematiker Reuleaux immer schon Bildmaschine zu sein,” and therefore that machines “erzeugen einen völlig neuen Bildtyp, der so neu ist, wie das Rad des 19. Jahrhunderts: ‘Alles rollt’ und produziert Bilder.” It was not simply that the machine became an image-machine, but that Reuleaux noticed the way in which mechanical operations became unconsciously unified as a single moving object, and therefore could serve as a template for thinking about the psychic mechanisms at work in producing psychological continuity in general. It is no doubt important that this was located in the image of movement, as a continuity of images entails a historically specific logic at odds with older models of physiological and perceptual continuity—models that were mechanical, but persisted in a misidentification of the ideological continuity of machines with their actual mechanical function. In opposition to perceptual, conceptual, or mechanical continuity, I use ideological continuity to refer to the tendency, particularly in nineteenth century economics and later in sociology and early twentieth century literature

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and philosophy, to ignore the specific modalities of machines, preferring instead to remark on the idea of ceaselessness associated with machines. Famous examples of this kind of treatment of the “Machine” as a figure of ideology can be found in Karl Marx, Werner Sombart, Georg Simmel, Alfred Döblin, and even Walter Benjamin, to name only a few. As but one instance of the inclination towards an ideological smoothing out of the harmonized disjunctions internal to industrial machines, Karl Marx, in the first volume of *Das Kapital* claimed that machinery would function as a “*perpetuum mobile,*” were it not for the inability to rid production of a reliance on human labor. In this way, the human labor element, which requires breaks and sleep, is the source of discontinuity, in contrast to the continuities of machines. Thus, the machine becomes metaphorized as the motor for a dehumanizing perpetuation of labor—from a rhythm of cycles of workers to the symbolic pauselessness of the machine. Yet the very fact of the early connection between the logic of discontinuous mechanisms and the impression of continuity serves to demonstrate an approach to the problem of how psychical continuities could arise from purely mechanical processes. The “Seele der Maschine” and its “life-function” (*Lebensfunktion*) were already significantly involved in the theorization of the psyche with respect to continuous and discontinuous mechanisms, and, as Gilbert Simondon has pointed out, the ontologization of machines as systems capable of “transfer without losses,” is what enables both science and philosophy—“the only domains that are accessible to philosophical reflection are those with a continuous structure.”

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49 Gilbert Simondon, “Technical Mentality,” in *Being and Technology*, trans. Arne De Boever (Edinburgh: Edinburgh University Press, 2012), 3. Among his many productive insights about the multifarious relations between the development of machines and the theorization of human thought, work, and organismic life, Simondon has written “What is carried out in both the rational study of machines and in the conduct of thought is the transfer without losses: science and philosophy are possible because the transfer without losses is presumed to be possible. Consequently, the only domains that accessible to philosophical reflection are those with a continuous structure. It will therefore be clear why one has wanted to consider
Once film had enough of a cultural and industrial standing to warrant investigations into its specific operations, these problems of continuity were paramount. An area in which this was perhaps most apparent was in the conversations about blurring, flicker (Flimmern or Flimmer), or “ghosting” which have since been theorized as the *sine qua non* of cinema’s analogy with, and influence over the functions of the psyche. The status of a phenomenon like flicker as something to be eliminated from cinematographic presentations and as an imperfection of the cinematograph makes evident a transition from physiological notions of psychic influence to psychological ones. It was only once longer narrative film was more or less the norm that referring to the ideal function of the cinematograph was also to refer metonymically to the proper relationship between physiological states and continuous psychological (i.e. “normal”) states. What flicker located was not only the necessity of the breaks and pauses for the generation of perceptual and diegetic continuities, but also the necessity of their *erasure*. No doubt discontinuities between single images, and later between shots and scenes, were critical for the impression of continuity and the comprehensibility of the images. But the breaks themselves were not to be legible. The change in the understanding of flicker from a physiological disruption to a diegetic disruption indicates a corresponding change in the understanding of the relationship between continuity and discontinuity.

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50 What was called “flicker” or “Flimmer” was the impression that filmic images were flashing, disrupting the appearance of continuous movement and drawing attention to the mechanical means for the presentation. It could result from a number of projection elements, including the frame rate, shutter speed, or lack of synchronization between the shutter, light source, and frames. Flicker was a phenomena that drew attention to the invented, mechanical nature of the illusion of movement. This fact was emphasized and heavily utilized later by avant-garde filmmakers such as Paul Sharits and Ken Jacobs to draw attention to the material means for producing a sense of subjective-identification with the space of a film.

51 In support of the conflation between the psychic and cinematic mechanisms in cases of flicker and the distinction between physiological and psychological processes Scott Curtis writes, “Medically speaking,
was believed to pose only a physiological threat, by damaging the nerves, retina, and the brain, film’s relation to the psyche was purely a mechanical problem. To see evidence of the mechanical breaks (Abstände), which made an illusion possible, was thus not a psychological problem, but one of stress on the psychic machine. Once those same spaces and breaks were treated as interruptions to the seamless space of filmic diegesis, about which there was a normative claim regarding film’s proper function, the cinematograph took on new significance in the understanding of mental and psychological continuity.

By 1912 “Es unterliegt keinem Zweifel, daß die Augen durch das Flimmern der Bilder leicht ermüdet und unter Umständen geschädigt werden,” but that was not the primary source of concern. As Marbe acknowledges in a section largely about the “Vermeidung des Flimmerns,” there had already been a history of attention paid to how best to design the cinematograph for the purpose of making the projection smoother, clearer, and less physiologically straining. Previous considerations that contended primarily with the design of shutters were no doubt preoccupied with what the professor Stigler at the University of Vienna called the “Inkontinuierliche” in cinematographic “Darbietungen.” What was missing in early appraisals, and what a review of his article

the cramped, oppressive atmosphere of the theaters, together with the flicker effect, presented a threat to physical health, while the immoral content of the films and their delivery by means of a relentless temporality presented psychological dangers. There is no psychic distance between the image and the viewer; the viewer cannot control the pace of the film. Therefore cinema effects the nervous system directly without the mediation contemplation provides.” In “Between Observation and Spectatorship: Medicine, Movies and Mass Culture in Imperial Germany,” in Film 1900: Technology, Perception, Culture, eds. Annemone Ligensa and Klaus Kreimeier (New Barnet, UK: John Libbey Publishing, 2009), 95.

52 Adolf Sellmann, Der Kinematograph als Volkserzieher? (Langensalza: Beyer & Mann, 1912), 26. He supports this claim referencing an experiment by an unnamed scientist in Stockholm, who was likely Robert Tigerstedt.

53 Ibid., 74.

hinted at when it noted, “Leider kommt also auch hier wieder einmal die Theorie hinter der Praxis hingehinkt,” is that the theory of continuity as a mental state corresponding to cinematographic operations had not yet fully emerged in the literature. Flicker became a principle topic of interest, as it indicated a failure of the cinematograph to allow for a space of diegesis that freed the viewer from an exhausting attention to the jarring physiological response to films. However, it is only once the success of a film was tied to its ability to render invisible its own mechanics and to open a space of diegesis that flicker was reframed as a break or rupture rather than merely physiological strain. As Forch observed:


Strictly speaking, flicker was not a property of the cinematograph, but a perceptual state linked to certain conditions of physiological stimulus. With projectors’ “schnellen Verschlusszeiten unterliefen die neuen Medien die Trägheit der menschlichen Retina” and the human subject “einst Garant wissenschaftlichen Erkenntnisvermögens—wurde

56 Der Kinematograph und das sich bewegende Bild, 58.
seinerseits als Subjekt der Ermüdung diskursiviert.” The tendency to regard flicker as a part of the machine’s operations indicates the presence of background presuppositions about psychological phenomena, and particularly the “illusion of movement.” Because studies of the perception of movement had fallen into the domain of psychophysics, at least since the 1880s, the model of the psyche employed in the understanding of film’s influence on psychic development was often positivistic and mechanical. It failed to essentially separate between the cinematographic machine and the psychological machine. This remained true even once there was a move in the 1890s to design experiments based on the “Selbstbeobachtungen von Versuchspersonen während der Reaktionsversuche.” The much disputed attempt by Wundt and others to allow for some mode of scientifically quantifiable introspection in empirical analysis, which had been one of Kant’s explicit reasons for excluding the possibility of a scientific psychology in his Metaphysische Anfangsgründe der Naturwissenschaft, did not move beyond the penumbra of mechanical analysis. Adding the additional level of reflexive analysis made the model of the psyche more complicated, making way for later twentieth century insights in cybernetics, but retained its essentially mechanical character.

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59 Norbert Wiener, as but one example of the role this insistence on reflexivity played in later understandings of machines, wrote in perhaps his most famous work, “For any machine subject to a varied external environment to act effectively it is necessary that information concerning the results of its own action be furnished to it as part of the information on which it must continue to act.” In The Human Use of Human Beings: Cybernetics and Society (London: Free Association Books, 1989), 24.
These foundational assumptions for scientific psychology were summarized by Edmund Burke Delabarre in his dissertation *Über Bewegungsempfindungen* (1891), which he wrote under the supervision of Hugo Münsterberg. In it he contends:

Alle unsere complicirteren geistigen Vorstellungen und Funktionen—Raum, Zeit, Selbst, Gefühle, geistige Thätigkeiten u.s.w.—sollen nichts anderes sein als Kombinationen von Sinneswahrnehmungen mit der Empfindung von Bewegungen oder Muskelspannungen, und die Association dieser Kombinationen und ihrer Reproduktionen unter einander.60

He goes on to make an even more positivistic declaration about the premises and limitations for any scientific view of the psyche:

Die Voraussetzungen, von welchen wir ausgehen wollen, sind nun die gänzliche Abhängigkeit des geistigen Lebens von körperlichen Bedingungen, und die Notwendigkeit, alle Thätigkeiten des Bewusstseins als sensoriellen und reproducirten sensoriellen Bewusstseinsinhalt aufzufassen. Dieser Standpunkt schliesst die Möglichkeit eines immateriellen Willens als Ursache für irgend einen Teil unserer willkürlichen Bewegung aus. Das Dasein eines solchen Einflusses gestehen, hiesse die absolute Geltung des mechanischen Gesetzes in der physischen Welt leugnen.61

Theorizations of the psyche that sought to reduce the complexities of experience to observable inputs assumed a likeness between all mechanisms, of which the psyche was just one. The problem of apparent motion had been essentialized as the problem of consciousness in experimental psychology, as it captured the simultaneous interdependence and internal conflict between mechanical causality and consciousness. Moving images offered an instance of a perceptual whole that emerged from discreet mechanical operations—hinting at a promise of not just an empirical solution to the problem of perception as a mechanical process, but consciousness as well.

61 Ibid., 2.
Beholden to a mechanical notion of causality, the relatively young field of experimental psychology was forced to take up the contentious issue of where the motion of “apparent motion” was actually located. One of the primary reasons this was the case was that the instruments for measuring psychic function also provided a model for understanding the neurophysiological relationships that were assumed to stand invisibly at the center of the transition from inputs to outputs.\(^6\) Psychophysicists and empirical psychologists—many of whom would later be involved in accounting for the psychological implications of images in cinematographic apparatuses—were forced in their earlier work to confront the problem of where the source of perceptual impressions of continuous movement resided. Münsterberg, for instance, maintained that all “contents of consciousness were reducible to sensations,” involving a “model of the mind as essentially a registering mechanism.”\(^6\) The problem of the logical coherence of films and its potential for altering the nature of thought sometimes found expression in conversations about not only how movement occurred and was perceived in film, but where it was actually located. As interest in cinematographic and proto-cinematographic technologies used in the laboratory and the filmhouse alike shifted from mechanisms for producing mere perceptual continuities to the production of diegetic continuities, emphasis on the psychophysiological location diminished. Consequently, beliefs about the relationship between the cinematographic and psychic machines changed, such that psychological states, while still seen as essentially mechanical in nature, were contingent

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\(^\text{6}\) As further evidence for the connection between early experimental psychology and cybernetics, Norbert Wiener made the provocative claim hearkening back to the nineteenth century that “every instrument in the repertory of the scientific-instrument maker is a possible sense organ…Thus the machine which is conditioned by its relation to the external world, and by the things happening in the external world, is with us and has been with us for some time.” In *The Human Use of Human Beings*, 23.

on a complex mechanical grammar, rather than an uninterrupted sequence of causal interactions.

The decoupling of the invention, production, and design of these mechanisms from actual film-making coincided with the emergence of an autonomous space of signification maintained through visual and narrative continuity that premised the assertion of a profound and troubling likeness between film and thought. This only became possible as the mechanical processes responsible for the illusion of movement were sufficiently effaced. Fears about the psychological implications of film, in contrast to worries about its damage to the nerves, for instance, were the result of the medium’s disappearance as a conspicuous form of mediation. Once the rickety, blinking discomforts of poorly calibrated intervals between images, bad lighting, and slow frame rates were replaced with more continuous images, which also substituted spatial and temporal continuities for narrative ones, the nature of attacks on films likewise changed. The relative invisibility of the cinematographic medium’s mechanics around 1913, when compared with earlier iterations, changed the character of invocations of scientific psychology on the part of film critics. At the same time, it also amplified contentions that exposure to films actually transformed the logic of thought as the mechanical means for achieving diegetic continuity became less obvious.

Moreover, what the rhetorical bombast and outlandish suspicions of early cultural-critical attempts to psychologize the mechanics of the cinema belie is a corresponding uncertainty about the principles of psychic unity as articulated in the emerging field of scientific psychology, which was divided along a longstanding and ever-widening schism over the meaning and place of “empiricism” in matters of mind.
This was an empiricism, if one is to generalize, that sought to mechanically formalize the laws of perception and psychic autonomy according to a regime of instruments, many of which simulated the visual coherence found in films—and an empiricism ambivalent about the location of the real as residing in objects, their representations, or their ordering. Thus, it is not surprising to find the following claim in Lorrain Daston and Peter Galison’s discussion of the influential experimental psychologist, Wilhelm Wundt’s book *Grundzüge der physiologischen Psychologie* and the transition from “mechanical” to “structural” objectivity that occurred between 1880 and 1930:

Objectivity, according to the structuralists, was not about sensation or even about things; it had nothing to do with images, made or mental. It was about enduring structural relationships that survived mathematical transformations, scientific revolutions, shifts of linguistic perspective, cultural diversity, psychological evolution, the vagaries of history, and the quirks of individual physiology.64

What is at stake in both disputes over the nature of psychic coherence and in early invocations of psychology by critical film reception in the 1910s is a concern about the *exteriorization* of logic in an apparatus that determined the order and meaning of thought according to rules which were not native to the content. Indeed, as the medium of cinema became increasingly recognized for its mediating effects—following the elaboration of visual devices for diegetic continuity in longer, multi-shot narratives in the early 1910s—film became the subject of *psychological* instead of merely *physiological* concern. This suggests that it was not only exposure to flickering images in dark rooms which premised anxieties about the strain on eyes or neurological overstimulation, but that the organized rise of opposition to film was based on the detection of a deeper distortion of the psychological structures that imparted order to thought. While general concern about the attention-shattering fugue of an electrified and accelerated life in cities around the turn of

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the twentieth century has long been the subject of historical appraisals of *fin-de-siècle* Europe, cultural film critique reached an early climax as cinematic features were becoming longer and more coherent, not more fragmentary.

*In Order of Appearance: Schein and Sein, the Objective and the Imaginary*

It is by now a commonplace in histories of film that average shot length decreased as part of the expansion of narrative films, enabling film-makers to produce more complex and unified storylines through editing. However, there has been much less attention paid to the fact that critical reform literature on cinema took as its object a longer-format narrative medium that bore only trace resemblance to jerky and wild one-acts and early trick films. As evidence for the correlation between the development of longer, more diegetically complete films and the growth of a psycho-cultural critique of cinema, the average length of films between 1905 and 1906 was between 80 and 300 meters and contained only a few shots, largely based on the varieté format, whereas it was not uncommon by 1915 to have films longer than 1000 meters with a multitude of shots. The ascendancy of journals dedicated to cinematic reform and the pedagogical impacts of film on psychological and moral development in German-speaking countries paralleled this evolution, with the most famous print protheses of the reform movement

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65 Barry Salt’s use of Average Shot Length (ASL) as a quantitative measure for gauging the progressive development towards ever-more sophisticated narrative continuity through editing is a good, if much criticized, example of how temporal and spatial discontinuity in film is thought to produce diegetic continuity. As Salt noticed, the ASL decreased over time as the narrative coherence increased. *Film Style and Technology: History and Analysis* (London: Starword, 1992). He also gives an account of the repertoire of visual devices that arise with the “evolution” of narrative film and shorter ASL, which he locates around 1903-4, in “Film Form: 1900-1906,” *Sight and Sound* (Summer, 1978), vol. 47, no.3. Tom Gunning has suggested a four-part schematization of early cinema relying on exactly this opposition between filmic and narrative continuities and discontinuities in “Non-Continuity, Continuity, Discontinuity: A Theory of Genres in Early Films,” *Iris* vol. 2, no. 1 (1984), 101-12.

(such as *Film und Bild* and the *Der Kinematograph*) existing as an “Organ der Kinematographischen Reformbewegung” between 1907 and 1915.\(^{67}\)

The very first cinematographic presentations of “actualities,” and what Tom Gunning refers to more generally as the “cinema of attractions,” already instituted rules of continuity that were of significant import for theories of psychic ordering.\(^ {68}\) In Germany these were met with speculation about a troubling movement from “being” or the “real” (*Sein*) to “appearance” (*Schein*) signifying an opposition between the illusion of movement produced by the operations of cinematic apparatuses and the presumed coherence of nature connected to psycho-positivistic notions of objectivity. *Sein* was the province of the real, in which an image was isomorphic with what it depicted, while *Schein* constituted a mere appearance divorced from the logic and order of the states and objects being represented. Film was thought to introduce a break between the two, maintaining an impression of a connection the objects presented, while forfeiting the substance of such a connection. At the same time, film was also believed to institute an order to the appearances that conjured an inner, psychological sense of reality that

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\(^{67}\) The first issue of *Bild und Film* was released in 1912 and continued publishing reformist contributions until 1915, while *Der Kinematograph*, which began as a short, critical newspaper started in 1907 and served as an outlet for cinema reformists until the editor Emil Perlmann was replaced by Alfred Rosenthal, who was more concerned with a conservative view of film production as an industry. The objectives of *Bild und Film* were not to eliminate cinema, but to critique *Schundfilme* and consider how to elevate standards in accordance with bourgeois values. The bulk of cinema reform conferences, such as the ones in Dortmund, Hagen, and Eickel, occurred between 1912 and 1915, as did the publication of longer book length works by renowned critics of cinema and mouthpieces for the reform movement, such as Adolf Sellmann and Hermann Häfker. It is also important to note that reformist responses to film were varied and often included, as the moniker “reform movement” suggests, programs and calls for changes to cinema that they thought would maximize the educational and scientific potential of the medium. As an instance of this, Hermann Häfker argued that given the proper conditions and sensitivity to the pitfalls and strengths of the medium, film could serve as a useful accompaniment to lessons about geography, bridging from the abstraction of description to representations of actual travel. However, he was adamant that to praise film for its reality effects was to misapprehend its essential function, as its success depicting movement was the result of a fundamental “Täuschung.” Hermann Häfker, *Kino und Erdkunde*, (Gladbach: Volksveins-Verlag, 1914).

\(^{68}\) Tom Gunning, “The Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde."
combined the images of the real (and thus not mere representations) with a highly variable, fictional logic, akin to personal fantasies constructed from mental images. Such fantasies, however, when fashioned from seemingly objective images, were not personal at all; they were standardized.

Already in 1896, just after the first Wintergarten-Varieté presentation by the Skladanowsky brothers, Maxim Gorky considered the psychological costs of new cinematic technologies, “als unsere Nerven mehr und mehr erregt sind und schwächer werden, immer mehr angespannt werden, dabei immer weniger auf einfache ‘Eindrücke des Seins’ reagieren und immer mehr nach neuen, extremen, ungewöhnlichen, heftigen und absonderlichen Eindrücken gieren.” The change associated with mechanical forms of visual entertainment identifies a hermeneutic upheaval with the advent of cinema. With it, psycho-physiological conditions of perception were altered such that the source of fascination with film was separated from an expectation that it present a veracious picture of the world. It was not that “self-recording machines” and “the anti-hermeneutic systems” that culminated in cinema “ultimately established their own domain of reality,” but rather that they were seen to create subjectivity by means of the objective. The belief that film astonished audiences with its power to present faithful excerpts of reality was already in question with the recognition that the craving it inspired in audiences was not for familiar experiences. That the “Eindrücke des Seins” were no longer thought sufficient to maintain interest in film indicates that the logic of representation at work in cinema was not interpreted as bound to the logic of that which it represented.

69 Maxim Gorki, “Der Kinematograph von Lumiere,” in KINtop 4, 16-20
70 Pasi Väliaho, Mapping the Moving Image: Gesture, Thought and Cinema circa 1900 (Amsterdam: University of Amsterdam Press, 2010), 43.
Presaging Gunning’s total reformulation of the interpretive matrix for early films, the first film theorist and a famed experimental psychologist, Hugo Münsterberg had also noticed a profound transformation in films’ source of attraction, writing:

As soon as the moving picture show had become a feature of the vaudeville theater, the longing of the crowd for ever new entertainments and sensations had to be satisfied if the success was to last. The mere enjoyment of the technical wonder as such necessarily faded away and the interest could be kept up only if the scenes presented on the screen became themselves more and more enthralling. The trivial acts played in less than a minute without any artistic setting and without any rehearsal or preparation soon became unsatisfactory. The grandmother who washes the baby and even the street boy who plays a prank had to be replaced by quick little comedies. Stages were set up; more and more elaborate scenes were created; the film grew and grew in length. Competing companies in France and later in the United States, England, Germany and notably in Italy developed more and more ambitious productions…We stand today in the midst of this external growth of which no one dreamed in the days of the kinetoscope. Yet this technical progress and this tremendous increase of the mechanical devices for production have their true meaning in the inner growth which led from trite episodes to the height of tremendous action, from trivial routine to a new and most promising art.\(^{71}\)

In addition to the noticing the increasing complexity and length of films, what the passage also suggests is that status of the images also changed in a way that had tremendous psychological import.

Initially, as he claims, interest in the machines was generated by the machines themselves and their ability to re-depict performances similar to what would have already been available on stage in the variété theaters—and even as an act in the variété line-up, maintaining an impression of Aristotelian continuity of time and place. These included films like the *Serpentine Dance* (1900) or filmed stage performances of contortionists, as shown, for instance in *Der geheimnisvolle Mann* (1910), or films depicting events from daily life, such as parades, as in the case of *Große Cavalcade zu Luxemburg* (1905). The

locus of fascination was therefore in films’ ability to show familiar images of what would have already been seen in the theater, within the theater itself, rendering the theatrical spectacle of vaudeville into a mechanical spectacle of Sein through a re-presentation of the very setting in which it occurred. Films of parades, dignitary visits, streetcar trips, popular resorts, and public squares functioned similarly to reinforce the sense of objective time and place, sometimes even recruiting the subjects of films in public spaces as the paying cinematic audiences later that night. 72 The lineage Münsterberg sketches, extending forward from Edison’s late nineteenth century viewing box, the Kinetoscope, which was the foundation for the nickelodeon, using an electric lamp to illuminate frames from a 50 foot strip of 35 mm film, links the development of moving-image technologies to the transition of film from its original depictive status, maintaining perceptual and spatio-temporal continuities, to its status as art. 73 While this development is facilitated by changes in the technology, or what he calls “external growth,” he credits the ascent of film as “art,” the conditions of which he outlines in the second part of the book, to an “inner growth,” involving the elaboration of formal techniques that approximated psychological states. When he refers to art, he is thus referring to a principle of organization that personalizes, or psychologizes the presentation of images, creating psychological reality-effects, rather than the impression of spatio-temporal unity—exchanging reality for reality-effects. The coherence of the former was thought to be

72 Thomas Elsaesser discusses these early films in his “Einleitung” to Kino der Kaiserzeit: Zwischen Tradition und Moderne, eds. Thomas Elsaesser and Michael Wedel (Munich: Text + Kritik, 2002), 11-44.
73 A similar problem of the relationship of art to nature after the advent of photographic technologies had already received a hilariously polemical treatment in, among other places, Baudelaire’s well-known review, “Salon de 1859,” in which he decries the aspiration to merely reproduce nature, which he finds “ugly.” Charles Baudelaire, Salon de 1859: texte de la Revue française (Paris: Honoré Champion, 2006). A striking resonance is apparent in Baudelaire’s aesthetic principles here with those outlined by Münsterberg, in that there is an emphasis on the imagination as instituting a synthetic logic that underlies great art. Moreover, this revulsion at the photographic reproduction of nature was associated in his praise for Eugène Delacroix with an epidemic of positivism, which sought to depict the world as if the subject were not present.
provided by the external world, while the reality of the latter was generated as part of subjective representational economy. The “true meaning” of “technical progress” resided not in an ever-greater fidelity to perceptual continuities, but to psychological ones predicated on a visual grammar filled with cuts and elisions. Not coincidentally, the development of these filmic technologies and narrative “inner” techniques paralleled changes in fears about films, which moved from concerns about sensorial saturation to psychological manipulation of the logic of thought. Film’s hermeneutic autonomy, which was prima facie so antithetical to the presumed virtues of the medium as a view onto the undisturbed real (Sein), was not only the result of an evolving narrative closure nor did it function as a pure attraction, merely displaying “its visibility,” as André Gaudreault has claimed. The images were seen to have their own logic that summoned comparison with upsetting asynchronicities of modern perception and thought. Disturbingly the logic of filmic images, even where diegetic, was produced through objective, quantitative differences rather than qualitative differences that could premise the uniqueness of individual experience.

In general, the circumstances of perception and thought as conditioned by emerging technological media were seen to submit consciousness to an underlying serialization and quantification that destroyed the authentic and qualitative abundance of earlier experience. In 1903 Georg Simmel famously noticed something similar in his remarks about the crisis of signification tied to the pace and ubiquity of capitalistic transactions in big cities. This imposed a logic of pure currency equivalence, and thereby eliminated the rich, textured relationship of people to their surroundings. As a result, the

city-dwelling individual developed a blasé attitude, mirroring the equivalence of currency exchange and thereby:

durch die bloß quantitative Steigerung der gleichen Bedingungen schlägt dieser Erfolg in sein Gegenteil um, in diese eigentümliche Anpassungserscheinung der Blasierheit, in der die Nerven ihre letzte Möglichkeit, sich mit den Inhalten und der Form des Großstadtlebens abzufinden, darin entdecken, daß sie sich der Reaktion auf sie versagen—die Selbsterhaltung gewisser Naturen, um den Preis, die ganze objektive Welt zu entwerten…

The perceived detachment of systems of signification from the “objective world” was linked to a cognitive insularity that would be deemed pathological, or at least problematic, even where it was seen as a necessary adaptation. In the case of the urban cinema-goer, the situation was further complicated in that the “objective world” of “Sein” was viewed as precisely what films should offer. Thus, the prospect of a subjective identification with, or immersion in, the logical sequences of films, decoupled from the logic of the world they supposedly captured, posed a problem for the understanding of how the viewers were formed with respect to viewing. It was not the case, as the apocryphal and storied panic of audiences during the 1895–6 presentations of L’Arrivée d’un train en gare de la Ciotat would imply, that it was a confusion of the real with the appearance—quite the opposite—it was a profound division of the two that premised criticism.

76 By examining a wealth of historical documentation, from police reports to advertisements, Martin Loiperdinger goes to great lengths to demonstrate the dubious, if historically important, origins of this apocryphal story in his article “Lumière’s Arrival of the Train: Cinema’s Founding Myth,” The Moving Image, vol. 4, no. 1 (Spring 2004): 89-118. The function of such a myth has also been tied to the ideological operations of film and the category of “Uncle Josh” films, where an uninitiated, uneducated rube is depicted foolishly interacting with the screen as if it were real. Stephen Heath discusses Edwin S. Porter’s 1902 film Uncle Josh at the Moving Picture Show, writing that such film already stakes out an ideologically determined space of proper viewership in which “The initial question is not ‘where is reality?’ but ‘how does this function?’; ‘where is the reality in that?’” in Questions of Cinema (London: Macmillan, 1981), 5.
Roughly ten years after Gorky’s prescient review, the critic A. Günsberg remarked that, because “lebendige Natur” was film’s proper domain, “Er soll uns die ‘Welt des Seins,’ nicht die ‘Welt des Scheins’ vergegewärtigen,” explaining that at least in cases of fantastic paintings of real places, the medium was recognized as a “Mittel” only capable of representing a whole as a whole rather than mobilizing the parts reassembled as a whole. As such, the trouble with early films was not that they were finely sequenced photochemical traces of real events and objects, which created a sense of immersion or contact with the real—many critics in fact bemoaned the jerky, flickering, irregular, visually exhausting nature of early films, which were more a form of sensorial abuse than they were a seductive diversion. It was that they threatened to mechanically depose the spectator as the source of reason. If the premise for normal psychic continuity from the perspective of science was the production of a sensible order out of an array of discontinuous sensorial inputs that established a bridge between the seamlessness of the real and the synthetic unity that accounted for the experience of a cognitive space, film seemed not to imitate this interiority, but to supplant it.

In the same year that Münsterberg published the Photoplay, outlining the analogies between film and the operations of the psyche, another extended essay by the Viennese “social philosopher” Richard Guttmann was published, entitled Kinomenschheit: Versuch einer prinzipiellen Analyse. Unlike Münsterberg’s Photoplay,

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78 Richard Guttmann, Die Kinomenschheit: Versuch einer prinzipiellen Analyse (Vienna: Anzengruber Verlag, 1916). Beyond his public exchanges with Karl Kraus in Viennese newspapers, Guttmann was known as the biographer for the physician and popular philosopher Ernst von Feuchtersleben, whose 1838 Diätetik der Seele was, according to Guttmann, the most widely read book between “the publication of Goethe’s Werther” and 1850, and, interestingly, whose legacy included the introduction of the term
which treated certain similarities between cognitive faculties and filmic devices (such as the relation between the flashback and memory) as mere parallelisms and therefore as representations of an unexamined model of the “normal” psyche, Guttmann’s analysis provided a set of terms critical of the intervention of cinematic apparatuses in the development of models of the psyche. 79 Although early writing about film tended to limit its speculation about the psychological effects of film to established psycho-cultural techniques like “attention” and principles of middle-class Sittlichkeit, Guttmann intuited a deeper role for the medium in the evolution of individual and group psychology. The fact that Guttmann’s text has received no mention in the vast history of film criticism adds further to the impression that the oft-invoked relationship in early film criticism between thinking and film has not led to a subsequent interrogation of what was clearly perceived as a problematic exchange between the technologically informed models of the psyche and its cinematic correlates.

Guttmann’s moralistic tract, while at times highly objectionable, is in some ways typical of populist musings that characterized the Kinoreformbewegung and a tradition of technophobic jeremiads lamenting war and the disappearance of the imagination. Yet the genre of his book conceals a more substantial reckoning with the technological conditions involved in cinema’s definition and transformation of psychological capacities and psychological modeling. By the time Guttmann was writing, which was already “Psychose.” More on this is available in the introduction to Gustav Pollak’s The Hygiene of the Soul: Memoir of a Physician and Philosopher (New York: Dodd, Mead and Company, 1910).

79 Noël Carroll has remarked on the fact that Münsterberg “presaged” the frequent theoretical invocation of an analogy between the operations of thought and those of film in the work of Baudry and Metz, though he rightfully notes “Münsterberg’s analogies were to, what might be thought of as, rational mental processes, whereas contemporary film theorists prefer analogs with irrational processes” in “Film/Mind Analogies: The Case of Hugo Münsterberg,” The Journal of Aesthetics and Art Criticism, vol. 46, no. 4 (Summer, 1988): 490. When Münsterberg outlined the similarities between psychic and filmic operations he was clearly relying on some notion of a standard, general healthy psyche, though he does little in the work to elucidate such a postulate.
somewhat late in the context of the reform movement, there was some consensus, whether negative or optimistic, that the conditions of cognition had changed dramatically as a result of media-technologies. Guttmann isolates the dangers of the cinema by elaborating the distinctions between fantasy (*Phantasie*), reality (*Wirklichkeit*), and the processes (*Vorgänge*) and content (*Inhalt*) of the psyche in way that illuminates a specific, if sometimes confusing relationship between mechanical media and the organization of the psychic apparatus—or at least a certain fear about that relationship. Not only, as he quips, do the stories in films of the period handle psychological problems at the level of content “als ob sie der Regisseur aus einer psychoanalytischen Dissertation abgeschrieben hätten,” but he suggests that cinema doubly participated in the development of structures of thought by transforming the encounter with the *real* as well as the operations of *fantasy*. The latter distinguishing humans as a species and as individuals. At the level of the species he claims “Die Phantasie bildet aus dem grossen Komplex der Erinnerungs- und Vorstellungselemente neue psychische Inhalte und Vorgänge, die in der verschiedensten Weise nach aussen wirken und neben dem eigentlich fixierten Triebleben die Individualität des einzelnen Menschen ausmachen” and that “Der Mechanismus der Vorstellung- und Erinnerungskraft funktioniert in allen Menschen gleichartig.” Fantasy is thus identified as an important secondary capacity that mediates contact with the world from which past and present perceptual inputs are taken, acting as the structuring agent in the formation of psychic processes that distinguish the individual as more than a mere storehouse of empirical inputs, which would admit only of a correspondence between structures in the world and our

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80 Guttmann, 22.
81 Ibid., 7-8.
physiological responses to them. It is the operation by which a psyche’s systematic
relations to the world are personalized, which is to say, are made meaningful—it is the
psychic apparatus’s mechanism of self-determination. A person without this capacity is
nearly impossible to imagine according to Guttmann and, importantly, as one verges
towards a “Nullpunkt” of fantasy, he/she becomes ever more an “unpersönliche[ ]
Lebensmaschine.”

Guttmann’s choice of the term “Lebensmaschine” rather than a term like
“animal,” which would emphasize the absence of a distinguishing human faculty and
conform to his predilection for evolutionary language, implies an over-rationalization
rather than a devolution of the psyche. It is through exposure to twentieth century media-
technologies that a hypertrophy of the logical faculty occurs and the uniquely human is
exaggerated to the point of threatening its status as human. A psyche vacated of fantasy is
a machine, at once more and less than human. More in the sense that it is an empirical
instrument. Less in the sense that the failure to organize the memories and representations
available through perception according to an individual, internal logic depersonalizes
them and eliminates the criteria by which the psyche can be treated as autonomous rather
than automated. Further, Guttmann’s description of the role of fantasy and the peril of its
absence strikes a note unmistakably similar to the arguments against the psychophysical
endeavor to establish what Wilhelm Wundt had called “psychical causality”—a causality
that was not a simple expropriation of mechanical determinism, but a more complicated
order of causality that remained a matter of scientific investigation.83

82 Ibid.
83 Over the course of his career Wilhelm Wundt attempted to outline the principles of what he termed
“psychische Kausalität,” as a form of causality opposed to mechanical causality that both admitted of a
strict logical order without submitting volitional activities to rigid materialist models of causality. One of
Guttmann’s analysis of film’s transformative mode of mediation, while nowhere else as acutely articulated, was echoed by other commentators of the time. Will Scheller, for example, remarked in 1913 on the centrality of “Kino-Psychologie” to the question of “der neuzeitliche Mensch” who “unter wesentlich andern Bedingungen lebt als die Generation vor ihm.” Such conditions were marked by the shift from continuities of text to the mechanical continuities. Unlike novels, film mediated both the viewer’s relation to the “objective world,” as the objective world, as well as the relation to her/his own thoughts. One of the troubling psychological dimensions of film, when contrasted with textual media was that the order and reality of reality effects produced by the medium were not thought to be imposed by the reader/viewer, but either retained the coherence of the objective world, or were a property of the cinematograph. The order either emerged from the reality of that which the film depicted or was imposed by a machine. Scheller insists that the new illusions of films “wie eine ideale Rettung erschienen” for a population that no longer had “die Zeit und auch nicht mehr die Nervenkraft” to engage “mit abstrakten Anregungen” characterizing text. Further, he argued that for the

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the more direct formulations is present in his article “Über psychische Kausalität und das Prinzip des psychologischen Parallelismus,” *Philosophische Studien*, vol 10, no. 1 (1894): 1-124. His reckoning with the idea of a causal order in mental operations has been discussed by Kurt Danziger in *Constructing the Subject: Historical Origins of Psychological Research* (Cambridge: Cambridge University Press, 1998). It is also discussed in Mitchell G. Ash’s comprehensive historical analysis of gestalt psychology, *Gestalt Psychology in German Culture, 1890-1967: Holism and the Quest for Objectivity* (Cambridge: Cambridge University Press, 1998). In an excellent attempt to locate this notion of mechanical causality in the history of experimental psychology and larger questions of the intersections between technological heuristics and thought, Kurt Danziger writes of psychical causality, “At a fundamental level Wundt contrasted his own belief in the principle of causality with positivist substitutes like the ‘economy of thought.’ What is at issue is the basis for unifying empirical observations. The positivism of [Ernst] Mach had sought this basis in the search for the most economical summary of observed regularities governed by practical concerns. For Wundt this was an inappropriate transfer of purely technological considerations to the realm of science.” In “Wundt’s Psychological Experiment in the Light of His Philosophy of Science,” *Psychological Research*, vol. 42 (1980): 111.


85 Ibid., 228.
aforementioned generation, film presented a revised logic and foundation for experience of the sort described by Guttmann:

Hier sieht das Leben ohne die oft verwirrende Schminke des Wortes, hier ist sichtbare Handlung mit der erschütternden oder erheiternden, oft wahrhaft erzieherlichen Logik der unmittelbaren Notwendigkeit, hier kann seine Phantasie, welche von den Bedingungen seines Daseins an Ketten geschmiedet ist, sich austoben, wenn auch nur passiv—aber das aktive Tun und Treiben hat sie ja längst verlernt; hier ist die lang ersehnte, mächtige Illusion, die hinausträgt über die Kleinheiten des täglichen Lebens in die Bezirke größerer Daseinsspannungen, hier ist ein Pathos, das nicht auf begriffliche Deutungen angewiesen ist…

Scheller’s sardonic assessment obliquely gestures toward two countervailing and perhaps even internally contradictory tendencies in the interaction of cinema and the psychology of its viewer that are more thoroughly countenanced in Guttmann. Here fantasy is conditioned by and emerges from the transfiguration of its audience, which has long become passive in its drives and desires, but whose fantasy is now enacted through a representational economy devoid of the hermeneutically rich dimension of language. Fantasy instead proceeds from the arrangement of events themselves, the logical coherence of which is not internal to the viewer nor made sensible by words and concepts. The realization of the “mächtige Illusion” premising both fantasy and pathos, which had long been considered productive bastions of illogic and surreality, instead appears as a mode of empiricism. Furthermore, Scheller’s account refers indirectly to the techniques of filmic editing that were being formalized as conventions around the time he was writing; it is these, he argues, that allowed the “mächtige Illusion” to play out through a condensation of the trivialities of daily life. The editing techniques in question

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86 Ibid.
included parallel editing, shot/reverse shot, graphic matching, and cutting on action, all of which sacrificed spatio-temporal continuity for diegetic continuity.\textsuperscript{87}

Scheller’s discussion of fantasy is at odds with the models of fantasy and function of dreams found in Freud’s \textit{Traumdeutung}, which offered the most elaborate meditation on the relationship between dreams, fantasy, and hallucination at the time. As Lacan, Kittler, Rabinbach, Frank Sulloway, and others have noted, Freud’s schema marked a departure from the “thermodynamic” psychic modeling found in the 1895 \textit{Entwurf einer Psychologie}.\textsuperscript{88} The importance of this theoretical turn is that the early work conceived of the psyche as analogous with a machine, managing an energetic economy through the creation of neurophysiological pathways through innervation, while the \textit{Traumdeutung} shifted the source of psychic unity to an associational hermeneutics. Freud’s \textit{Traumdeutung} essentially performed a conceptual maneuver similar to the production of diegetic continuity through the effacement of the mechanical operations on which it depended. Lacan notes:

\begin{quote}
I am saying, contrary to what has been trumped up about a supposed break on Freud’s part with the scientism of his time, that it was this very scientism—which one might designate by its allegiance to the ideals of Brücke, themselves passed down from Helmholtz and Du Bois-Reymond’s pact to reduce physiology, and the mental functions considered to be included therein, to the mathematically determined terms of thermodynamics (the latter having attained virtual completion during their lifetimes)—that led Freud, as his writings show, to pave
\end{quote}

\textsuperscript{87} A periodized account of the technological and corresponding “stylistic” advancements that were made in early films can be found in Barry Salt’s excellent resource \textit{Film Style and Technology: History and Analysis} (London: Starword, 1983). The historical documents he uses are primarily American, especially the trade journals and periodicals, though the trends he identifies are evident to varying degrees in American, continental, and British cinema, as there was a great deal of exchange between the various markets, in terms of technology, films, publications, and also people.

the way that shall forever bear his name. I am saying that this way never shed the ideals of this scientism, as it is called, and that the mark it bears of the latter is not contingent but, rather, remains essential to it.⁸⁹

It was with this shift that the presence and influence of images in the psyche became problematic. In later work, the visual content and structure of dreams derived from thoughts during the course of the day and fantasies based on “infantile experiences.” To return to images was to regress to more primitive, unstructured material within the psychic apparatus.⁹⁰ To this end, “so erklärt sich uns ohne weiteres die empirisch festgestellte Tatsache, daß alle Denkrelationen der Traumgedanken bei der Traumarbeit verlorengehen oder nur mühseligen Ausdruck finden.”⁹¹ Stored images in Freud’s early psychoanalytic writings were operationally prior to the formation of the autonomous ego and represented a chaotic and undifferentiated mass in the unconscious. Images acquired their sense through the associative linguistic machinations of the pre-conscious and consciousness. To return to such images involved a confrontation with material that did not abide the elaborate linguistic structuring that defined the psyche as a closed system of reference. To think in images was not to think at all, but to be abandoned to an incoherent inventory of residual material whose significance could not be established without the introduction of textual scaffolding.

On their own, mental images for Freud lacked the possibility for comprehensible self-organization, to say nothing of their ability to establish psychic autonomy. This was strengthened by the more general claim that “Vorgänge des Systems Ubw sind zeitlos, d.h. sie sind nicht zeitlich geordnet, werden durch die verlaufende Zeit nicht abgeändert,

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⁹⁰ Sigmund Freud, Die Traumdeutung [1905], Studienausgabe, vol. 2 (Frankfurt am Main: S Fischer Verlag, 1989), 464.
⁹¹ Ibid.
haben überhaupt keine Beziehung zur Zeit;” and instead, “die Zeitbeziehung ist an die Arbeit des Bw-Systems geknüpft.”

Images’ native habitat was the unconscious, which did not even possess the order of temporal sequence. Logical relations of thought were displaced in the regression to primitive images and, as psychoanalysis’ status as the “talking cure” suggests, it was language that recovered or imposed a logic on the visual content of fantasy and premised psychic autonomy. Furthermore, the independence of the logical mechanism from imagistic dream content, Freud claims, did not require additional empirical verification. It was self-evident to Freud that both the coherence of the psyche and the more specific order and meaning of images was bestowed by language, which accounted for the overdetermination of dream images that convey no singular meaning, but a proliferation of possible meanings. As Jacques Derrida has famously observed of its “logocentric enclosure” and dominant metaphorics of text and writing in Freudian psychoanalysis, “starting with the Traumdeutung (1900), the metaphor of writing will dominate simultaneously the problem of the psychical apparatus in its structure and of the psychical text in its fabric.”

Yet Freud was not alone in locating the autonomy of the subject in textual structures, as discourses on the order of images in psychology generally condemned the suggestion that psychical coherence could be maintained by pictures.

Cinema instituted, rather than removed, a mechanical, sequenced order to images, whose diegetic autonomy arose from the disappearance of evidence for the necessary mechanical operations. This again points to the distinction between Schein and Sein frequently repeated in essays on film from its early period—Schein being related to

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the sense or comprehensibility of images and Sein relating to the photographic traces themselves. It likewise underscores a distinction between “appearance” and the “real” that troubled empirical research in natural sciences. What relationship mechanically produced images bore to the objects or events they captured had not been resolved—something that was especially problematic for moving images, which did not preserve the pace at which the original events unfolded. The difficult scientific status of the cinematograph, which occupied a position between instrument and entertainment in the early twentieth century, confused two orders of realism. One was based on correspondence between the object depicted and the depiction, and the other was perceptual, offering images as they may have been experienced, and therefore an objective vision of experience.94 For this reason filmic diegesis upset the relationship between what was shown and the meaning constructed from the order of its presentation—but also, especially in cases where it was treated as analogous to mental processes, a distinction between the image content and logics of thought.

94 Evidence for the perpetual conflict revealed by moving image technologies was discussed by both scientists and cinema enthusiasts alike. Of this problem, and reviewing the long history of chronophotographic instruments in the physical sciences and their commitment to “Analyse der Teilbilder,” about which Jimena Canales has recently written, Hans Goetz wrote: “Aus all dem haben wir gesehen, daß man den Maßstab der Zeit mittels des Kinematographen beliebig ändern kann. Man kann aber auch das Vorzeichen der Zeit umdrehen, d.h. weniger mathematisch ausgedrückt, eine in der Natur vorkommende Bewegung zeitlich direct umkehren. Ein wenn auch nicht wissenschaftliches, aber für den Kern der Sache charakteristisches Bild dieser Art ist der ins Wasser springende Schwimmer…Daß man diese Umkehrungsmöglichkeit auch für wissenschaftliche Bewegungsprobleme vorteilhaft verwenden kann, ist leicht denkbar.” In “Kinematograph und Wissenschaft,” Bild und Film: Zeitschrift für Lichtbilderei und Kinematographie, vol. 3, no. 2 (1913/1914): 29. The fact that film could be run backwards typified the potential incompatibility between the two models of objectivity offered by the cinematographic apparatus.
“Unmerkbare Montage”: Continuities in Science and Cinema

Although written much later, Wolfgang Köhler’s opposition to “psychical causality” (which can be conceived of as a theory of the psyche as a “Lebensmaschine”) was articulated is his argument against what had pejoratively been named “machine theory.” In his book *Gestalt Psychology: An Introduction to New Concepts in Modern Psychology*, he argues in a section addressing the history of psychology in the early 1900s and 1910s, “we are surely not exaggerating if we say that the machine theory of the nervous system is quite unable to do justice to the nature of sensory experience.”

Not coincidentally it is in this section that Köhler supports his claim by making reference to “motion pictures” and recalling Max Wertheimer’s 1912 experiments on apparent motion, which have been the darling of film theoretical scholarship since Rudolph Arnheim, who was a student of Wertheimer’s, quoted him at length in his definitive work *Film als Kunst* in 1932. If one were to simplify the results of Wertheimer’s experiment, the argument would be that measuring only the physical conditions and intensities of stimuli involved in the rapid succession of images is insufficient for explaining the impression of continuous movement experienced in front of a tachistoscope. Arnheim cites his teacher to establish the correspondence between the principles of film and those of mental, perceptual coherence:

Max Wertheimer hat in einer Arbeit über “das Sehen von Bewegung” Versuche beschrieben, in denen er in einem verdunkelten Zimmer vor den Augen einer Versuchsperson kurz nacheinander zwei kleine Lichtspalte aufflammen ließ, die

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96 Ibid.
97 Rudolf Arnheim, *Film als Kunst* [1932] (Berlin: Suhrkamp, 2002), 104.
98 Wertheimer borrowed the tachistoscope from the empirical psychologist Friedrich Schumann and modified for his 1912 experiments. Schumann’s experiments with the tachistoscope, as discussed in chapter 2, were used to refute the letter-by-letter “spelling theory” of reading.

Arnheim’s comparison of perceptual continuity on the part of the experimental subject to the effects of film montage set the “objektiv” conditions of perception in opposition to the “Eindruck einer kontinuierlichen Bewegung.” Not only did montage offer a technological heuristic for re-interpreting perceptual operations, suggesting that film became a model for understanding how the mind worked, but it also separated between the merely objective and the perceived as not fundamentally different, but distinct in their participation in disparate logics of observation. Neither the single stimulus nor the individual image was the primary determining factor in the perception and comprehension of stimuli. It was the increments between, and speed and order of, the presentation of successive “Lichtspalte” that produced the impression of a perceptual unity. Rather than the psyche acting as an organizational apparatus whose ordering operations constituted various modes of thought, film in Arnheim’s description mechanically prefigured these mental operations, such that the psyche received—instead of created—a “Totaleindruck.” If thought was conceived as the apparent coherence

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emerging from the sorting and arrangement of external stimuli by the psychic apparatus, then the diegetic space created by films was seen as a proxy, predetermining the logic of stimulus to achieve a specific psychological effect. This point is made all the more explicit when Arnheim writes in a section entitled “Künstlerische Ausnutzung des Wegfalls der raumzeitlichen Kontinuität” about the relation of the potential failure to achieve continuity:

Denn indem die Montage raumzeitlich Zusammenhängendes zerschneidet und Incohärentes aneinanderpappt, resp. raumzeitlich nicht unmittelbar aneinander Grenzendes zu einer Ganze zusammenschweißt, droht die Gefahr, dass der Prozeß nicht gelingt: dass die Totalität in Stücke auseinanderfällt, die sich für den Zuschauer nicht verbinden, resp. der Zusammenschluß des vom Künstler für einander Bestimmten nicht wunschgemäß erfolgt.¹⁰⁰

The continuity he describes here is not that of mere movement instituted by the rapid pace of successive images, nor the intervals of shutter-closure that separate them, as the threat of incoherence he describes is a failure of the film to produce a closed diegetic space, and thus a “Zusammenschluß,” in the viewer. When it functioned properly, which is to say, when a film properly instituted a narrative logic in the presentation of images, its spatio-temporal discontinuities disappeared and were replaced in the viewer with a continuous space of signification; a diegetic space came at the cost of the viewer’s own spatio-temporal faculties for detecting discontinuities. While the illusion of movement was an essential element of the experience of film, its real power, and the threat intuited by its early opponents in the reform movement, was not just a failure, as described by Arnheim, but its success replacing the viewer’s logic of apperception. Where early physiological theories of apparent motion saw it as a failure of the viewer to notice discontinuities, this failure was reconfigured as an essential precondition of thought, and

¹⁰⁰ Ibid., 98.
therefore not a failure at all. The real threat was that the logic according to which
continuities were produced were no longer the result of the human apparatus.

Film was thought to pose the risk of a double mediation, threatening psychic
autonomy through its reconfiguration of both contact with the “real” according to a logic
of continuity, simulating the coherence of empirical experience as well as the logic of
fantasy, which internally structured the viewer’s relationship to his/her own thoughts and
memories. By *externalizing* the source of order, and therefore meaning, for both
perception and fantasy (the defining idiosyncrasies of inner-life) film made a
*Lebensmaschine* out of what had been a subject. Highlighting the mechanical uniformity
of this mediating role, Guttmann deployed the concept of a “Surrogate” in cinema’s
relation to both fantasy and reality, which strikes one as odd, unless it is the *logic* of the
images corresponding to each that determine their difference. In other words, if film acts
for Guttmann as a surrogate for both reality and fantasy, both of which are constituted by
an inventory of perceptual images and recollections, then what differentiated them and
the place where film was believed to intervene, was in the all-important coherence lent to
them through their ordering. Guttmann argues that dreaming serves the latent demands of
fantasy and that most people can no longer satisfy the basic needs it poses, requiring
various “Surrogate,” which he identifies as the ”Kinotraum” or the “Kinorausch,” each
involved in the needs of individual (or individualizing) fantasy. Both the “Kinoträumer”
and the “Kinoberauschte” live in a permanent moment provided by the film, the
experience of which “gibt keinen am Charakter des Menschen bauenden Inhalt,” leading
to a yawning abyss of unsatisfiable desire that he designates as an erotic problem.\(^\text{101}\)

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\(^{101}\) Ibid., 13
depictions, this eroticism had less to do with content, but the structural how of desirousness that emptied out the viewer, and whose “Wille und aktives Bewusstsein verschwunden [sind].”102 Through the cinematic surrogate for dreaming, Guttmann contends that the viewer’s relationship to himself, his fantasies, and drives, which Freud had located as one of the logical sources of psychic autonomy, had disappeared as the typical functions defining psychic interiority were exteriorized. As the psyche was believed to be divested of its power over the protocols of image arrangement and meaning-making, the programmer became the programmed (to invoke a more recent figure of technophobia).

If the surrogate for fantasy disrupted the relationship of the viewer with her/himself, its status as a surrogate for reality restructured the contact between the psyche and stimuli. This produced an illusion of an empirical machine analogous to the fantasies of perfect precision in experimental psychology and logical-positivism—though, if one recalls Charles Sanders Peirce’s dictum that a machine may follow a “bare rule or formula” perfectly, but that this “cannot be thought,” then the ideal end state of positivism is not the replication of thought, but a flawless representation of its relational structures. What was more dangerous than the fiction of flawless mimesis for the critics of film was the replication and replacement of the protocols of thought. In a surprisingly deft move, Guttmann recognizes that the reality effects, and thus the dangers of film, resided in its logical operations rather than its reproduction of how the world really looked:


102 Ibid., 6.
Experiment wird nie das reale mit seinem logischen, durch die sachliche Wechselrede gestützten Fortgang ersetzen können.¹⁰³

What prevents cinematographic images from assuming the status of the “real,” as well as the status of proper scientific experimentation, is their logical arrangement whose surrogacy for an encounter with reality was achieved not by reproducing the supposedly unitary character of the world, but by systematizing the intervals of stimulus to create the impression of continuity. Continuity was merely a mode of synthesizing disparate inputs in such a way that their distinction was effaced. The construction of a continuous diegetic space, unlike the illusion of movement and perceptual continuity, however, stemmed from a medium-specific visual logic that did not require the imposition of an individual order by the viewer. Though film seemed to mechanically produce an objective encounter with the world—in that it was mechanical, standardized, and impersonal—it actually stood in a diametric relationship to the aspirations of experimental psychology, which sought to reveal rather than eliminate the elements of discontinuity inherent in experience. For this reason, Guttmann’s framing of the relationship between the contemporary psyche and film at the level of its internal logic, mechanics, and psychological operations, rather than at the level of content, suggests a permanent incompatibility between the objectives of science and the possibilities of film.

If science seeks formulations that structurally correspond with or bridge the chasm between the perceived and the real, film seeks visual formulations that structurally correspond with or express the “reality” experienced in the psychological obfuscation of the real. This recalls scholarship in apparatus theory much later, which located the subject-effects in “displacement of the codes of cinematic verisimilitude from the plane

¹⁰³ Ibid., 30. Emphasis mine.
of the impression of reality along to the more complex planes of fictional logic (narrative codes), of psychological verisimilitude, of the impression of homogeneity and continuity…”\textsuperscript{104} In turn, the “real” appeared as only a specific set of psychological operations that established a coherence among perceptual impressions that were themselves disparate, which, mirroring the problems of empirical psychology, did not reside in the content, but in the order provided by the apparatus. Jimena Canales has similarly claimed, in her article about the development of cinematographic instrumentation for the scientific study of movement, “the connection between analysis (shooting) and synthesis (projecting) largely lost its \textit{raison d’etre} rapidly after it was achieved.”\textsuperscript{105} What is evident here is that the scientific application of such technologies demanded that the logic between the images come from scientific observation. Photographically excerpting moments in a continuous movement had the advantage of allowing scientists to reconstruct the event using the synthetic precepts of scientific method rather than the undifferentiated, and likely deceiving flow of perception. The logical relationship between images was to be interpreted and imposed by the neutral apparatus of scientific observation, not by the photographic or cinematographic apparatus or the viewer. In the history of the development of cinematographic technologies this dispute was already visible in the acrimonious end of the relationship between Étienne-Jules Marey and his assistant Georges Demený. Marey was dedicated to the scientific value of his chronophotographic devices, and therefore their ability to stop and dissect movements that were too fast to be properly evaluated with the naked eye, and Demený to possible commercial applications; namely the reproduction of the impression of

\textsuperscript{104} Jean-Louis Comolli, “Machines of the Visible,” 130.
movement. As Tom Gunning has written, Marey’s “deep and abiding suspicion of human vision” and his “lack of interest in the illusion of motion strongly expresses the scientific disdain of motion pictures as a betrayal of the possibilities of scientific photography.” However, the initial aspiration to create a scientifically valid, fully standardized reproduction of the movement of objects by initially breaking them down into discreet moments, then reassembling them according to a standardized temporal measure, did not come to fruition and the cinematograph fell into near exclusive domain of entertainment. Movement could be decomposed into revealing, scientifically useful chronophotographic images, but the impression of movement produced when they were then sequenced and projected came to be seen as exclusively the result of the apparatus’ logic, which was not objective, but individual. As such, the very mechanistic logic at the heart of cinematographic projection, even in scientific discourse, doubled as a reference to the idiosyncratic construction of subjectivity. Machine logic was not human, to be sure, but it was treated as subjective nonetheless.

Henri Bergson captures the dilemma of this mechanically informed subjectivity when he draws the parallel between the increments of scientific measure and its unifying concepts, and the mechanical intervals of film and its continuous diegetic space:

Instead of our attaching ourselves to the inner becoming of things, we place ourselves outside them in order to recompose their becoming artificially…Perception, intellection, language so proceed in general. Whether we would think becoming, or express it, or even perceive it, we hardly do anything

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108 This point is made by both Gunning and Canales in their identification of an essential conflict between the scientific dissection of movement into stills and their phantasmagoric reassembly to produce the appearance of motion in the history of the development of the cinematograph.
else than set going a kind of cinematograph inside of us. We may therefore sum up what we have been saying in the conclusion that the mechanism of our ordinary knowledge is of a cinematographical kind... Our knowledge of the operation of nature must be exactly symmetrical, therefore, with the interest we take in our own operation. In this sense we may say, if we are not abusing this kind of illustration, that the cinematographical character of our knowledge of things is due to the kaleidoscopic character of our adaptation of them. The cinematographical method is therefore the only practical method, since it consists in making the general character of knowledge form itself on that of action, while expecting that the detail of each act should depend in its turn on that of knowledge.¹⁰⁹

Against Canales’s claim that by 1907, when Bergson was writing (and even before that), the cinematograph was no longer seen as a useful scientific instrument because the irregularities involved in “synthesizing” movement were at odds with the expectations about precision and “analysis,” Bergson supports the idea that scientific thinking, and thinking in general, was already modeled on the operations of the cinematograph. The relationship between observation and knowledge was—both on account of the methods of empirical data collection and synthesis, as well as the standing empirical model of the psyche—cinematographic.

Whether the cinematograph was still deployed as an instrument in the service of scientific objectives was not what was at issue. Instead, cinematographic operations provided a heuristic for thinking about how machine logic produced continuities from discontinuities. Scientific psychology did not need to use cinematographs to be cinematographic. This was because its models of psychological coherence had already internalized the relationship between discreet empirical measure and abstract concepts, and between measurable perceptual inputs and consciousness—we place ourselves outside of events “in order to recompose their becoming artificially.” In the period of

¹⁰⁹ Henri Bergson, Creative Evolution [1907], trans. Arthur Mitchell (New York: The Modern Library, 2005), 332-333. This translation was authorized by Bergson himself and as the translator notes, he was helped by the “friendly interest of Professor William James” (v).
experimental psychology during the late 1800s and early 1900s, in which flicker in films still made apparent the mechanisms by which continuity arose, the science of the psyche proceeded cinematographically. Films offered a vision for how perceptual continuities were related to the sequence of discreet units, and the mechanical apparatus was still conspicuous in its production during a period in which continuity was only perceptual. The fear about cinema being more than a physiological threat occurred once the mechanism was erased from view, flicker disappeared, narrative appeared through editing, and the continuities were not only perceptual, but also cognitive. At this point the fact that the “mechanism of our ordinary knowledge is of a cinematographical kind” meant something entirely different. It meant that it was no longer just the basic mechanisms for physiological perception that imitated or could be reproduced with the cinematograph, but that the very logic of psychological continuity could perhaps be dictated by a machine.

Observations pertaining to this fear from the early period of film criticism in Germany and Austria were by no means limited to Guttmann. One of the better known examples was Georg Lukács’ 1911 pronouncement about film’s techniques versus content that resonated profoundly with Freud’s later contentions in his 1924 “Zur Einführung des Narzissmus” and 1919 “Das Unheimliche,” about images’ primitive, unconscious derivation and inability to structure the psyche.\(^{110}\) Lukács argues that cinema

had granted the “How” (Wie) of events “eine alles andere beherrschende Kraft.”

He goes on to claim that only in and through concepts and words:

entsteht die bindende Kontinuität in der Psyche der dramatischen Menschen. Die Entziehung des Wortes und mit ihm des Gedächtnisses, der Pflicht und der Treue gegen sich selbst und gegen die Idee der eigenen Selbstheit macht, wenn das Wortlose sich zur Totalität rundet, alles leicht, beschwingt und beflügelt, frivol und tänzerisch.

This leads Lukács to the elegiac insight about the introduction of cinema that “Der Mensch hat seine Seele verloren, er gewinnt aber dafür seinen Körper,” a comment that could have easily, and in fact, had been made about the tendency towards positivism in psychology. It was not that “Kinomenschheit” had lost its soul, but that the conditions for the illusion of the soul had become the province of mechanistic continuities according to which the “Wie” now proceeded. Lukács here already ascribes any notion of continuity to media operations, arguing that the cinematograph, in spite of its ability to produce perceptual continuities, destroyed psychic unity. The timing of the essay is all important because it was written on the cusp of the eruption of longer-format narrative feature films such as Der Müller und sein Kind (1911) and Asta Nielsen’s Die Verräterin (1912), where the techniques of continuity editing, like parallel editing in chase scenes, were just being fully elaborated. The result is that we are presented with a limit case in which the transition from pure perceptual continuity to diegetic continuity had not fully arrived. In turn, Lukács makes a claim that lies between the physiological complaint about damage

112 Ibid., 240.
113 Ibid., 237.
114 Der Müller und sein Kind is the oldest surviving complete Austrian narrative film in the archives. Die Verräterin is the fifth Asta Nielsen feature, directed by Urban Gad and released less than a year after Lukács’ essay. It includes a number of more sophisticated filming and staging techniques in support of narrative continuity, such as parallel editing. About the film David Bordwell notes in The Poetics of Cinema (New York: Routledge, 2008), “The drama could hardly be more rudimentary, but Gad stages it elegantly” (264).
to the psychic mechanism and a replacement of the characteristically human logic of psychological continuity. He recognizes that the core concept of subjective autonomy is continuity and therefore that film, up to the point that he was writing, influenced the construction or destruction of the psyche, but could not itself produce the coherence associated with thought. As the transformation of analysis of flicker demonstrated, perceptual continuity was the effect of bridging the gaps between stimuli; psychological continuity on the other hand relied on a logic that bridged the gaps produced by the space of signification. With this in mind Lukács might have also claimed that a humanity educated by film had gained a body and merely not yet regained a soul.

The seemingly endless repetition of the charge—even where absent a knee-jerk cultural normativity about film’s destruction of some essential faculty cultivated by reading and stage drama—implicated cinema in a habitual practice of cognition that warped its audience’s thoughts. And not at the level of the what of thought, to use Lukács’ parlance, but at the level of the how. Guttmann ties this problem of cinema’s logical surrogacy in the structuring of the psyche directly to the problems of positivism. As support for his specific sense of the distinction between Sein and Schein, he praises the neo-Kantian scholar, Hans Vaihinger and his theory of the “als ob.”

115 Guttmann writes:

Um aber aus den ewigen Gegensätzen herauszukommen, benützt die Menschheit einen Kniff. Sie nimmt den Schein für das Sein. Eine das grosse Getriebe des Lebens nützlich und zweckentsprechend beleuchtende Erkenntnis wird behalten

115 Hans Vaihinger, Die Philosophie des als ob: System der theoretischen, praktischen und religiösen Fiktionen der Menschheit auf Grund eines idealistischen Positivismus [1911] (Leipzig: Verlag von Felix Meiner, 1922). As the editor of the famous journal Kant-Studien, Vaihinger published articles by Georg Simmel and Wilhelm Dilthey, the latter of having also contacted him about editing unpublished notes and fragments from Kant’s Nachlass. Vaihinger’s connection to Dilthey is especially interesting in that Dilthey is credited with formalizing a concept of Bildung that unified the work of Wissenschaft as a mode of acculturation. What reading, study, fiction, and science meant and how they functioned were thus implicated in a model of the ideal educated subject.

The critique, considered separately from its invective tone, is a sophisticated one. In it Guttmann threads together the essential problems of positivism, thought, and their contingency on the operations of the technological apparatuses that inform them. The truth of empiricism is the function of the variable logic by which its data is made coherent—the mechanical logic by which the conceptual continuity, that is to say thought, is established. As he goes on to add, “Die Kongruenz von *Schein* und *Sein* wurde erreicht. *Mit dem Schein schwindet das Sein.* Der Schein ist die Voraussetzung des Seins geworden.”\(^\text{117}\) Cinema provides the model by which, in a rethinking of the other theorists of the time, *Sein* becomes the arrangement of *Schein*. *Sein* is therefore nothing besides a certain regime of thought, here specifically tied to the continuities of diegetic space, in which appearances are arranged as “the real.” In a sense there is a collapse of the traditional separation between the empirical and fantasy that is only made possible with the cinema. One that is positivistic and fantastic in equal measure. This coincides with Guttmann’s claim that film functioned as a surrogate for both fantasy and reality. The logic of film established the continuities of both, treating the psyche as a mechanism for the collection of inputs whose sense was achieved only through their arrangement. The only distinction between the real as presented through scientific measure and the

\(^{116}\) Guttmann, 28.

\(^{117}\) Ibid., 29. Emphasis mine.
personal, interior, and subjective, was the degree to which they inhered in distinct orders of logic.

Guttmann’s reference to Vaihinger has a powerful cache in this argument, because his theory of fictions is likewise an attempt to reconcile positivism and Kantianism (or “Idealismus” and “Positivismus”), such that the continuities accounting for \textit{a priori} axioms could be maintained in relation to the infinite array of disparate data points produced in empirical science.\footnote{Die Philosophie des als ob, ix.} Vaihinger’s intervention operates in a way quite similar to relationships between empirical data and concepts, geometry and applied physics, stimuli and consciousness, and discontinuity and continuity. As Vaihinger argues, beginning with Leibniz and the relationship between discreet points and line in calculus:

\begin{quote}
Also Leibniz sieht ein, dass es sich bei der Betrachtung des Punktes als unendlich kleine Linie und überhaupt beim Begriff des Unendlich-Kleinen um etwas Paradoxes, Widersinniges handelt, das aber als rhetorische Fiktion zulässig ist, dass es sich um fiktive Vorstellungsweisen handelt, welche aber zum Erfinden nützlich sind.\footnote{Ibid., 557.}
\end{quote}

The very idea of continuity here is a space of fiction that both unifies empirically distinct input and allows for thought. The connection between moving image technologies, and film in particular, the continuity of thought, and the problem of the relationship between abstract space and irregular, empirical movement is a thread that runs from Kant through \'{E}tienne-Jules Marey. Kant had observed that the uniformity of observed, empirical movement of physical bodies required the existence of an abstract, absolute, geometric space. This was a necessarily non-empirical space, but nonetheless allowed one to extrapolate from observed movement to possible movement and therefore principles of
movement that were themselves never empirically satisfied. Thus, the problem of movement for Kant, who had established the first prohibition on scientific psychology, was the hinge for the disjunction between continuity (rational thought) and discontinuity (empirical observation). On this he wrote:

> Einen absoluten Raum, d.i. einen solchen, der, weil er nicht materiell ist, auch kein Gegenstand der Erfahrung sein kann, als für sich gegeben annehmen, heißt etwas, das weder an sich, noch in seinen Folgen (der Bewegung im absoluten Raum) wahrgenommen werden kann, um der Möglichkeit der Erfahrung willen annehmen, die doch jederzeit ohne ihn angestellt werden muß. Der absolute Raum ist also an sich nichts und gar kein Objekt, sondern bedeutet nur einen jeden andern relative Raum, den ich mir außer dem gegebenen jederzeit denken kann, und den ich nur über jeden gegebenen ins Unendliche hinausrücke, als einen solchen, der diesen einschließt und in welchem ich den ersteren als bewegt annehmen kann. Weil ich den erweiterten, obgleich immer noch materiellen, Raum nur in Gedanken habe und mir von der Materie, die ihn bezeichnet, nichts bekannt ist, so abstrahiere ich von dieser, und er wird daher wie ein reiner, nicht empirischer und absoluter Raum vorgestellt, mit dem ich jeden empirischen vergleichen und diesen in ihm als beweglich vorstellen kann, der also jederzeit als unbeweglich gilt. Ihn zum wirklichen Dinge zu machen, heißt die logische Allgemeinheit des wirklichen Umfanges verwechseln, und die Vernunft in ihrer Idee mißverstehen.\(^{120}\)

From real movement, Kant argues, one abstracts an absolute space that he later goes on to explain as a synthetic a priori. As this labyrinthine passage contends—especially when one keeps in mind the work’s intention to define the philosophical premises for independent scientific fields—the difference between real movement and the idea of movement provide the template for the later problems of experimental psychology and its reckoning with how discontinuous stimuli resolved themselves as continuous psychological phenomena. This problematic was transmitted directly to the scientific application of chronophotographic instrumentation as evident in Étienne-Jules Marey’s return to a Kantian formulation on geometry in his treatise on moving image and photographic technologies in empirical science:

\(^{120}\) Immanuel Kant, *Metaphysische Anfangsgründe der Naturwissenschaft*, 18-19.
Now, if the geometry of to-day has become purely a speculative science, there is no doubt that, like all other sciences, it had an experimental origin. It is not likely that the conception of a straight line was evolved from man’s brain as a purely abstract expression, but rather that it entered therein, on seeing a stretched thread, for instance, or some rectilinear object…Under such circumstances, let us suppose that the straight line, as it moves in space, leaves a record of its track at every point which it successively passes. Now, this purely imaginary supposition may become an accomplished fact, thanks to photography. 

Like Kant, who was sure that the a priori principles governing movement were synthetic, Marey is keen to argue that geometric abstraction was originally derived from an ordered accumulation of empirical observations. Chronophotography for Marey was therefore not only an instrument for getting to the empirical root of abstract calculations of motion, but, at some level, a heuristic device for thinking about the “abstract conceptions” of “man’s brain” and their relation to the stimuli from which they were constructed. This becomes more explicit when Marey turns his attention to what he calls the “synthetic reconstruction of the elements of an analyzed movement” and “Plateau’s method” using the phenakistoscope, zoetrope, or the praxinoscope.

Chronophotographic images, when used analytically, “appeal rather to the imagination than to the senses” and teach us “to observe Nature more carefully.” When these images are then re-presented using stroboscopy, which he calls “a method of immense scientific importance,” the “physiological property of the retina of retaining for a brief moment the impression of an image after the object which has produced it disappears” engenders the viewer with a reconstituted sense of the object’s movement. Most importantly, however, it is through this mechanical operation that the “idea of discontinuity is lost, and the images appear to

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122 Marey’s insistence on the analytic versus synthetic value of chronophotography as demonstrated in his conflict with George Demeny, is adduced by this chapter’s position at the very end of his book.
123 Ibid., 305.
124 Ibid.
be in *continual* evidence.” Here, discontinuity is ideational, as it requires that the individual, analytically decomposed images of an event be imagined as corresponding to one another as part of a fluid single motion. With the intervention of a stroboscopic instrument, however, the idea or what he calls the “imagination” yields to “the senses” as the continuity of movement is, as it was for other experimental psychologists and physiologists, located in the physiology of the observer. In this scenario discontinuity is psychological while continuity is perceptual and physiological, adding further to the sense that the evolution of diegetic practices in film inverted this relationship.

Stroboscopic technologies, as described here by Marey, however much in error, conveyed an “impression of movement” to the eye “under conditions to which it is accustomed.” This involved an “education of the eye” but was thought of physiologically. The narrative continuities produced later by films, however, were not the result of seeing “under conditions to which” the eye was “accustomed,” but rather the “imagination,” shifting the discourse on continuity from the sensual, physiological, and empirical, to the ideational, narrative, and psychological.

Returning to the important influence of Kant, Vaihinger began the first chapter of his book with the claim “Das wissenschaftliche Denken ist eine Funktion der Psyche,” arguing that the conceptual regularities that made sense of empirical inputs were ultimately only a specific logic of thinking. He continued by arguing that the sense organs, “welche die Psyche auf äussere Reize hin sich anbildet, sind z.B. die Formen des Anschauun und Denkens, sind gewisse Begriffe und sonstige logische Gebilde,” and

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125 Ibid. Emphasis mine.
126 Ibid., 304.
127 Ibid.
128 *Die Philosophie des als ob*, 1.
moreover that “logisches Denken…ist ein selbsttätiges Aneignen der Aussenwelt.”\textsuperscript{129} The only real difference between the mechanical instrumentation of science related to the definition of the real, or \textit{Sein}, and the interior space of subjectivity, or \textit{Schein}, was the logical apparatus that they deployed for producing the order defining each. For Vaihinger, as for theorists during the early period of film, the question was thus what kind of logic of continuity was imposed, a fact indicated by the kinds of fear aroused in response to the medium. As Vaihinger noted, logic was a “Technik des Denkens.”\textsuperscript{130} To this end, he argued throughout his work that “die Psyche ist eine stets sich selbst vervollkommende Maschine” and that “Das Denken ist also als ein Mechanismus, eine Maschine, ein Instrument im Dienste des Lebens zu betrachten.”\textsuperscript{131} Therefore, as the filmic medium developed devices that effaced not only the mechanical means of perceptual continuity through a reduction of flicker, but also a plausible space of diegetic closure, it was not outlandish of theorists to worry that the very structures of thought had been surreptitiously displaced into the cinematograph. Moreover, operational fictions provided the framework for producing a continuity between disparate empirical data. Continuity was thus nothing less than the imagination conceived as a mechanism—a mechanism the cinematograph threatened to replace. In a paradoxical fashion, the filmic projection mechanism came to be seen as a proxy or surrogate for both the real and the imaginary, producing moving images of the world ostensibly true to their appearance to the eye, as well as the fantasies of the mind.

It is not entirely surprising then that the most frequent occurrence of variations of the phrase “Surrogat der Wirklichkeit,” which Guttmann used to describe a forfeiture of

\textsuperscript{129} Ibid., 3.
\textsuperscript{130} Ibid., 178.
\textsuperscript{131} Ibid., 7.
the logical means for producing internal order, occurred in psychiatric literature on
dementia-praecox—a condition involving a psychological deterioration of the distinction
between internal and external events in which order was often manufactured through
delusional fantasies.\textsuperscript{132} As one instance of this, the Zürich based clinical psychiatrist
Franz Riklin observed that “Wunschpsychose” functioned “als heilendes Surrogat für die
Wirklichkeit” in a case of a young woman devastated by her unrequited desire for a
composer and music teacher and subsequent lapse into psychotic hallucination.\textsuperscript{133} Fantasy
was substituted for the order of the external world where unfulfilled wish ruptured the
correspondence between the real and the desired. The hallucination in turn becomes the
structuring agent for reestablishing the appearance of an internal autonomy and
continuity as separate from the world. What is remarkable in this, however, is that this
mode of psychological projection and disturbance related to surrogacy arose as cinema
was developing its own powers of hallucinatory subject-effects, lending credence to the
idea that it was not cinematic images, but the logic of their presentation, which critics
believed to imperil psychic autonomy.

\textsuperscript{132} The media historical dimensions of this distinction are explored in chapter 4.
\textsuperscript{133} Franz Ricklin, “Ueber Versetzungsbesserung,” in \textit{Psychiatrisch-Neurologische Wochenschrift}, no. 17
(June 22, 1905), 166. Ricklin is perhaps best known for his book \textit{Wünscherfüllung und Symbolik im
Märchen} [1908] (Wiesbaden: Lessingdruckerei, 1970), which was translated and republished a number of
times, most notably in 1915 in English as part of the Nervous and Mental Disease Monograph Series. His
analysis, as he describes at the very beginning of the book, is intended to intervene in the psychiatric
“Kampf gegen und für die Freud’schen Theorien und Untersuchungen,” both recognizing the relevance of
fairytales to the analysis of dreams and hysteria, while maintaining a clinical skepticism and drawing on
case histories.
CHAPTER 2
Mittel Managers

“The physiological utopia of seeing things ‘together’ is replaced by an approximation: seeing them quickly.”

Training Cinematographic Readers

Following what has been called the second “Leserevolution nach 1850,” there was an explosion in the variety of trivial printed materials, from postcards to Kolportageromane, religious literature, and 10-Pfennig fantasy magazines for young readers, all of which were subject to scrutiny by conservative educational critics. Otto von Leixner, the vigilant anti-Schund campaigner, coiner of the literary designation “Schmutz,” and founder of the Volksbund zur Bekämpfung des Schmutzes in Wort und Bild, drew analogies between physical, national, and moral health to decry the contamination of German moral character through lurid novels and Witzblätter. Others, such as Karl Brunner, went as far as to make the claim that Schundliteratur inspired the emulation of criminal activities. Brunner’s moralistic publication Die Hochwacht published “a recurring log of criminal acts committed by minors that could be supposedly traced back to reading Schundschriften.” Charges against film mirrored this socially conservative sensationalism in both their form and content, with critics such as Victor

135 Die Kinder der Massenkultur, 35.
137 Ibid., 50-51. Brunner was a professor and powerful advisor to the Berliner Polizeipräsidiums and worked in tandem with the “Verein der Verleger für Volksliteratur” to censor literature and shutdown publications.
Noack, for instance, linking an insatiable appetite for film to criminal acts in service of cinema addiction.\textsuperscript{138}

The narrative of a devolution towards cinema was a part of a grand techno-historical arc, in which each subsequent development in mechanical reproduction and representational devices was an escalation of dangers to education and therefore to the cultivation of the audience. Ernst Schultze, a well-known university librarian, author of moralistic treatises on culture, and eventually professor of economics, downplayed the eighteenth century worries about the “außerordentliche Zunahme des Lesebedürfnisses” noting that “bis gegen Ende des 19. Jahrhunderts war die öffentliche Meinung auf die drohende Gefahr noch kaum aufmerksam geworden, weil die Leselust an unschädlichen Büchern gestillt wurde.”\textsuperscript{139} The “Gefährlichkeit,” however, increased in each successive generation of pulp literature alongside the pace of reproducibility, from “Indianerschmöker” to “Wanda von Brannburg,” “Buffulo Bill,” and crime genre literature.\textsuperscript{140} At one level the complaint was about a capitalist mode of production that, through increasingly efficient mechanization, represented a convergence of artistic and industrial production such that aesthetic value was quantified in much the same way that experimental psychology had sought to quantify qualitative experience. Of this technologically manufactured convergence of art and commerce, and what can be deemed a general problem of “Schund” entertainment, Theodor Bäuerle wrote:

\begin{quote}
Doch die Möglichkeiten der Technik sind mit Presse und Buch noch lange nicht erschöpft. Da ist das weite, schöne Gebiet der Kunst. Was lange nur wenigen,
\end{quote}

\textsuperscript{139} Ernst Schultze, \textit{Kulturfragen der Gegenwart: Beiträge zur geistig-sittlichen Kenntnis unserer Zeit} (Berlin: W. Kohlhammer, 1913), 96. The notion of “stillen” underscores the sense of naturalness and continuity implied in the model of education fostered by reading that would be submitted to a “Mechanisierung” with the rise of cinema.
\textsuperscript{140} Ibid.

Nearly twenty years before Walter Benjamin wrote “Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit,” conservative German pedagogues and social critics already saw themselves standing past the apex of a total submission of artistic creation to the logics of industrial production.142 According to Schultze, during the Goethezeit there was an inimitability to a book at the level of its materiality, such that neither good nor bad books were determined “wie heute durch kapitalistische Produktionsform.”143 The standardization of exchange, currency, and book printing and the globalization of literary production, particularly with pulp from the United States, increasingly replicated the industrial act of reproduction in the act of reading.144 With this in mind Schultze remorsefully questions the popular teleology of technological progress: “Leider müssen wir uns der Illusion früherer Jahrzehnte entschlagen, daß jeder Fortschritt

141 Theodor Bäuerle, Technik und Volkserziehung (Berlin: Ernst Siegfried Mittler und Sohn, 1917), 10-11.
143 Kulturfragen der Gegenwart, 96.
144 In the late eighteenth and early nineteenth century there was a concerted effort to engineer and design more rapid forms of textual reproduction, most notably beginning with Friedrich Koenig’s “Druckmaschine” in 1804, which was rebuilt out of iron and powered by a steam engine by 1810. The first rotating press similar to contemporary presses was introduced in the United States in 1860 by William Bullock, followed by the London Times’ double-sided printer the “Walter Press,” and the first German produced rotary press produced in Augsburg in 1872. After 1872 the pace of innovation became ever more accelerated. Eva Hanebutt-Benz, “Technik des Buches,” in Medienwissenschaft: Ein Handbuch zur Entwicklung der Medien und Kommunikationsform, vol. 1, ed., Joachim-Felix Leonhard (Berlin: de Gruyter, 1999), 390-420. Katrin Völkner writes about the commercialization and capitalistic transformation of nineteenth century ideals of Bildung with the introduction of Karl Robert Langewiesche’s standard “Blaue Bücher” around 1900 in “Bildung for Sale: Karl Robert Langewiesche’s Blaue Bücher and the Business of ‘Reading-Up,’” Publishing Culture and the “Reading Nation”: German Book History in the Long Nineteenth Century (Rochester: Camden House, 2010), 251-270.
der Buchdruckerkunst wie überhaupt jede Erfindung der Technik der Förderung der Kultur diene.” However, the cinematograph—the “Wunderkind der modernen technik,” which “mit einer schnelligkeit die Welt erobert”—was not seen to merely accelerate the problems encountered in training literary minds in the age of the rotary press, but to fully replace literary models and protocols of Bildung. It was certainly true, as Bernhard Siegert notes of the “entstellten Sinnen,” disfigured by cinematographs, who were no longer accessible to literary authors’ formation of the soul that since “Medienmacht und Bildung nicht mehr ein und dasselbe sind, ist es vorbei mit der Herrschaft der Dichter und Denker über sämtliche Diskurse, vorbei mit ihrer selbsterteilten pädagogischen Entscheidungsgewalt über den Leserstoff ihrer Subjekte oder Untertanen…” But it was also true that those same minds had in fact been “entstellt” and with them the notion of how to train an ideal subject.

If, after Humboldt, individual Bildung was an open-ended process of accumulating knowledge that “löst sich allein durch die Verknüpfung unsres Ichs mit der Welt zu der allgemeinsten, regesten und freiesten Wechselwirkung,” then the operations of the medium by which that “Verknüpfung” was established determined everything about the nature of the education. Humboldt’s emphasis on the “regesten und freiesten Wechselwirkung” obviously had text in mind. Cinema’s reality-effects challenged the

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145 Ibid., 102.
146 Bernhard Siegert, Relais: Geschicke der Literatur als Epoche der Post (Berlin: Brinkmann & Bose, 1993), 246.
147 Wilhelm von Humboldt, “Theorie der Bildung des Menschen,” Werke, vol. 1 (Berlin: B. Behr’s Verlag, 1903), 283. There was, of course, a universe of competing understandings of Bildung. One of the more prominent counter-trends was advanced by the father of experimental psychology himself, Johann Friedrich Herbart. His model of education was premised in part on an idea of “Bildsamkeit,” which was an innate potentiality of transformation enacted through the process of Bildung. In “Zwei Vorlesungen über Pädagogik” [1802], Sämtliche Werke in Chronologischer Reihenfolge, vol. 1 ed. Karl Kehrbach (Langensalza: Hermann Beyer & Söhne, 1887). Morgenstern also uses the term “Bildsamkeit” to describe a personal disposition towards benefiting from the insights of a work (“die Nahrung des Geistes aus einer solchen Darstellung”) in “Ueber das Wesen des Bildungsromans,” 66.
play and indeterminacy or overdetermination of textual signification that had been viewed as crucial to developing the interiority that marked the autonomous, “gebildet” pupil. The “Wechselwirkung” of filmic representation were not seen as “rege” and “frei,” but fixed and orderly, even, or especially, where their topics were irreal and fantastical.

The success of the cinema forced a confrontation in the theorization of longstanding nineteenth century ideas of Bildung with the media-technological foundations for both education and the educated. In general, by 1909 there was a conviction that the “Kampf gegen die Schundliteratur ist zurzeit im vollsten Gange,” and by 1921, even that “Die erste Absicht [Karl] Brunners, Vernichtung der alten Schundliteratur, ist ihm zum großen Teil gelungen.”

As attention turned from the printed word to the moving image, even the bad book was the good object in that it preserved the act of reading as the source of subject-formation. Where remarks on the resemblances between the content of Schundliteratur and Schundfilme ended, the incompatibility between filmic and literary training became apparent. The “Verteidiger des Kinos” were eager to point out that “der Roman und das Theater doch dieselben Vorgänge auch behandeln und viele Kinodramen einem anerkannten Dichtwerk nachgebildet sind.” However, the “grundlegende Unterschied” was that “das Lichtbild aufs Wort verzichten muß,” and for that reason, “die seelische Vertiefung und die

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148 H., “Der Kampf gegen die Schundliteratur,” Geisteskultur, Heft 4, vol. 18 (1909), 101. This publication also features articles from Ernst Schultz. The cited material is essentially an account of the state of anti-Schund literature and major publications to that point. Wilhelm Fronemann, “Die Schundliteratur nach dem Krieg,” Bücherei und Bildungspflege: Blätter für Volksbibliotheken, Heft 1 (1921). The tone of Fronemann’s claim can be taken as highly satirical, referring to Brunners as “der Diktator” and the publications he worked to shutdown as “Opfer.” However, the article tallies the results of Brunner’s efforts, including the 152 series he worked to eliminated and seems to earnestly protest the “suggestiven Wirkungen der Schundliteratur.”

149 Oskar Planck, Gegen das Kinowesen! Materialsammlung zur Kinoreform (Württemberg Evangelischer Volksverband für Württemberg, 1919), 9.
Schönheit der Sprache, welche selbst noch ein sittlich bedenkliches Dichtwert adelt, vollständig fehlt.”

Film gave up on the word and with it a belief in the deep intellectual interiority of the silent reader who benefited from the opacity and conspicuousness of the textual medium, which acted as a fortifying boundary between the reader and the world. The mechanics of filmic education indeed trained viewers, but as I will argue, not as the contemplative subject valued by the Bildungsbürgertum. The resounding pedagogical claim about cinema’s role in the production of individuals was that “Kino ist nun der Unterhalter der breiten Volksschichten,” but also “Ihr Lehrer und Erzieher.” Starker still was the charge that in contrast to the history of textual educational practices, the new media environment dominated by film destroyed imaginative faculties key to proper subject formation, leaving an indeterminate space of possibility about what the new cinematic pupil looked like. While “Ein schlechtes Buch kann die Phantasie des Lesers irreleiten,” the filmic medium “vernichtet die Phantasie” making it the “gefährlichste Erzieher des Volkes.” More important than the hyperbolic claim that film eradicated the life of fantasy, however, is the fact that it did fundamentally restructure certain popular notions of how those fantasies were organized by the representational economies allowed by the medium of their transmission. The fantasies of cinema did not produce the animated and shifting “Verknüpfung” between the imagination of the viewer, the world, and text, as Humboldt had demanded. Instead, it was argued that cinema possessed a “technological accuracy that is free from the distortions of subjectivity,” drawing on “a

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150 Ibid. Emphasis mine.
152 Ibid. As has perhaps been well-established by now, “Phantasie” was a defining element of literary education.
discourse established over the second half of the nineteenth century that linked the photographic image to objectivity” and counter to the “questionable veracity of the textual.” The animation was external to the viewer and the images inseparably bound, except in the logic of their ordering, to the world from which they were taken. Where the order of the medium was concerned, film seemed to derive its logic not from “Nature” as the appeal to photographic objectivity would suggest, but from industrial organization, which disfigured and quantified nature for human ends. Early cinema may not have eliminated reading, but it was believed to reconceive of readers as products of a new industrial logic of visual representation.

*Industrious Viewership*

*Psychotechnik* (psychotechnics), an application of psychometric testing to industrial production developed in the early twentieth century represented a real convergence of psychophysical inquiry and popular cinema. Among other reasons for this nexus was the fact that the founder of psychotechnics was also, famously, among the first film theorists. In addition to, or perhaps because of, his pioneering contributions to psychophysics and his talent for experimental design, Hugo Münsterberg located an analogical relationship between the operations of film and those of thought. The means by which narrative cinema, in distinction to earlier films, or what Gunning termed “attractions,” established its diegetic space was through mechanical continuities that had

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previously been the province of cognition. The photoplay, like the relationship between
the empirical and the ideational or the psychophysical and the psychological, produced
narrative unities through systematized discontinuities. Thus, he remarked:

[T]he photoplay can overcome the interval of the future as well as the interval of
the past and sip the day twenty years hence between this minute and the next. In
short, it can act as our imagination acts. It has the mobility of our ideas which are
not controlled by the physical necessity of outer events but by the psychological
laws for the association of ideas. In our mind past and future become intertwined
with the present. The photoplay obeys the laws of the mind rather than those of
the outer world.¹⁵⁴

Like the mind, Münsterberg primarily credited the cinematograph with the ability to
produce a continuity of experience from discrete, measurable responses to a discrete
empirical universe. Editing procedures such as the cut-back, which replicated memory, or
the close-up, which “objectified in our world of perception our mental act of attention,”
instituted a logic of succession that erased evidence of that succession to produce a
concentrated feeling of “omnipresence”—the appearance of a supreme autonomy without
gaps.¹⁵⁵ Appropriate to his revered status within experimental psychology, one of the
primary contributions of the work was to make explicit a relationship between a
mechanical logic and the assumed ideational continuity of not only perception, which
would focus merely on movement, but of thought. Moreover, Münsterberg’s intervention
supposed that the functions of the mind that the photoplay reproduced were those of what
could be called the “normal” psyche. In other words, the states that the cinema produced
in the audience were not aberrant pathologies elicited by a disturbance of an ideal state,
but merely a new technological means for achieving states associated with the “normal.”
Contrary to the claim that Münsterberg was primarily interested in how the “technical

¹⁵⁴ The Photoplay, 96-97.
¹⁵⁵ Ibid., 88, 104.
system of cinema” performed a “trick on the nervous system,” and exploited the “nervous system and the brain,” his comparative analysis provides little reason to think that cinematic operations were being treated as conceptually distinct from mental ones. To suggest that film simply exploited a physiological deficiency of the mental apparatus would be to propose a fundamental difference between the conception of the mechanics of discontinuity and continuity between the mind and the machine. Kittler efficiently captures this fact when he writes:

wie Münsterberg vorführte, ist die Verwandlungen tödlich für den Geist an sich. Mathematische Gleichungen können ebensogut nach rechts wie nach links aufgelöst werden und der Titel Psychotechnik sagt es schon, daß experimentalpsychologische Filmtheorien zugleich medientechnische Seelenlehren sind.157

While Kittler powerfully frames the history of empirical psychological research and industrial psychotechnical experiments in the evolution of film theory, Münsterberg’s treatise proceeds in a direction opposite the one emphasized by Kittler. The point was not just that the mind could be reduced to mechanical operations, but that filmic effects provided a heuristic for the connection between discontinuous mechanical operations and the apparent continuities of mind. Furthermore, such operations were not the revelation of a cognitive substrate, but of an acquired program of training that eventuated itself in a media-specific brand of psychic autonomy based on film. “Imagination,” for instance, was not merely a mechanism, but was a relational logic established by the medium. Münsterberg's use of received psycho-cultural terms like “imagination,” like his anti-cinema contemporaries, referred not so much to a timeless human capacity such as

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157 Friedrich Kittler, *Grammaphon, Film, Typewriter*, 246.
“Phantasie” that had come under fire with the introduction of new media, as to a lack of synchronicity between such terms and their place in the new media universe.

One of the prominent outcomes of Münsterberg’s psychotechnical work was that it implied a variability of basic mental states and capacities based on practices of media training. To reduce materialist theories of the psyche to the claim that they were “mechanical” is to ignore the revelation of the nineteenth and twentieth centuries discussed in chapter 1—that there was what could be called a machine “language” or “syntax” that allowed for scientific theories of the psyche to be more than bloody-minded positivism. Elsewhere Kittler supports this claim when he turns to address the actual techniques involved in filmic diegesis as a part of the history of psychotechnics:


The re-presentation of perceptual states as perceptual states in silent cinema evidences the degree to which the psyche and the cinema were already modeled according to the same principles. Leaving the discussion of “Fließbandarbeit” aside for a moment, it is important that he claims that film transmits the viewer’s own “Wahrnehmungsprozeß” instead of her/his thought process, because it underscores the distinction between the physiological and psychological. As explored in chapter 1, the physiological, conceived

mechanically, was an epistemic space of discontinuity, quantity, and measurement, while the psychological was associated with the continuous, closed, and immeasurable. What psychophysics did for cinematic theory, and cinematic theory for psychology, was to establish the connection between the two.

What is perhaps missing from Kittler’s account, even where he mentions both the unconscious and language, is not the opposition of the symbolic or hermeneutic with the technological, but the revelation after the introduction of narrative cinema, of their co-implication. Diegetic effects represented a specific outcome in the evolution of filmic media-technologies as part of a history of empirical psychology that offered an account of the connection between mechanical operations and problems of subjectivity. Despite the incisiveness and elegance of Kittler’s tightly articulated summary, the filmic techniques to which he refers were not present, or at least not developed with any sophistication, in the earliest films, and it was only once film became narrative that cinema became a matter of psychological concern. Initially, psychophysics relied on a structural isomorphism between the logic and order of measurable stimuli and responses and the orders of thought to which they were believed to be connected. This analytically disassembled subjectivity into definite individual quantities that were thought to underlie what it meant to experience things as an autonomous individual. Thus, psychophysical instrumentation produced a sense of the parts involved in the creation of the experience of a whole. What was absent, however, was an explanation for how the myriad psychophysical processes could be unified as experience. Reflecting on earlier psychophysical research (including his own), Wolfgang Köhler summarized exactly the obstinacy internal to psychophysics as a problem resolved by gestalt psychology:
Gestalt Psychology works with a principle which is both more general and more concretely applicable than that of Hering and Müller. These authors refer to the merely logical order of experiences, which for this purpose, are abstracted from their context and judged as to their similarities. The thesis is that when related physiological events are also taken from their context, and also compared as to their similarities, the resulting logical order must be the same as that of the experiences…But experience as such exhibits an order which is itself experienced…This is also an order; but, instead of being of the merely logical kind, it is concrete and belongs to the very facts of experience. This order, too, we assume to depend upon physiological events in the brain…Experienced order in space is always structurally identical with a functional order in the distribution of underlying brain processes. This is the principle of psychophysical isomorphism in the particular form which it assumes in the case of spatial order.159

In his work, much of which was conducted with Max Wertheimer, who had used a tachistoscope as a kind of primitive cinematograph, gestalt psychology is identified as a solution to a deep problem in psychophysics: the problem of going from the discreet, empirical and physical as represented by devices for scientific measure, to experience. What the cinematograph provided, especially once it was a vehicle for complete narratives, was the physical analogy for how psychophysical measure could be reassembled as something continuous like experience. It is for this reason that the cinema was simultaneously feared and praised—as a device that could demonstrate the proper relationship between the empirical and the psychological, but one that ultimately resided in the dead machinations of an apparatus.

The idea that cinema presented its audience with an accurate, even ideal image of how the mind worked, and one rooted in science, was built into Hugo Münsterberg’s

159 Wolfgang Köhler, Gestalt Psychology, 61-62. Of this development from psychophysics to gestalt, Mitchell Ash writes, “Köhler himself recognized the considerable problems that remained to be solved before he could apply his heuristic postulate of psychophysical isomorphism to the whole of psychology (260).” This problem was related more generally to larger scientific disputes about the possibility for disparate but related logics between “macro- to microlevel events,” as found for instance in quantum mechanics (262). For Köhler it “was his dual commitment to continuous-field physics and the unity of nature that made it seem natural to him to conceive the person-environment relationship and even the social realm as fields of forces paralleled by hypothetical field activity in the brain—this in spite of the fact that he and his co-workers were discovering constantly how different the psychical order is from the physical (262).”
treatise on the *Photoplay*. Besides being among the first extended engagements with film theory, his work is notable for its claim that the vision of psychic operations presented by film was *not* a distortion, as others had claimed, but in fact, standard. However, to say that the “normal” psyche worked in a way similar to diegetic cinema was not the only outcome of Münsterberg’s work. The cinematic psyche was also the product of cinematic training. In the *Photoplay* he briefly details a story of the evolution of narrative cinema that treated the maturation of cinema as a process of technological *Bildung*:

> It was indeed not an external technical advance only which led from Edison’s half a minute show of the little boy who turns on the hose to the “Daughter of Neptune,” or “Quo Vadis,” or “Cambria,” and many another performance which fills an evening. The advance was first of all internal; it was an esthetic idea. Yet even this does not tell the whole story of the inner growth of the moving pictures, as it points only to the progress of the photoplay. It leaves out of account the fact that the moving pictures appeal not merely to the imagination, but that they bring their message also to the intellect. They aim toward instruction and information.\(^\text{160}\)

His description here works through an internal comparison of the development of the individual to the history of cinema’s development towards diegetic closure; as if the cinema became autonomous in the same way that we might imagine the individual matures to become an autonomous subject. He even alludes to a kind of personified interiority that paired media-technological advances with qualitative, hermeneutic maturation.

The development he locates is narrative. For humans it was physiological, imaginary, and intellectual closure, and for cinema it was technological: the three-bladed shutter, more powerful light sources, and faster frame rates, as well as techniques of editing that accounted for narrative continuity. In both cases the move was toward what might be thought of as diegetic advancement; the individual was trained and personalized

\(^{160}\) *The Photoplay*, 21.
his/her relation to the world as an individual, and the cinema advanced a narrative capacity according to its own media-specific, that is to say, visual techniques. This reading of the passage is strengthened by the films Münsterberg cites to support his argument.

The 1895 Lumière film *L’Arroseur arrosé* (Watering the Gardener) is frequently cited by film historians as one of the earliest instances “adumbrating narrative closure” in a one-act film.¹⁵¹ Lumière’s film does not create narrative continuity “through a connection between separate shots,” as would be the case in the Méliès’ *Cinderella* (1899), but instead shows a “conscious control of the material being shot” that was “designed to capture the spectator’s interest.”¹⁶² The short one-shot film depicts a boy pranking a gardener by sneaking into the frame from off-screen to step on the watering hose, then releasing it as the gardener looks down to examine the nozzle. There are indeed strong diegetic operations in the film, such as the visual splitting of the frame into areas the gardener can and cannot see, against the audience’s omniscient spectatorial position, which creates a possibility for dramatic irony. Likewise, there is a beginning, middle, and end, which allows one to restate the events depicted in narrative succession. What is distinctly not present in the film, and Münsterberg means to underscore in the example, is the reliance on diegetic effects using the operations of film themselves, which would demand a cinematographically educated viewer. Discontinuities between frames were not utilized for the purpose of creating a diegetic completion. The discontinuity was only between frames, whose continuity was in the illusion of movement and therefore a mechanical, spectatorial event, instead of a subjective one.

The same cannot be said of *Quo Vadis?*, which was the well-known subject of “the first serious film review” by Kurt Pinthus and a paragon of editing techniques that Münsterberg identifies as the premise for the analogy between cinema and psyche. What Münsterberg designates as an “esthetic” property that allowed films like *Quo Vadis?* to “fill an evening” was the medial autonomy and closure marking filmic diegesis. Films around 1913, as addressed in chapter 1, developed technological and editing techniques that transformed cinema into a matter of psychological rather than physiological concern just as the mechanisms for producing the illusion of movement also bridged the chasm between mechanical discontinuity and narrative continuity. Furthermore, to call this an “esthetic” change was to draw immediate attention to film as a tool itself undergoing a process of maturation, education, and *Bildung*.

Aesthetic training and the development of an aesthetic sensibility was a sign of completion, harmony, education, and therefore subjective continuity at least since the eighteenth century. As Schiller clarified in a footnote to a section fittingly called “Die schmelzende Schönheit,” there is “eine Erziehung zur Gesundheit, eine Erziehung zur Einsicht, eine Erziehung zur Sittlichkeit, eine Erziehung zum Geschmack und zur Schönheit”; and it is this final mode of education, which may properly be called aesthetic and which has the purpose “das Ganze unsrer sinnlichen und geistigen Kräfte in möglichster Harmonie auszubilden.” Moreover, the aesthetic unity was not of an irreducible kind. It was traditionally viewed as only possible through modes of

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representation, and therefore, through the continuities produced through operations of media. As Körner wrote to Schiller of *Wilhelm Meister*, “Die Einheit des ganzen denke ich mir als die Darstellung einer schönen menschlichen Natur, die sich durch die Zusammenwirkung ihrer inner Anlagen und äussern Verhältnisse allmählich ausbildet.” Such “Kunstauffassung[en]” according to the “pädagogische Intelligenz des Bürgertums,” was upset by film and threatened both the fragile cultural “Gruppenidentität im Zeichen der Belesenheit” as well as the “sozial integrative, systemstabilisierende Funktion” of the social organization implied by aesthetic education.166

This residual overlap between aesthetics and education through a shared ideal of individual and artistic autonomy and completion was advanced well into the twentieth century, where it was scientifically mechanized. Münsterberg, even where he aspired to escape mechanization, which he thought signaled the *mere* reproduction of nature, was party to it. Following his analysis of narrative film’s development as a mirror for human cognitive faculties, he turns his attention to a more standard discourse on early film, reproduced *ad nauseum* by early commentators—namely, the necessity of respecting and maximizing the potential of the filmic medium as distinct from other media—most importantly from theater.167 Münsterberg writes that the singular aim of the artist is to “remold nature and life so that it offers such complete harmony in itself that it does not

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167 Arguments for and against cinema’s status as an art form and the precondition for evaluating its aesthetic, or lack of aesthetic properties were a mainstay of debates about film through the middle of the twentieth century. For an analysis of the broad arcs of these debates, as well as a truly comprehensive view of the major figures in these aesthetic disputes consult the Helmut H. Diederichs’ *Habilitation Frühegeschichte deutscher Filmtheorie: Ihre Entstehung und Entwicklung bis zum Ersten Weltkrieg* (Habilitation, J.W. Goethe-Universität, 1996).
point beyond its own limits but is an ultimate unity through the harmony of its parts.”168

Against the various principles of unity by which theorists and historians defined the aesthetic value of painting and drama, the autonomy of the filmic medium for Münsterberg was inseparable from the union of psychological and technological operations. He emphasized the creation of a unique representational continuity and order that at once reaffirmed the interiority and individual autonomy of the viewer and the continuity of editing practices as the foundation of the aesthetic of film:

If this is the outcome of esthetic analysis on the one side, of psychological research on the other, we need only combine the results of both into a unified principle: *the photoplay tells us the human story by overcoming the forms of the outer world, namely, space, time, and causality, and by adjusting the events to the forms of the inner-world, namely, attention, memory, imagination, and emotion.*169

The principle of cinematic aesthetic autonomy here is identical with the principle of psychological autonomy. And moreover, they are simultaneously narrative and mechanical, which had the distinct effect of elevating film out of a purely physiological discussion while at the same time placing the historically elevated discourses on aesthetics and education into conversation with theories of mechanical continuity. If a "human story" forming an “inner-world” could be accomplished through mechanical sequencing, the ethereal notion of *Bildung*, historically attached to forms of poetic and novelistic education, could be redefined according to the conventions and protocols of films. Through the end of the nineteenth century the *Bildungsroman* stood as an “exemplary” fictional device for these objectives and the “most pedagogically efficient of novels,” because it thematized and enacted “the very motion of aesthetic education,” and

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168 *The Photoplay*, 119.
169 Ibid.,
had as its referent “the self-positing consciousness of the human.”\textsuperscript{170} The same could be said for films, however, with the difference being that aesthetic autonomy, psychological continuity, and the distinction between interior and exterior created by the imaginary were mechanical protocols whose elegance was closer to algorithms than to turns of phrase.

For Münsterberg the film theorist, as well as Münsterberg the high priest of psychotechnics, there was no separation between technologies of education and the subjects they educated. Following the publication of Frederick Winslow Taylor’s fastidious and revolutionary 1911 study, \textit{The Principles of Scientific Management}, which transformed the organization of industrial systems, training and worker selection practices, and incentive structures, and reconceived of the individual’s relationship to labor, Münsterberg also published his groundbreaking work \textit{Psychology and Industrial Efficiency}.\textsuperscript{171} Among the conclusions in Taylor’s landmark observation of industrial ventures, such as the Bethlehem Steel Company, was the necessity of substituting “science for the individual judgment of the workman,” and a “scientific selection and development of the workman, after each man has been studied, taught, and trained, and one may say experimented with…”\textsuperscript{172} Despite being primarily credited as the engineer of the theory of specialized separation of labor and industrial sequence associated with advanced capitalism, Taylor was forced to defend himself in front of a special committee in the House of Representatives that argued “the worker under the system of scientific

\begin{thebibliography}{99}
\bibitem{172} \textit{Principles of Scientific Management}, 114.
\end{thebibliography}
management risked becoming a mere automaton.”

Taylor also came under fire from other proponents and followers of scientific management and especially more labor-friendly counterparts in England, such as Edward Cadbury, who listed among the potential “evils” to avoid in implementing new organizational and production techniques the ever-narrowing scope of tasks for “unskilled labor” and their function in the production process. This restated congressional worries that the function of “judgment” has been eliminated from individual work, making it “monotonous and depressing” with the “division of processes being carried to such an extent that there is a narrowing of interest, and automatic machinery almost eliminates any demand for initiative and adaptation.” As a rebuttal to such charges he replied that scientific management was “a complete mental revolution on the part of the workingman,” as well as an “equally complete mental revolution on the part of those on management’s side,” and that “without this complete mental revolution on both sides scientific management does not exist.” The decidedly psychological character of the transformation was supported by Münsterberg, and was viewed favorably by Cadbury himself when he wrote that “certain writers, such as Hugo Münsterberg” claim “that the problem can and should be handed over to the to the experimental psychologists.”

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175 Ibid.

176 The excerpt from the hearing is cited in Daniel Nelson’s A Mental Revolution: Scientific Management Since Taylor (Columbus, OH: The Ohio State University Press, 1992), 5. Original record of the hearings is available in U.S. House of Representatives, Hearing before the Special Committee of the House of Representatives to Investigate the Taylor and Other Systems of Shop Management under the Authority of H. Res. 90, vol. 11 (Washington D.C., 1912), 1377-1508. Emphasis is mine.

177 “Some Principles of Industrial Organisation,” 100.
Although a “mental revolution” was the perceived result of Taylor’s system when he was forced to reflect on its implementation, it was the theoretical core of Münsterberg’s work from the beginning. Scientific management was just the practical application of experimental methods that were already the mainstay of work by psychologists such as Münsterberg. This becomes apparent in Münsterberg’s simultaneous praise and criticism of the advancement of Taylor’s principles in industry, where he claimed, for instance “followers of Frederick W. Taylor” had “made almost a religion out his ideas” though, nevertheless “nobody can deny that this revolutionary movement has introduced most valuable suggestions which the industrial world cannot afford to ignore.”

He applied his immense knowledge of psychophysical experimentation to industrial organization, training, and testing, creating a field that came to be known as Psychotechnik. His primary concern, which he outlines in this same work is to “analyze definite economic tasks with reference to the mental qualities which are necessary or desirable form them,” and to find methods by which these mental qualities can be tested.” This necessitated that one “construct experimental conditions” to be “performed in a gradual, measurable way,” such that the “psychical part of the vocational work” is “schematized, and is simply rendered experimentally on a reduced scale.” To this end, one had the choice to either disassemble the industrial tasks into delimited psychological tasks that could be simulated and measured, which had “at its disposal all the familiar methods of experimental psychology,” or one had to simulate the conditions of the mental states required for the task in their entirety.

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178 Psychology and Industrial Efficiency, 49, 50.
179 Ibid., 57.
180 Ibid., 59.
181 Ibid.
For these “industrial tasks” it was “just this unity” of the “total process” that was the “essential condition,” and therefore, “testing of the mental elements” would be “insufficient as if we were to test a machine with reference to its parts only and not with reference to its total unified performance.”182 In his description, which recalls the insights of the mechanical engineer Reuleaux in the last century, he identifies the feedback loop involved in mechanical operations, psychophysical experimentation, and the conceptualization of the psyche that extended to his understanding of film’s relationship to psychological processes. The “unified performance” of the machine was associated with “complex unified” combinations of “attention, imagination and intelligence, will and memory,” and could be simulated by psychophysical measurement, trained mechanically, and described as a relationship between discontinuous mechanical movements and continuous results—meaning consciousness in the case of the person and output in the case of the machine.183 Moreover, these essential features of mental life that could be reproduced mechanically under experimental conditions, were not only the defining properties of the educated subject, but were precisely those properties Münsterberg located as cinematic in the quoted passages from The Photoplay.

This line of reasoning extending from his psychophysical experimentation to cinema as a matter of a new mechanical education, and therefore, a concept of mechanically engineered subjective states, is strengthened in his work with streetcar operators.184 In pursuit of “Verkehrssicherheit,” he was set to the task of establishing tests

182 Ibid., 60.
183 Ibid.
for evaluating the accident-proneness of drivers based on their mental capabilities as a
total cognitive disposition and training.\footnote{Robert H. Wozniak notes that scientific worker selection procedures were already in place by the time of Münsterberg’s arrival on the scene, though he “took the general problem of selection a step further by developing a series of experimental tests specifically designed to assess particular characteristics needed for specialized occupations.” In \textit{Classics in Psychology, 1855-1914: Historical Essays} (Bristol, UK: Thoemmes Press, 1999).} The preparation needed to avoid potentially
deadly accidents was not a question of whether one had individual shortcomings, was
“fleißig oder faul, ehrlich oder unehrlich, gehorsam oder unbotmäßig, nüchtern oder
trunksüchtig,” it relied instead on a total, continuous psychological state that might be
tested, and perhaps trained \textit{cinematographically}:

Nur diese außerordentlich ungleiche Begabung, Unfälle beim Leiten der
Straßenbahnwagen zu vermeiden, sollte durch den Laboratoriumsversuch
festgestellt werden. Anderseits blieb es aber nun nicht bei einem bloßen
Experimentieren mit willkürlich konstruierten Apparaten, sondern die Methode
selbst mußte erst durch den Vergleich mit den wirklichen technischen Leistungen
der Individuen auf die Probe gestellt werden. Der Apparat galt als zweckmäßig,
weil er charakteristische Verschiedenheit der Resultate ergab zwischen solchen
Wagenführern, die sich praktisch bewährt hatten, und solchen, bei denen kleine
Unfälle häufig waren. Nur auf Grund dieser Wechselbeziehung schien es
berechtigt, vorzuschlagen, daß die Anstellung von Wagenführern bei elektrische
Straßenbahnen von solchen oder ähnlichen psychologischen Prüfungen abhängig
gemacht werden sollte… \textit{Es wurde vorgeschlagen, sogar kinematographische
Bilder als Reize dafür zu benutzen.}^186

The idea of mental continuity as a part of the requisite skill set for operating streetcars is
what allowed for the suggestion of cinematic testing. Such tasks demanded an integration
of multiple cognitive mechanisms that could not be measured independently, but
presumably demanded an integration that could be tested cinematographically. To
become the kind of psyche that could recognize the “schematization” of the tasks of
operating a streetcar in a filmic presentation meant that one would have to be able to
identify with the representational space offered by the images. The inference is that the

\footnote{Hugo Münsterberg, \textit{Grundzüge der Psychotechnik} (Leipzig: Verlag von Johann Ambrosius Brath, 1914), 414, 415.}
new experimental subject, who was also the worker under the conditions of Taylorist division of labor was a cinematographic one.

There had been other filmic engagements with industrial efficiency, some of which were conducted by Taylor himself. The film-based experiments of the greatest historical importance, drawing upon the principles established by Taylor, but ultimately influencing his practices and acting as a source of competition and irritation, were conducted by the engineer Frank Gilbreth and his wife and psychologist Lillian Gilbreth. Among their vast contributions to the fields of scientific management and scientific psychology, their definitive legacy was established through their motion studies. One of the first and longest of these was published in large book on methods of bricklaying not likely to find its way onto beach reading lists. The analytic method, called “micro-motion study,” involved “filming a worker’s operations against a cross-sectioned background while a chronometer within the motion picture camera’s field of vision counted time.” Gilbreth would then use a magnifying glass to examine the filmstrip and determine the length of time required for each distinct movement, then compare them to other methods he had filmed and synthesize an optimal sequence through editing. As Brian Price and others note, this was a source of ire among labor

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187 Brian Price notes that Gilbreth had developed scientific managerial techniques, integrated industrial and office systems, and speed techniques prior to meeting Taylor in 1907. Taylor even integrated Gilbreth’s 1908 motion studies on bricklaying in his 1911 opus The Principles of Scientific Management. In Brian Price’s “Frank and Lillian Gilbreth and the Motion Study Controversy, 1907-1930,” A Mental Revolution: Scientific Management Since Taylor, ed. Daniel Nelson (Columbus, OH: The Ohio State University Press, 1992), 58-76. Much of the work published under Frank’s name was the result of a joint effort with his wife Lillian Gilbreth, who was, not surprisingly, a Ph.D. in psychology. A great deal has been written about the Gilbreths’ contributions to scientific management, Lillian Gilbreth’s work in psychology, their motion studies, and the wide application of their methods across fields from medicine to agriculture. See the collected two-part volume Frank and Lillian Gilbreth: Critical Evaluations in Business and Management, Michael C. Wood and John C. Wood, eds. (New York: Routledge, 2003).


unions who saw these methods as tactics of management to speed up the pace of production. Both Lillian and Frank countered that their methods in fact only made movements more efficient rather than faster and eliminated the subjective judgments of management. Both saw themselves as true advocates of workers, intending to re-humanize the industrial workplace and maximize the benefit to laborers. Lillian Gilbreth expressed as much when she wrote in praise of scientific studies of production:

> By separation of the individual work, not only is the man’s work itself shown, but at the same time the work of all other people is separated...The man has not only an opportunity to concentrate, but every possible incentive to exercise his will and his desire to do things. His attention is concentrated on the fact that he as an individual is expected to do his very best. He has the moral stimulus of responsibility. He has the emotional stimulus of competition. He has the mental stimulus of definiteness.\(^{190}\)

The premise of her appeal was that by re-emphasizing the individual within a production sequence, the dignity of work was recovered from the monotony and facelessness of industrial labor. In this view, individuality once again becomes a function of the degree to which industrial sequence is internalized as the defining feature of one’s personhood. Accordingly, the motion studies submitted the idiosyncratic irregularities of human production to filmic study, recombining movements as if on an editing table, which were then to serve as a renewed source of individual “authenticity.”

This was, however, only after one adopted the filmic organizational logic of production as the means and measure of the value of one’s work. Claims about the humanizing, which is to say, individualizing, capacity of industrial film experiments, were made in contradistinction to the observations of German contemporaries in the field of scientific management. Karl Büchner, who was long in conversation with everyone

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from Taylor to Münsterberg to Wundt wrote, with respect to the rhythm imposed by mechanical work, in opposition to the tradition of work songs that synchronized labor:

Was dem Menschen bei den vollkommeneren Maschinen an Handarbeit übrig bleibt (Zuführung von Material u. dgl.), braucht nicht nothwendig rhythmische Gestaltung der Körperbewegungen auszuschliessen. Im Gegentheil haben manche Maschinen an Punkten rhythmische Bewegung ermöglicht, wo ein älteres Arbeitsverfahren sie nicht kannte. Aber diese neuen Arbeitsrhythmen sind von den alten sehr verschieden. Der arbeitende Mensch ist nicht mehr Herr seiner Bewegungen, das Werkzeug sein Diener, sein verstärktes Körperglied, sondern das Werkzeug ist Herr über ihn geworden; es diktiert ihm das Mass seiner Bewegungen; das Tempo und die Dauer seiner Arbeit ist seinem Willen entzogen; er ist an den toten und doch so lebendigen Mechanismus gefesselt.191

Büchner combines a multi-cultural history of rhythmic forms, including dance and song, with an analysis of work. What mechanization of labor represents in such a history is nothing less than an inversion of the relationship between cultural production and commercial production. Prior to nineteenth century industrialism, work was controlled, narrativized, and made a part of collective life through its regulation by song. This supported beliefs since Locke about property, which saw laborers’ unique possession of their wares as a natural extension of the body through physical work. However, after the scientific and filmic regulation of industrial production, the rhythm of labor, and the rhythm and pace of vision was imposed by an apparatus. The expression of one’s “individuality,” was thus, as the Gilbreths argued, at worst a quantitative measure of efficiency, and at best a unique mechanical sequence.

The general history of early film supports this contention that cinema educated and assumed a mechanized vision of the psyche. One of the first genres to employ diegetic editing techniques were industrial films. A favorite subject of what have been termed “actualities,” which film scholars have treated as primarily documentary and

191 Karl Büchner, Arbeit und Rhythmus (Leipzig: B.G. Teubner, 1899), 419.
therefore as “attractions,” were industrial mechanisms, like those found in the steel mills
described by Münsterberg. These films doubled down on the fascination with machines
by using machines to show the work of machines, and have been almost exclusively
discussed for their social and technological content. However, in the period between one-
act varieté presentations and more developed narrative cinema in the 1910s, industrial
cinema introduced forms of diegetic closure that were a function of mechanized labor.

A convincing example of this is the 1902 Edison film *Loading Ice onto Trucks*. Of this film and others shot between 1901-2 in Groton, Massachusetts, Charles Musser
argues that they were “principally actuality subjects” consisting of “several shots taken at
approximately the same time and place,” even if they allowed the producer to “perform
an editorial function as well.”¹⁹² Yet what is interesting about this “editorial function” is
that it was dictated entirely by the industrial process being depicted. So, for instance,
*Loading Ice onto Trucks* begins with a worker shoveling ice onto an ascending conveyor
belt, cuts to a scene from the top of the hill of loaded railway cars descending towards
ships and trucks, then cuts to a final scene of the ice trucks arriving and unloading the
now blocked ice to put on ships. The logic of the editing is provided by the industrial
sequence. These cuts’ diegetic function relies on a prior education in the processes by
which ice was made and the logics of industrial production sequences. What the film
institutes mentally, by producing an identification, however minimal, on the part of the
viewer, is the Taylorist division of labor. The pre-conditions for understanding the film
are to have been educated as a mechanically sequenced subject. Ignoring the fact that the
film is overloaded with self-reflexive cinematic tropes, such as the railroad and the

conveyor belt—to which Friedrich Kittler compared film in his analysis of Münsterberg and Benjamin associated with the history of cinematic training—it creates a neat line of reasoning from industrial sequence, to film, to the mental function of the viewer. Not only does the film train the eye to see movement, but the mind is trained to reproduce its own education as a part of divided labor. This recalls Adorno and Horkheimer’s brilliant, but much later observation in *Dialektik der Aufklärung*:

Die alte Erfahrung des Kinobesuchers, der die Straße draußen als Fortsetzung des gerade verlassenen Lichtspiels wahrnimmt, weil dieses selber streng die alltägliche Wahrnehmungswelt wiedergeben will, ist zur Richtschnur der Produktion geworden. Je dichter und lückenloser ihre Techniken die empirischen Gegenstände verdoppeln, um so leichter gelingt heute die Täuschung, daß die Welt draußen die bruchlose Verlängerung derer sei, die man im Lichtspiel kennerlernt.  

In this respect, one could interpret the Lumière’s very first film, *La Sortie des usines Lumière à Lyon* (Workers Leaving the Lumière Factory), of their workers exiting their own factory (which was later shown to those same workers), as a training for subjects soon to return to the factory, or factory workers soon to go to the cinema.

Particularly in the case of the Edison films, the nexus between the training of cinematic viewers and the psychotechnical training of workers is more than cultural metaphors. By 1906 The Edison Company had undertaken an effort to produce educational films for use in schools instead of theaters and had even developed a lab for testing the educational efficacy of films with school children. By 1912 Edison had also developed a small gauge 5.7 millimeter film projector for educational use and a series of educational films about the revolutionary war as well as a number of government films.

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194 Ramon Reichert, *Im Kino der Humanwissenschaft: Studien zur Medialisierung wissenschaftlichen Wissens* (Bielefeld: Transcript Verlag, 2007), 125. The contemporary equivalent would be test groups for marketing research.
with heavy financial support from none other than Henry Ford.\textsuperscript{195} On December 9, 1914 a fire, started by film stock, resulted in the total destruction of his educational facilities and nearly all of the educational films.\textsuperscript{196} Despite the crippling misfortune for what Edison had called his “Educational Library,” and what was arguably his “chief interest in the motion pictures,” he continued to evangelize for the new medium as the future of training and education.\textsuperscript{197} In a 1913 interview published in the \textit{New York Dramatic Mirror} he claimed that film would, or already had, replaced books in educating the populous, and especially the poor:

The motion picture is the great education of the poorer people. It incites their imagination by bringing the whole world before their eyes. It sets spectators thinking and raises their standard of living…

Books will soon be obsolete in the public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed inside of ten years.

We have been working for some time on the school pictures. We have been studying and reproducing the life of the fly, mosquito, silk weaving moth, brown moth, gypsy moth, butterflies, scale and various other insects, as well as chemical crystallization. It proves conclusively the worth of motion pictures in chemistry, physics and other branches of study, making the scientific truths, difficult to understand from text books, plain and clear to children.\textsuperscript{198}

The sense of competing media-educational regimes was not merely implied in Edison’s actualities, but was a primary impetus for his involvement in film as was frequently restated in his musings about the future of film. The idea of a “film library” to


\textsuperscript{196} Edward Wirth, \textit{Thomas Edison in West Orange} (Charleston, SC: Arcadia Publishing, 2008), 89. The fire was widely reported in East Coast newspapers on the December 10, including the \textit{New Haven Register, Newark News, New York Post, and Boston Globe}


supplant existing libraries and the forced obsolescence of books aggressively advanced an idea of general education that found reading unsatisfactory for new demands and social conditions. Not only did film ostensibly change access to knowledge, as Heide Schlüpmann often acknowledges, but there was a fundamental change in the status of knowledge starting in the nineteenth century. Knowledge had become cinematic, not least because film in this view was science—capturing evidence of physical processes that were invisible without cinematographic technologies.

More important than the subjects of the films, however, were the modes of learning entailed by the medium. That it incited the “imagination” by “bringing the whole world before [one’s] eyes” and made “scientific truths” “plain and clear” suggests that film was seen as a form of unmediated exposure to the principles that undergirded the visible world and could not be translated into text. This was different than an emphasis on firsthand observation, because film showed the viewers something more primary than the event itself by assembling it according to a cinematographic logic. In the process, the internal logic of the film became the internal logic of the audience, unencumbered by the circuitous representational strategies required by texts. In a moment of mounting frustration in the face of skeptical questions about his educational objectives, Edison responded in an interview by saying:

Did it ever occur to you that people don’t like to be educated by force? My suggestion of education by means of film was taken too literally. People had an idea that film education might be crammed down their throats. That was not my intention at all. The eventual picture—the popular film of the distant future—will have what we might call an educational tone. It will not be labeled educational.199

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Edison’s bristling rebuttal reinforces a sense of film’s subtlety in the transformation of educational processes. One can only resist what is perceptible, and his notion that the popular films of the future would only have an “educational tone” meant that the viewers of the future would no longer be confronted with the propaedeutic effects of the medium, because viewers would have already assimilated them.

The integration of industrial production and viewership as both modes of managerial efficiency and psychological engineering found its most obvious expression in partnerships between manufacturers and film firms. “Assembly” took on a number of meanings in these instances, referring to the creation of consumer goods and the individuals who made them. In the early twentieth century, both in Europe and the United States, it became popular practice to hire film firms to produce films depicting the wonders of modern industrial production and also films as training manuals for workers. The Edison Company, for instance, established a department of commercial films, headed by Fred Abbott, and in 1915 announced its partnership with Ford Motor Company—“Fordism” being synonymous with rationalized, sequential, scientific industrial production. About the films, The Edison Kinetogram reported that Edison:

Is in Detroit, with a part of Edison players working on a sociological film for the Ford Motor Company. The picture is to be educational in that it will show how the Ford organization takes the raw, ignorant foreigner and, through their settlement and allied institutions, makes him over into a highly desirable citizen.200

The nexus between film, industrial rationalization, and subject formation could not be more explicit, nor more vulgar. The film was to turn the raw, unprocessed materials of new immigrants into not only socialized, integrated workers, but citizens. What Abbott had in mind for the film was nothing short of an industrial form of Bildung that worked to

200 “Edison Company in Detroit,” The Edison Kinetogram, vol. 12, no. 3 (November 1, 1915): 5.
cultivate individuals through their participation in socio-cultural institutions. Koselleck describes this core component of Bildung into the nineteenth century as an expectation that the German “Bildungsbegriff, daß er die kulturellen Gemeinschaftsleistungen, auf die er sich natürlich auch bezieht, zurückbindet in eine persönliche Binnenreflexion, ohne die eine gesellschaftliche Kultur nicht zu haben sei.”201 One expects at the beginning of the description of the Edison project that what will be depicted in the film is the transformation of raw materials into finished consumer goods. However, in this description the processes of manufacturing and socialization are not distinct and film is conceived of as the ideal instrument for both. Here again, Benjamin’s assertion that “was am Fließband den Rhythmus der Produktion bestimmt, liegt beim Film dem der Rezeption zugrunde,” seems not to have been a highly abstract theorization of modern life as much as an observational statement about real developments in industrial production.202

Industrial films similar to Edison’s at the Ford Company were not limited to the United States, but had become a standard practice in Europe by the middle of the 1910s as well. Car makers were, not surprisingly, some of the most avid adopters of manufacturing films, perhaps because their products were also symbols of technological modernity and their factories were early advocates of scientific management and assembly lines. The German automobile manufacturer Opel produced Blick in ein Automobilfabrik (1910), an often disorienting reenactment of the production sequence in the assembly of a car, Messter worked with Daimler to make Der Werdegang eines Daimlermotors (1912), and between 1917 and 1920 Gaumont Film made Aux Usines

201 Reinhart Koselleck, Begriffsgeschichten, 110.
*Renault* (1920), a documentary depicting steps in the manufacturing process from raw materials to finished product. Like the Edison films of ice-cutting and the “naturalization” film at the Ford factory, these films were designed to capture the interest of audiences and instruct them in the processes by which industrial goods were produced. The human body, remained “the most important reference point for industrial moving pictures,” but as Martin Loiperdinger also notes of a film about a beer factory, *Hopfen und Malz, Gott Erhalt’s! Ein Rundgang durch die Brauerei Binding in Frankfurt am Main* (1910), and echoing Karl Büchner, “it is immediately clear that the work rhythm is determined by the speed of the filling machine” and that “the workers conform to the machine.” What this account does not mention is that the viewers’ rhythm of vision and understanding of the industrial process was determined entirely by the logic of the film, and that this was seen to have its own instructional value for viewers who were also being trained to work.

According to traditional film scholarship these films would not be called “narrative,” although they employ key elements of narrative film-making. They did not “reproduce the temporal course of a trip,” instead using the “process of production from raw material to finished product as their dramatic framework.” The time of the process

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203 The Gaumont film is discussed in great detail in Alain P. Michel’s “Corporate Films of Industrial Work: Renault (1916-1939),” in *Films That Work: Industrial Films and the Productivity of Media* (Amsterdam: University of Amsterdam Press, 2009), 167-185. In that essay he briefly makes a point similar to my discussion of the intersection between the logic of film and the logic of production. However, he treats the industrial film more as an attraction than educational implement and in a way that is quite important for thinking about the “symbols of the machine” considered in the final chapter. He writes of a later industrial film of the Renault facility “The film does not explain, it fascinates the spectator by showing a multitude of operations, simultaneously beautiful and impressive. From this perspective, a scene of assembly-line work acquires a symbolic dimension that cannot be reduced to what is shown, but to what the image implies as the outcome of modern technological activity” (182). The film of the Opel factory is discussed at length in Martin Loiperdinger’s essay “Early Industrial Moving Pictures in Germany,” *Films That Work*, 65-73.

204 Martin Loiperdinger’s essay “Early Industrial Moving Pictures in Germany,” 71, 72.

205 Ibid., 69.
was also obviously “compressed,” as Loiperdinger notes, meaning that the industrial causality of the manufacturing process was turned into a function of filmic narrativity. Industrial films required some level of subjective identification with the space of the film to produce a coherent logical sequence out of the spatio-temporally dislocated moments which the film linked together. They therefore seemed to train their viewers in a logic of production that was indistinguishable from their logic of spectatorship, turning their viewers into workers, and workers into viewers.

Testing 1,2: The Psychophysics of Reading

Approaching the beginning of the twentieth century, the objectives of empirical psychology and pedagogy merged in a way that had been previously unthinkable. Questions about what constituted effective readers and how to cultivate them, which had long been an established topic of research and tenets of pedagogical theory, were imported into the psycholinguistic endeavor of determining what reading was and how it could be scientifically tested. Indeed pedagogical objectives had never been far from the work of experimental psychologists. The endeavor to pry apart and quantify the individual physiological operations that accounted for psychic life and were the bedrock of scientific psychology also raise the question about how their results could be used to improve the function of the psychological whole or to even manufacture a whole—a whole conceived according to an unambiguously literary type of Bildung. This was announced perhaps most emphatically in Wilhelm Wundt’s 1910 paper “Über reine und angewandte Psychologie,” where he articulated a broader vision of psychology’s role in
not only studying subjects, but producing them as well.\textsuperscript{206} As early as the eighteenth century, pedagogical and linguistic theories localized practices of reading and language development as fundamental to notions of ideal subject formation, and therefore to education. Johann Gottfried Herder opened his work, \textit{Abhandlung über den Ursprung der Sprache} (1772), with the memorable assertion “Schon als Their, hat der Mensch Sprache,” suggesting that possessing language was coextensive with being human.\textsuperscript{207} For Herder, the “Menschen für uns die einzigen Sprachgeschöpfe sind, die wir kennen, und sich eben durch Sprache von allen Thieren unterscheiden.”\textsuperscript{208} However, as concerned the

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\textsuperscript{206} Wilhelm Wundt, “Über reine und angewandte Psychologie,” \textit{Psychologische Studien}, vol. 5 (1910): 1-47. The relationship I have outlined between the scientific aspiration to dismantle and quantify the sources of psychological continuity and the pedagogical aspiration to produce that continuity is variously addressed in this essay. Wundt writes for instance “Denn wenn es die letzte Aufgabe der Psychologie ist und immer bleiben wird, das geistige Leben in allen seinen Erscheinungen verstehen zu lernen und dadurch der Gesamtheit der Geisteswissenschaften eine Grundlage zu bieten, so muß es sich vor allem an der Anwendung auf die fundamentalen Gebiete der Geisteswissenschaften zeigen, welche der Grundlagen, die man der Psychologie selber zu geben sucht, sich bewährt oder nicht” (10). It must be noted that Wundt expressed a host of misgivings about the idea of experimental pedagogy, which he thought supplanted proper psychological methodology with methods that served unverified assumptions that originated outside of psychology, importing practices and norms of teaching and examination without first interrogating their foundations. The idea of practical psychology was not to support existing pedagogical programs, but to introduce experimental advances to the study of applied psychological tasks such as memory and recall, all of which seemed to rely on quantifying the duration of activities under experimental conditions. However, the distinction between the goals of experimental pedagogy and the practical application of “pure” psychology often overlap in his writing. As he makes clear, the advances of experimental psychology are indisputably relevant to pedagogy, though experimental psychology seeks to probe deeper questions about the nature of the psyche and cannot just be plugged into a pedagogical framework. This is made clear in his discussion of the use of the terms “Intelligenz” and “geistige Arbeit” and the work of Ernst Meumann, who was one among the many experimental psychologists conducting experiments on the perception of nonsense syllables. Martin Kusch goes into more depth on Wundt’s attitude towards pedagogy, the Würzburg school, and also describes the evolution of his political commitments, particularly with respect to Bildung and his involvement in Bildungsvereine until 1865. In \textit{Psychological Knowledge: A Social History and Philosophy} (New York: Routledge, 1999).

\textsuperscript{207} Johann Gottfried Herder, \textit{Abhandlung über den Ursprung der Sprache}, Herder’s sämtliche Werke, ol. 5 (Berlin: Weidmannsche Buchhandlung, 1891), 5

\textsuperscript{208} Abhandlung über den Ursprung der Sprache, 21. With his characteristic flare for polemics, he goes on in this section to identify what he saw as the errors in earlier French theories of language and education found in Rousseau and Condillac claiming that they “mußten über den Sprachursprung irren, weil sie sich über diesen Unterschied so bekannt und verschieden irren: da jener (Traité sur les Animaux) die Thiere zu Menschen und dieser (Sur l’origine de l’inégalité etc) die Menschen zu Thieren machte (21-22). Herder’s affinities and, more often than not, objections to Rousseau and Condillac’s philosophies of the origins of language and therefore the ideals of education are discussed at length in Astrid Gesche’s \textit{Johann Gottfried Herder: Sprache und die Natur des Menschen} (Würzburg: Könighausen und Neumann, 1993). The cited passages are also well known in part owing to Heidegger’s notes for their close reading in \textit{Vom Wesen der}
study of language as a defining element of human subjectivity and consciousness, he cast significant doubt on the ability to pry apart the unities of human thought into component, mechanical parts, claiming:

>sollte die Physiologie je so weit kommen, daß die Seelenlehre demonstrirte, woran ich aber sehr zweifle, so würde sie dieser Erscheinung manchen Lichtstrahl aus der Zergliederung des Nervenbaues zuführen; sie vielleicht aber auch in Einzelne, zu kleine und stumpfe Bande vertheilen.\textsuperscript{209}

Even in the event that an exhaustive physiological account for linguistic functions could be achieved, Herder was skeptical that the parts would equal the whole. “Ohne sprache gab es keine Menschlichkeit” and because language defined humanity as such, it was the continuity of language that accounted for the unity of the psyche, not the physical mechanisms that evolved to produce it.\textsuperscript{210} Countering Condillac, and earlier French thinking on education more generally, language may have been man-made, but it nonetheless made man. The continuities of language encountered while reading were thus essential to the continuities of the psyche. This principle that “language facilitates the progress of thought and the development of intelligence” remained a bedrock and even “commonplace” of theoretical and applied pedagogy through the beginning of the twentieth century.\textsuperscript{211}

Although he wrote a lacerating 1767 diatribe against moralistic educational literature (\textit{Bildungsschriften}), whose aims towards \textit{Bildung} he found laughable and whose proper place in the house was in an “armen Kleiderschrank,” Herder maintained

\begin{footnotes}
\item[210] Johann Gottfried Herder: \textit{Sprache und die Natur des Menschen}, 139.
\item[211] John William Adamson, \textit{Practice of Instruction}, 63.
\end{footnotes}
“man läßt nicht das Thier sich so lange entwickeln, bis es endlich dem Menschen sich von selbst nähert: sondern man erweckt eben Gedanken durch Worte: und diese erste Wörter, die wir lallen, sind die Grundsteine aller unsrer Erkännniss.”

It is with this in mind that in a subsequent fragment concerning the relationship of the poet to his audience that he considered the possibility “selbst im Lesen, zu sehen und zu hören.” Clearly, Herder envisaged poets and not self-proclaimed pedagogues as the stewards of education, not least because they gave expression to unities whose internal mechanics produced continuities rather than revealing discontinuities—rhyme, meter, and diction, down to spelling and alphabetization were not themselves significant, except as part of a unified vehicle of expression.

*Bildung* may have been a matter of reading, but not as a form of physiological development nor the mere acquisition of formal rules for their own sake. The pedagogues Herder ridiculed emphasized mechanics over meaning and therefore misidentified the nature of reading’s relationship to both what it expressed and whom it educated. Education was not limited to reading, but reading provided the structure for knowledge, experience, and chance (Zufall) that gave shape to both the individual and humankind through the structures of meaning-making.

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213 Ibid., 395. About this passage Matthias Rothe adds “Wenn die Empfindung oder der Gedanke sich zum Ausdruck verhält wie die Seele zum Körper…so muss der Leser hinter der Schrift (dem Ausdruck) des Dichters wieder die Seele entdeeken…” Though written language was dead and only approximated the unity of the soul, according to Herder, it nonetheless was key to both the articulation and development of internal and expressive unities. *Lesen und Zuschauen im 18. Jahrhundert: Die Erzeugung und Aufhebung von Abwesenheit* (Würzburg: Königshausen & Neumann, 2005), 60.

214 Bernhard Dotzler notes in his book *Papiermaschinen: Versuch über Communication & Control in Literature und Technik* (Berlin: Akademie Verlag, 1996) that Herder was an early proponent of self-education, but that chance had much to do with the production of the person: “Noch Herder, der doch bereits mit der Bildung des Menschengeschlechts zu freier Selbstbildung beginnt, stellt seine *Reise im Jahre 1769 ganz unters Zeichen Fortunas… (131).*” One might argue, however, that such fortune and chance only become meaningful when integrated into a coherent diegetic structure. This is especially
of phylogenetic developments was a fixture of philosophies of education and *Bildung* beginning in the eighteenth century and continuing through social Darwinist philosophies of the late nineteenth and early twentieth century. Text, practices of reading, and the ideational unities they produced, created multiple scales of continuity from the meaning of the text itself, to the reader’s subjective autonomy, to the intergenerational development and transmission of ideas. The “wahre Bildung” meant—“ausgehend von der Bildungspolitik Rousseaus, Herders, Pestalozzis, Schillers und Humboldts”—“die vollendete allseitige Entfaltung des menschlichen Wesens in der individuellen Gestalt jenes Menschen, der seine natürliche und geschichtliche Lebensumwelt versteht und in ihr tätig werden kann.”^215 And this was fostered through text.

What Herder anticipates, particularly in his suspicions about the “Zergliederung des Nervenbaues,” is a scientific dismantling of both the thinking subject and his/her linguistic faculty (which were fully imbricated with one another) that would not be fully pursued until the second half of the nineteenth century. Herder’s reaction to the possibilities of isolated empirical study of language and thought was echoed by his contemporary interlocutors, such as Johann Georg Hamann, who in 1771 “bitterly denounced” Dietrich Tiedemann’s treatise *Versuch einer Erklärung des Ursprungs der Sprache*, for its empiricism, criticizing his “mechanistic view of language, in which language is nothing more than an assemblage of grammatical parts.”^216 Because linguistic

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^216 Frederick Beiser, *The Fate of Reason: German Philosophy from Kant to Fichte* (Cambridge: Harvard University Press, 1987), 135, 136. Beiser pursues the lines of argument between the three figures, which
unities were the “Grundsteine” of thought and inseparably bound to the production of autonomous, educated individuals, to parse language into its formal elements was equivalent to a mechanization of the mind.\textsuperscript{217} Although the “beginnings of a scientific pedagogy in Germany go back to the eighteenth century” with the attempts to rationalize the tenets of education associated with Joachim Heinrich Campe, and Johann Bernhard Basedow, and Ernst Christian Trapp, it was not until the 1880s, following the work of psychophysicists Gustav Fechner, Wilhelm Wundt, and Hermann Ebbinghaus that there was a “framework for introducing experimental methods into pedagogy.”\textsuperscript{218} The idea of internal disunity that would allow language to be learned first as disparate elements, which could be assembled into syntactical and semantic unities implied a corresponding psychological disunity, challenging both the residual attitudes about the divinity of text, as well as the primordial distinction of humans as creatures natively blessed with language—it was equally a challenge to Enlightenment and institutional religious

\textsuperscript{217} It is important to note here that Tiedemann kept a diary between 1781 and 1784, which included a 40 page observational record of the development of his son in the first 30 months of his life, detailing the development of his speech. This is often associated with the philanthropic pedagogue Joachim Heinrich Campe’s publication of a 16 volume revision of education, the preface of which suggested that there be a competition for such diary writing as a part of pedagogical reform. In short, an attenuated account of philosophies of language, psychology, and pedagogy shows the degree to which the methods of studying language were closely affiliated with questions of education and subject-formation from the eighteenth century onward. This is discussed in Willem J.M. Levelt’s incredible resource A History of Psycholinguistics: The Pre-Chomskyan Era (Oxford: Oxford, University Press, 2013). Campe’s reformist educational tract can be found in Allgemeine Revision des gesammten Schul- und Erziehungswesens von einer Gesellschaft praktischer Erzieher (Hamburg: Carl Ernst Bohn, 1785-1792). He also, importantly wrote an instructional manual for educating children to read. Eckhardt Fuchs describes Campe’s pedagogical reform program as “the most complete pedagogical handbook of the Enlightenment,” which sought to “systematically” observe infants and “study the physical and mental development of the child and to apply the knowledge to educational theory,” in “Nature and Bildung: Pedagogical Naturalism in Nineteenth-Century Germany,” The Moral Authority of Nature, eds., Lorraine Daston and Fernando Vidal (Chicago: University of Chicago Press, 2004), 158.

pedagogy. The notion that humans did not already possess the inherent capacity for language and textual representation, but only acquired it piecemeal, also meant that meaning and all attendant hermeneutical and exegetical processes were just operations. So, for instance, Trapp, the very first professor of pedagogy at Halle, fulfilling “des Kantschen Wunsches” proposed learning reading and writing together holistically.  

Commenting about Camp and Basedow, he wrote:

> Man ist sich nicht einig darüber, ob man die Kinder überall soll buchstabiren, oder sie gleich lesen lassen; oder wenn man buchstabiren läßt, ob man lange oder kurz verweilen soll. Mann kann…noch einen Schritt weiter gehen, und zweifeln, ob zum Leselernen durchaus nöthig sei, die einzelnen Buchstaben vorher kennen zu lernen.

The status of text, and reading in particular, as a rote operation was subordinate to meaning and mental coherence, which produced the associations that could be systematized. Moreover, the connection of the apparent unity of text to psychological unity persisted as an artifact of Enlightenment pedagogy prior to the assault of empiricism. As late as 1818, the religious pedagogue Joseph Theodor Abs maintained the necessity of this union, claiming:

> Lesen und schreiben ist ein und dieselbe Bethätigung des Geistes. Ein Wort in seine Bestandtheile auflösen und aus geschiedenen Lauten ein Wort bilden, gehört so wesentlich zusammen, wie jedes geistige Erzeugnis die Vereinigung des Empfangens von außen her und des Schaffens von innen heraus notwendig voraussetzt.

The objectives of these school and educational reform movements to bring both of the “streng getrennten Kulturkompetenzen des Lesens und des Schreibens” together served the higher purpose of placing them “unter dem Begriff der Produktiven

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219 Papiermaschinen, 480.
220 Versuch einer Pädagogik, 358. Later in the passage he mentions Campe and Basedow by name.
221 Joseph Theodor Abs, Bericht über eine vaterländische Erziehungs- und Unterrichtsanstalt zu Halberstadt; nebst einer Übersicht der Übungen an und in der Sprachzeichenlehre (Berlin: Mittler, 1818), 28.
The desire to pedagogically enforce the inseparability of reading and writing, and words and letters, through which the reader was trained, indicates the theoretical intimacy of how language was instructed with what kind of subject resulted. In line with a kind of atavistic Rousseau-ism, practices of reading could not fundamentally transmogrify human nature, but could nevertheless warp it. With the entrance of empirical psychology after Herbart, these psychological unities were evermore finely decomposed into measurable units, which defied rather supported foundational unities.

Following Trapp, for example, the imperative was to find “die Differenz in der Einheit.” As Bernhard Dotzler notes, “Das Lesen, wie Kant es unterrichtet wissen will, kommt aus der Reformpädagogik der Campe und Basedow. Es müsse, so Kant, ‘aus dem Kopfe geübt werden und nicht durch das Buchstabieren.’” He continues, writing “Genau der reformierte Lesenunterricht, der ‘aus dem Kopfe lesen’ lehrt, pflanzt in die Köpfe ein, daß sie, statt bei den Buchstaben sich aufzuhalten, im Lesen ‘wieder einen neuen Roman’ sich bilden.”

Forms of reading provided structural armatures for the training and elaboration of internal mental organization, that were wedded to semantically and diegetically complete units—words, sentences, or novels. The form of psychological spaces may have been reproductions of textual media, such as novels or poetry, but this assumed that the continuities of meaning could not be atomized in the arrangement of letters, which did not possess an irreducible significance.

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223 Papiermaschinen, 481.
224 Ibid., 472.
225 Ibid., 473.
This was captured in Karl Philipp Moritz’s illustrated 1794 ABC book, which paired drawn tableaux of objects related to letters with sentences that remarked on the readers ability to make sense of those scenes using the text.\textsuperscript{226} So, for instance, the entry for the letter ‘B’ would include a picture of a book and the sentence “das Buch macht junge Kinder klug.”\textsuperscript{227} Yet the book, according to Moritz did more than make a child smart, it also differentiated levels of psychological competence. As a kind of pedagogical statement the book made its stakes clear: “Wer nicht lesen kann, der besieht nur die Bilder. Wer aber lesen kann, der liest auch die Worte, die unter stehen.”\textsuperscript{228} To see “nur Bilder” was to miss the significance of the pictures, and as a matter of instruction to forego the possibility of developing the corresponding internal structures possessed by an educated subject.\textsuperscript{229} Those who merely saw were passive, machine-like aggregators of stimuli. While those who read were thinkers. Pictures, as would continue to be the case in the late nineteenth century though with a very different register, were empirical, while language was subjective and subjectivizing. Thus, to make language and texts the subject of empiricism was to not only to make reading scientific, but also to submit it to an antithetical logical regime. The hierarchy of significance implied in his book placed semantic and narrative unities above the processes of meaning construction.

\textsuperscript{226} Karl Philipp Moritz, \textit{Neues ABC-Buch für Kinder} [1794] (Munich: Antje Kunstmann Verlag, 2000).
\textsuperscript{227} Ibid.
\textsuperscript{228} Ibid.
\textsuperscript{229} Annette Keck supports this interpretation of Moritz’s ABC book writing, “Mit der Koppelung von Buchstaben und Bildern wählt Karl Philipp Moritz eine Form der pädagogischen Vermittlung des Abc, die sich im 19. Jahrhundert durchsetzt… Moritz sucht darüber hinaus das Unmotivierte der alphabetischen Aufzählung selbst zu organisieren. Er bemüht sich, nicht nur den einzelnen Buchstaben und die Thematik der Bilder mit den Sinnsprüchen zusammenzubinden, er zentriert sein Abc zudem um den Menschen selbst.” In \textit{Buchstabile Anatomien: vom Lesen und Schreiben des Menschen—Litetartugeschichten der Moderne} (Würzburg: Königshausen & Neumann, 2007), 173-174. In contrast with Keck, however, it is my argument that although Moritz identified the relationship of reading to the cultivation of the subject, his method was not instituted in the nineteenth century, but overturned.
This same privileged status of signifying unities is thematized in Moritz’s most famous and expressly “psychological” novel, _Anton Reiser_, in which Anton’s exposure to reading and spelling manuals play a role in determining his development as a primarily reading subject. Of the two manuals given to Anton by his father, _Anweisung zum Buchstabieren_ and _Abhandlung gegen das Buchstabieren_, Anton chose the former, and with great difficulty, learned to read through spelling difficult biblical names such as “Nebuchadnezzar,” selected precisely for their anti-narrative effect—proper names, and particularly difficult ones from “dead” languages, paradoxically acquire an anti-hermeneutic property by resisting associations or being embedded in commonly spoken phrases. It makes the language graphic rather than auditory, anti-subjective, and empirical, building internal narrative and memories from the basic mechanical operations of language. In distinction with the former manual, which treated learning to read through spelling as psychologically “schädlich” and “Seelenverderblich,” the latter imbued Anton with what would later prove to be a troubled, even pathological form of interiority (_Innerlichkeit_).  

The failure to distinguish between objective and psychological operations by making the functions of language that formed the inner-world of personal experience just like those of empiricism fostered an unhealthy capacity to withdraw and substitute the real with the imaginary. Just after Anton learns to read, and before he undergoes a period of illness attributed to his reading, Moritz writes:

_Durch das Lesen war ihm nun auf einmal eine neue Welt eröffnet, in deren Genuß er sich für alle das Unangenehme in seiner wirklichen Welt einigermaßen entschädigen konnte…So ward er schon früh aus der natürlichen Kinderwelt in eine unnatürliche idealische Welt verdrängt, wo sein Geist für tausend Freuden des Lebens verstimmt wurde, die andre mit voller Seele genießen können._

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230 Karl Philipp Moritz, _Anton Reiser: ein psychologischer Roman_ (Berlin: Friedrich Maurer, 1785), 15.

231 _Anton Reiser_, 16.
Reading cultivated an alternate psychological space for Anton, but one that was unnatural, as it “repressed” (verdrängen) the natural world in an ideational one. In other words, it submitted both the real and the psychological to the logic of language as a mere mechanism, and therefore could not be enjoyed the way that it could in those who properly maintained the distinction between the real and the psychological, signifier and signified.\textsuperscript{232} By learning to read according to a method following the logic of empiricism, which broke down semantic unities into their component parts, Anton likewise could not be a “volle[ ] Seele.” For this reason, and with renewed attention to the pedagogue Basedow, Kittler comments “Reisers Entdeckung führt auf Signifikate oder Ideen, das allgemeine Äquivalent von Wörtern. Im Buchstabensalat der Bibelnamen, die ja reine Signifikanten ohne Übersetzung sind, locken sie wie Basedows Ro-si-nen oder Erd-bee-ren.”\textsuperscript{233}

This equivalence was the equivalence of empirical measure, concerned only with quantification and order, and well on its way to redefining the landscape of nineteenth century psychology. What was missing was the imaginative faculty or “Einbildungskraft” that would allow one to create a “natürliche[ ] Kinderwelt” distinct from reality in its logic and not merely content. In stark contradistinction to the fast approaching principles of nineteenth century empirical psychology, text and psyche were reciprocally defining in

\textsuperscript{232} The use of the term “verdrängen” is important, as there are profound similarities in Moritz’s account of Anton’s suffering and attempts to re-establish mental continuity on the part of schizophrenics in Freud’s work on Schreiber discussed in chapter 4.

\textsuperscript{233} Aufschreibesysteme, 92. Moritz was disappointed by his meeting Basedow, who had had originally been a source of inspiration in his attitudes towards teaching. Nonetheless Moritz echoes the pedagogical position of Basedow in this passage, emphasizing that without first “stimulating children’s sense perception and activating their powers of analytic reasoning,” verbal cognition “remained empty,” and constituted “the rote memorization of words.” Elliott Schreiber, The Topology of Modernity: Karl Philipp Moritz and the Space of Autonomy (Ithaca: Cornell University Press, 2012), 63.
early pedagogy, recognizing the systems of psychological and narrative signification as
different from those of the outer world, even where the content was viewed as the same.

Problems of language acquisition, spelling, and meaning involved in defining how
the basic units of language and the practices of reading constructed the objective world
and the psychological world separately were the crux of early pedagogical disputes.
Moreover, they indicate the level to which questions of subject-formation and psychology
were already questions of media training. After Johann Friedrich Herbart’s coup against
the Kantian wisdom that psychology could not be the object of science, both language
and psychology rapidly became an area of scientific study, extending well beyond the
predictions about empiricism countenanced by Herder. A symptom of this new
episteme was a shift toward observable physiological mechanics away from ideational
unities. The individual parts of speech came to occupy a new significance in education at
the same time that individual physiological functions came to dominate the study of
psychology.

Growing out of chronoscopic experimentation measuring human reaction times to
stimuli and the propagation of nerve signals, the central aim of “analytische
Experimente” in neurophysiology and experimental psychology was, “komplexe
Sachverhalte in elementare Komponenten zu zerlegen und diese Komponenten
quantitative wie qualitative näher zu bestimmen, um davon ausgehend das Komplexe

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234 Kant’s rejection of the possibility of scientific psychology (as well as other sciences) was outlined in
part in his *Metaphysische Anfangsgründe der Naturwissenschaft*. Among other reasons, this work is
significant for the study of psychology and cinema, because a majority of the treatise is dedicated to
analyzing motion as a property of observable and abstract space. Herbart’s rejection of the Kantian
prohibition can be found in his two volume work, *Psychologie als Wissenschaft: neu gegründet auf
erfahrung, Metaphysik und Mathematik* (Amsterdam: Bonset, 1968). It is also notable that Herbart’s
endeavor to found a field of scientific psychology was connected to his work as a pedagogue. Of scientific
pedagogical study he wrote: “Mag Wissenschaft andern eine Brille sein: mir ist sie ein Auge; und zwar das
beste Auge, was Menschen haben, um ihre Angelegenheiten zu betrachten.” *Allgemeine Pädagogik aus
Following the innovations in the design and experimental application of the electromagnetic chronoscope by Charles Wheatstone, Matthäus Hipp, and Adolph Hirsch between the 1840s and 1860s and eventually Wilhelm Wundt in the 1870s, the study of internal unities entered the domain of mechanically defined intervals. Chronoscopes were initially designed and deployed to create an external, objective measure of ballistic projectiles that moved too fast to observe, or to establish the “personal equation,” correcting biases in human astronomical observations. Later, however, the instrument was used most famously by Wundt, G.E. Müller, Oswald Külpe, Sigmund Exner, and Münsterberg to quantify the time that elapsed between a stimulus and a test-subject’s reaction to it. Münsterberg, for instance,

237 Canales writes at length about the “personal equation” in A Tenth of a Second. The Swiss astronomer Adolph Hirsch noticed that the time required to physically transmit signals within the body influenced the accuracy of records made of astronomical measurement. In 1861 he wrote: “Unter den Instrumenten des Astronomen nimmt auch das Nervensystem des Beobachters seine Stelle ein, dessen so zu sagen instrumentale Abweichungen zu bestimmen von gleicher Wichtigkeit ist, als die Fehler jedes andern von uns angewandten Instrumentes zu ermitteln,” in “Chronoskopische Versuche über die Geschwindigkeit der verschiedenen Sinnesindrücke und der Nerven-Leitung,” Untersuchungen zur Naturlehre des Menschen und der Thiere, vol. 9 (1865), 183. The chronoscope went through a number of permutations during the nineteenth century that cannot be described here in full detail. The first chronoscope was designed in the 1830s by Claude Pouillet and is often referred to as a ballistic galvanometer. Later versions, after Wheatstone and the Swabian clockmaker and engineer Hipp’s modifications, used a clockwork mechanism that measured the period between when an electromagnet was engaged and disengaged, in the case of psychology, upon test subjects’ reactions. Later versions included direct and indirect reading pendulum chronoscopes in the 1890s. A brief overview of these instruments is available in Instruments of Science: And Historical Encyclopedia, eds. Robert Bud and Deborah Jean Warner (Washington D.C.: Smithsonian Institution Scholarly Press, 1998).
238 Henning Schmidgen provides an excellent short history of the chronoscope’s use in experimental psychology and the major figures involved in its development and application in “Zur Genealogie der Reaktionsversuche in der experimentellen Psychologie,” Instrument—Experiment: Historische Studien, ed. Christoph Meinel (Berlin: Diepholz, 2000), 168-179. Schmidgen has written variably on the history of reaction time experiments, focusing particularly on how apparatus and experimental design influence epistemology. For instance he considers the relationship between experimental technologies and systems for measuring and isolating reaction times and the sense of time found in Proust in “A Roaring Silence: Encountering the Body Without Organs in Time Experiments Around 1900” Experimental Cultures:
who was the first student of Wundt’s to dissent with the master, conducted experiments on subjects’ perception of time intervals (Zeitsinn) under variable conditions, such as changes in rhythms and attention. About the limitations and objectives of chronoscopic, psychophysical experiment he wrote:


Münsterberg’s appraisal of the epistemological scope of psychophysical experimentation cleverly reframes the stakes of consciousness. Psychophysics could not make claims about the fundamental nature of consciousness, but instead only about the operations by which its contents were organized. Yet the contents of consciousness had previously been what distinguished it as more than a machine. The question of what consciousness was thus became uninteresting, or at least unaskable, as the only area of plausible research redefined what it was as how it worked. Content became operation and quantifiable intervals supplanted irreducible qualities. The increments by which the psyche was judged were instituted by the chronoscope. Variable tones that the test subject heard, the

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Hugo Münsterberg, “Zeitausfüllung,” Beiträge zur experimentellen Psychologie 4, ed. Hugo Münsterberg (Freiburg: Mohr, 1892), 89-120. His divergence with Wundt is evident in this study, where he claims that the “Empfindungskomplexe[]” reside in “peripheren Körpervorgänge” rather than generating new, central psychic processes (120).

controlled illuminations he/she saw for fractions of a second, and pictures from which she/he was supposed to conjure mental associations were all reducible to a record of the opening and closing of an electrical circuit. Differences in duration indicated complexity and the measurable orders of thought involved. Inquiry into the ontological status of the psyche as a primordial unity was relegated to a history of scholasticism, brummagem philosophy, and occultism according to scientific psychology.

The apparatus, in this case the chronoscope, mediated between the empirical universe in which the stimuli had an absolutely definable value, and the inner-world, expressing the difference between the two as but a measure of delay. Chronoscopic experimentation redefined subjectivity as latency. It did not matter whether “Marschmusik” stirred feelings of patriotism, where rapid light stimuli recalled no *Erinnerungsbilder*, only that the former enacted a faster response.241 Thus, the textured field of significations that had given subjectivity its uniqueness was flattened to intervals as defined by a modified clock. Kittler argues that this development in the 1880s was the result of the “technischen Ausdifferenzierung von Optik, Akustik und Schrift” by which “ist der sogennante Mensch machbar geworden.”242 In the reduction of psychological functions to the measurable difference between output and input, as defined by a mediating experimental apparatus, the essence of humans:


241 “Zeitsinn,” 49.
242 Grammophon Film Typewriter, 29.
243 Ibid.
Kittler here is essentially restating the distinction announced by Münsterberg about reaction time experiments, while reformulating it as a distinction between the real and the symbolic—what Münsterberg called the difference between Bewusstsein and Bewusstseininhalt. However, once psychophysical experimentation set about making reading the object of observation, the symbolic was not separated from the empirical, but became a part of it.

Prior to what Andre Bazin designated as “the evolution of film language,” written text was submitted to the rules of film—before cinema was readable, reading became cinematographic. In the 1880s the intervals as defined by a Hipp chronoscope were paired with the tachistoscope, a device, which allowed the experimenter to present subjects with a controlled, brief stimulus that could be seen in a narrow, illuminated visual field for a predetermined duration, often for a fraction of a second. The initial design of the apparatus, first mentioned in 1859 by A.W. Volkmann, was a horizontal, table-like apparatus, using the fall of a weight to quickly displace a plate covering an opening, behind which a paper displaying text or an image was concealed, allowing a controlled, measurable interval in which the stimulus became visible. Later iterations of the instrument, following James McKeen Cattell’s watershed redesign of the “Fall tachistoscope,” for Wundt’s Leipzig laboratory, were frequently vertically oriented and included a litany of design modifications and corresponding changes to the devices’

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245 The combination of the two devices ultimately came to be called simply the “tachistoscope.”
names, including spring tachistoscopes, pendulum tachistoscopes, projector tachistoscopes, rotation tachistoscopes, mirror tachistoscopes, central tachistoscopes, and Cattell’s own design of a rotating cylinder that allowed successive exposures to various visual stimuli.\textsuperscript{247} Cattell’s version of the device, whose specifications and diagrams have been endlessly reproduced, examined, and praised in experimental reports and articles through the beginning of the twentieth century, had the advantage of using the fall of the slide to trigger the electromagnetic timing mechanism at the moment it revealed the stimulus, which eliminated the problem of using sparks that changed the light conditions of the experiment, and also included a variety of response mechanisms, including lip-key registers that recorded the moment the mouth began moving to vocalize the stimulus, whether letters, words, or images.\textsuperscript{248}

In the case of the lip-key register, the brain was reconceived as a series of circuit gates running between the textual input and the auditory output—linguistic functions thus being reducible to the time it took the signal to be transformed by the mental machine, which was actually plugged into the apparatus. In this way “the tachistoscope became paradigmatic of an ideal experimental control,” generating “data that allowed a quantifiable image of the psychophysiological capacities of the subject,” repositioning the “perceiver in a relation of subjection to an objective world newly decomposed into


\textsuperscript{248} Benschop, 33. The first mention of this mechanism, called the “gravity chronoscope” is presumably made by Cattell in 1883, when he mentions awaiting an “apparatus” in Baltimore, in An Education in Psychology: James McKeen Cattell’s Journal and Letters from Germany and England, 1880-1888 (Cambridge: MIT Press, 1981), 87. Cattell and Wundt, who was known as an irascible opponent, ultimately parted ways over a disagreement about whether the fall mechanism could calibrate the chronoscope in the 1890s. Wilhelm Wundt criticized early experiments for, among other things, failing to control the light conditions in which stimuli were presented in “Zur Kritik tachistoskopischer Versuche,” Philosophische Studien, vol. 15 (1900): 287-317.
autonomous and abstract stimuli.” By measuring responses, intentionally engineered to be too brief for reflection, the experimental setting produced a possibility of “pure sensation without perception.”

Where Jonathan Crary and others have assimilated such experimentation into a Benjaminian discourse on “shocks,” occurring beneath the threshold of perceptual attention, introspection, or consciousness, one could argue that the existing subjective unity was not disrupted, but a new mental continuity underwent a novel theorization. The insistence on “shock” as the defining psychological category of this experimental milieu simplifies the conditions of research and psychophysical theory to a subject’s encounter with a generalizable Machine, when in fact the specific operations of the apparatus entirely revised the vision of the processes by which subjective unity arose in the first place. Experimental subjects were still readers, and reading was still the putative bedrock of subject formation, but not because the text bore the trace of some irreducible, individual unity. It was because the text instituted a sequential, operational order than produced mechanical unities in much the same way that Franz Reuleaux described the total function of well-engineered machines.

1885 was an important year for reading. Hubert von Grashey, the director of the esteemed Würzburg psychiatric clinic, published his paper on aphasic patients, arguing that in normal cases, reading occurred through the rapid scanning of individual letters, which were quickly converted into “sound images,” then became word images, that activated motor operations, better known as speech. This theory, which came to be

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249 Jonathan Crary, Suspensions of Perception, 305, 309.
250 Ibid., 306.
known as “spelling theory,” built on the work of Carl Wernicke and Ludwig Lichtheim, whose Wernicke-Lichtheim model, which isolated words and letters as basic units of language rather than larger semantic unities like sentences, and also located the problems of aphasia in the disruption of hierarchies of distinct neural pathways, serialized reading as a physical order of operations. Because this process was not localized in single brain center, as Sigmund Exner had claimed, reading was transformed into a mechanical, and operational logic.

Aphasic patients with brain traumas were not lacking the proper language centers, only the proper protocols for deciphering its sequences. The inability to reproduce the associations to words was a problem of linkages not the absence of unities. Even if the so-called “spelling theory” had an incredibly short lifespan, with Cattell, also in 1885, using his tests of sequential exposure to stimuli on a rotating cylinder to show that words and letters were recognized with nearly the same speed, the logic of reading had been displaced. Uneasiness about this empirico-mechanical coup in matters of reading and by extension, education and thought, was articulated in 1900 by the high priest of psychophysics himself, Wilhelm Wundt, in a review of the broad field of literature on tachistoscopic reading experiments: “Apparate sind ja nicht Personen, die man manchmal trotz ihrer Mängel liebt, sondern Hülfsmittel…”

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254 James McKeen Cattell writes of this phenomenon that “Die Wörter und Buchstaben werden nämlich nicht einzeln einer nach dem andern appercipiirt, sondern mit einem geistigen process gleich eine ganze Gruppe” (648). In “Über die Zeit der Erkennung und Benennung von Schriftzeichen, Bildern und Farben.”

arguing for the enhancement of devices to increase their precision, but it also points to his divergence with hardcore positivism in his demand for test subject’s introspective responses as a part of empirical research.\textsuperscript{256} Apparate may have been \textit{Hülfsmittel} and not people, but they nonetheless provided the logic for explaining their cognitive coherence, particularly when it came to reading.

Tachistoscopic experimentation instituted a theoretical divide that had been represented in the two reading manuals given to Anton Reiser by his father (to spell or not to spell), although the difference in method concealed a deeper change in the notion of what reading was and what it produced. As Kurt Danziger remarks, the “experimenter of the early nineties trusted, first of all, in his instruments,” and it is no exaggeration to claim that the tachistoscope was “\textit{of more importance than the observer}.”\textsuperscript{257} However, it was also not hyperbole to claim that the tachistoscope was also more important than the test-subject as well, as reading was transformed from a unique human ability into a mechanical operation.

Reading as a matter of psychophysical investigation was no longer hermeneutic, even where it concerned the production of subjective psychological space. Two years after the first cinematographic presentation of the Skladanowsky brothers in the Wintergarten, the Kant scholar, Benno Erdmann and his \textit{Wunderkind} technician, Raymond Dodge, who redesigned the tachistoscope according to the demands outlined by Wundt, once again overturned the hypothesis that reading was a letter-by-letter operation,

\textsuperscript{256} Kurt Danziger details to circumstances surrounding Wundt and the emergence of “introspectionism” in \textit{Constructing the Subject}.
\textsuperscript{257} Ibid., 43. Emphasis mine. This point was underscored by Guy Montrose Whipple commenting on Cattell’s reading experiments and design of the tachistoscope when he wrote that “in no other experiment are the results more evidently conditioned by the form of \textit{apparatus} and type of procedure employed.” \textit{Manual of Mental and Physical Tests: Complex Processes} (Baltimore: Warwick &York, 1914), 264.
but in the process showed the degree to which it had become a function of the psyche as purely an interval machine.\textsuperscript{258} Using a mirror, and later a photographic apparatus, to observe the fixation points of test subjects reading texts, they noticed that eye movements while reading did not proceed continuously from left to right, scanning each letter individually. Instead reading a single line involved a regular alternation between “Ruhepausen” and “Bewegung,” that conspired to create the impression of coherent mental \textit{Vorstellungen}.\textsuperscript{259} As it turned out, while reading did not pattern itself after the successive letter-by-letter fall of type-hammers, as Kittler argues, it also did not imitate the semantic and psychological continuous attributed to reading since at least the seventeenth century.

Instead, Erdmann and Dodge concluded that the mental continuity produced by reading at the level of the word or sentence was the result of serialized, discontinuous inputs, mimicking the presentational operations of the tachistoscope, or as we shall see, the cinematograph. Moreover, the shape and structure of thought was bound to structures of language, which were defined by and reproduced the mechanics of their presentation. According to Erdmann, “die Lautsprachen sind Naturprodukte unseres Denkens, die Buchstabenschriften Kunstprodukte des lautsprachlichen Denkens.”\textsuperscript{260} However, thoughts were not unconditioned, meaningful unities that were merely transmitted, as

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{258} Benno Erdmann and Raymond Dodge, \textit{Psychologische Untersuchungen über das Lesen auf experimenteller Grundlage} (Halle: Max Niemeyer, 1898). This is not to contend that Erdmann and Dodge had the final word in these disputes. Others, such as Julius Zeitler continued to maintain various permutations of the successivity thesis, in which letter position, order, and recognition were seen as more important than total “Wortbild” recognition. Zeitler claimed that word recognition could only be divided into two groups “bekannte” and “unbekannte.” In both cases, however, the recognition was distinct from the meaning, which he reiterates multiple times. It was a mechanical operation rather than a hermeneutic operation. Unfamiliar words were spelled and familiar words were “assimilated” according to a visual structure dominated by certain prominent letters, from which one proceeded to the meaning of the word. Julius Zeitler, \textit{Tachistoskopische Untersuchungen über das Lesen} (Leipzig: Wilhelm Engelmann, 1900).
\item \textsuperscript{259} Ibid., 63.
\item \textsuperscript{260} Erdmann and Dodge, 3.
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“Bedeutungsinhalte schafft das Denken nicht.”

Rather, “[d]as Denken” could be found in “den Daten unseres Wahrnehmens, Errinnerns, Einbildens, und Abstrahirens.”

Thought was data and reading was a medium specific “Kunstprodukte” that dictated the logic of its transmission. Thus, the syntax of language from which meaning arose, and in turn, thought, was not an abstraction tracing the boundaries of metaphysical categories, but the medial, in this case, mechanical, logic by which language was presented, assembled, and perceived. Thought was material here, divided into quantitative units defined by the apparatuses used to measure it. Reading was not, therefore, an invariable human capacity, but a historically specific protocol for organizing “die Daten” of perception, that did not on their own constitute thoughts. Just like any dataset, perceptions demanded a series of functions to make sense of their relationship to one another, which had previously been represented as a kind of native syntax distinguishing humans as thinking creatures.

The core problem of empirical experimentation of how one aggregated discreet data points into meaningful conclusions mirrored the problem of the scientized psyche in how psychophysical inputs and outputs could be synthesized as thought—in both cases the answer was offered by machines. This was made all the more explicit in the tendency to study reading using constellations of letters forming meaningless syllables, beginning, again in 1885, with Hermann Ebbinghaus’ study of his own memory capacity. Among his other conclusions Ebbinghaus found that the relationship between forgetting and time was logarithmic, with the most precipitous decrease in retention occurring during the

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261 Ibid., 2.
262 Ibid., 3.
period immediately following exposure to the letters. More importantly, however, his experimental method, which made reading and memory a computational faculty of mechanical storage and reproduction, was explicitly anti-hermeneutic. One did not read for meaning in these conditions, but instead meaning was the result of a protocol that systematized exposure to stimuli. Mental unities could be analytically decomposed into meaningless minimal significations with the tachistoscope, but likewise, as Kittler remarked of psychophysics, “[m]athematische Gleichungen können ebensogut nach rechts wie nach links aufgelöst werden.”264 As a result, the same device that dismantled semantic unities, could reassemble them, only it would be called something else—a cinematograph.

With the introduction of chronoscopic instruments the pauses and movements of reading resembled the stops and starts of the tachistoscope and thinking took on the character of the apparatus used to represent it, assembling discrete quantitative inputs into coherent unities—this being the objective of empiricism in general. Reading imitated the intermittence of the tachistoscope, and thought was molded by the structures of reading, with syntax being a mode of mechanical succession. However, the tachistoscope, as a monument of empiricism, was an analytic rather than a synthesizing instrument. The ultimate statement about the operations of thought as mechanical syntax, allowing for the comparisons with the cinematograph, arrived with Friedrich Schumann’s redesign of the tachistoscope, which used an electrically driven wheel to control the presentation of successive stimuli.265 This focusing evermore intently on the individual letter and the

264 Kittler, Grammophon Film Typewriter, 246.
265 An early description of this device was given in report from the Psychologischer Verein zu Berlin in December of 1898, where Schumann demonstrated his new apparatus. Zeitschrift für Pädagogische Psychologie und Pathologie, eds. Ferdinand Kemsier and Leo Hirschlauff (Leipzig: Quelle & Meyer, 1899).
minimum exposure required to identify a letter accurately when shown in rapid
succession as part of a word.

Here, research on the minimal conditions for meaning, building on the results of
Ebbinghaus’ “nonsense,” were combined with another essential field of psychophysical
research on Nachbilder. The study of meaning was assimilated into a discourse on
apparent motion that used cinematographic instruments to show how the order and pace
of stimuli presentation could produce a cognitive effect greater than the sum of the
individual stimuli. Meaning became a Nachbild or Verschmelzung, suggesting that the
apparent unities of thought, which had been technologically broken down into an
empirical dataset, could also be reassembled. As Schumann notes in 1906 in a review of
his results and those of his colleagues:

Ja, es kommt sogar bei sehr kurzen Expositionen vor, daß von einem Worte
eigentlich kein einziger Buchstabe deutlich gesehen war, daß aber trotzdem ein
ganz oder wenigstens teilweise richtiges Lautbild reproduziert wurde. In diesem
Falle riskieren die Versuchspersonen häufig zuerst gar nicht irgend etwas
anzugeben. Erst wenn man sie fragt, ob denn gar kein Wortbild aufgetaucht sei,
nennen sie das betreffende Wort, erklären aber gleichzeitig, daß es unmöglich
richtig sein könne, da sie ja eigentlich nur einen ganz verschwommenen Fleck
gesehen hätten.266

It was this verschwommenne quality introduced as a function of the tachistoscope sped up,
otherwise called the cinematograph, that provided a psychophysical model of meaning—
the appearance of unity allowed empirical psychologists to solve for consciousness
“ebensogut nach rechts wie nach links.” And it is perhaps for this reason that Henri
Bergson claimed in 1907 “Instead of our attaching ourselves to the inner becoming of
things, we place ourselves outside them in order to recompose their becoming

266 Friedrich Schumann, “Die Erkennung von Buchstaben und Worten bei momentaner Beleuchtung,”
Bericht über den I. Kongreß für experimentelle Psychologie in Gießen, vom 18. bis 21. April, 1904
(Leipzig: Johann Ambrosius Barth, 1904). 35
artificially… We may therefore sum up what we have been saying in the conclusion that the mechanism of our ordinary knowledge is of a cinematographical kind…”

Unsurprising then, it was Schumann’s generosity in lending his tachistoscope to Max Wertheimer for his 1912 study of apparent motion that marked the definitive point of embarkation for gestalt psychology, and with it, film theory as articulated by Münsterberg and Arnheim. And it was this instrumental innovation in the empirical study of reading that made the subsequent suggestion by Balazs and Christian Metz that cinema was a form of reading more than a mere analogy.

While there were precursors to this kind of theorization present in the earliest responses to devices that produced “stroboskopisch[e] Täuschungen,” the interest in pre-cinematic apparatuses and toys like the zoetrope, phenakistoscope, and early cinematographic presentations as well as psychophysical instruments like the pedemascopc used in Paul Linke’s experiments on moving images, were most often concerned with the insights they could offer about a standard nature of perception, rather than how perception and cognition were based on or structured by such devices.

However, the discursive bearings in writings about the nature and effects of imagistic “Verschmelzung,” “Nachbildwirkungen,” and general “Nachbildphänomene” shifted in the late 1900s and early 1910s as films cultivated an increasingly standardized set of technical practices, such as parallel editing, and cut-backs, for creating a diegetic closure based primarily on visual operations. In Hans Lehmann’s 1911 analysis of the new

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267 This passage is considered at greater length in chapter 1. Henri Bergson, *Creative Evolution*.
268 As noted in chapter 1, Wertheimer’s description of the experiments is available in “Experimentelle Studien über das Sehen von Bewegung.” It was also cited by his student and famous film theorist, Rudolf Arnheim in *Film als Kunst*, 104.
cinema-technical mechanisms, film-making techniques, and psychology of film there is a notable recovery of earlier psychophysical experimentation with a techno-deterministic understanding of apparatuses’ influence in shaping the structural conditions of the psyche.\textsuperscript{270} Although Wolfgang Jacobsen attributes it to the fact that early films in the varieté format “nur rein Bühnenspektakel reproduziert,” maintaining the “räumlich und zeitlich” continuity of the stage, he has nonetheless claimed that “der technische Effekt interessiert mehr als der Inhalt des Films.”\textsuperscript{271} One of the significant scientific undercurrents in his work, which had already become an established cultural force in Germany at least since Nietzsche, was the English exponent of social Darwinism, Herbert Spencer whose application of evolutionary principles to social and cultural developments Lehmann used to explain the mutation of perceptual faculties.\textsuperscript{272} At various moments of media-sensitive, anthropological reflection Lehmann gives a surprisingly theoretically advanced account of a dialectic of sensory and psychic evolution as it pertains to devices like the phonograph, telephone, and cinematograph.

\textsuperscript{270} Ibid.
\textsuperscript{271} Wolfgang Jacobsen, “Frühgeschichte des deutschen Films: Licht am Ende des Tunnels,” Geschichete des deutschen Films, Wolfgang Jacobsen, Anton Kaes, and Hans Helmut Prinzler, eds. (Stuttgart: J.B. Metzler, 1993), 16. Given that there are entire sections in Lehmann’s book devoted to genres such as trick films that used filmic techniques of diegetic space construction that did not merely “reproduce” theatrical space, one might argue that Lehmann’s interest in technical effects was related to the filmic means of narrativity and was not merely a result of the varieté format.
\textsuperscript{272} See Friedrich Nietzsche, Sämtliche Werke, Kritische Studienausgabe in 15 Bänden (KSA): Menschliches Allzumenschliches I und II (Berlin: Deutscher Taschenbuch Verlag de Gruyter, 1999), 188. The phrase “Kampf ums Dasein” was the original translation into German of Darwin’s “Concurrence,” or “Struggle for existence” in The Origin of the Species. On Nietzsche’s complicated relationship to Darwinism and its clear mediation through the theories of Spencer, see John Richardson, Nietzsche’s New Darwinism (Oxford: University of Oxford Press, 2004). Alternatively, some arguments, such as the historically sensitive and highly nuanced case made by Gregory Moore in Nietzsche, Biology Metaphor (Cambridge: Cambridge University Press, 2002), treat Nietzsche’s use of evolutionary language as neither a direct acceptance nor refusal of Darwin, but rather, a symptom of Nietzsche’s embeddedness within a wider field of discourses on hygiene, eugenics, biology, medicine, and evolution. The notion of a “Kampf ums Dasein,” was also connected to the discourse on the “nervöses Zeitalter,” as explored in Radkau’s Das Zeitalter der Nervosität, 175.
In the first instance he argues that beyond the categories of tools and implements identified by Spencer that imitate and expand native human capacities for perception, a new group of apparatuses, which included the cinematograph “sind imstande, äußere Reize nicht nur wahrzunehmen, sondern sie auch festzuhalten, d.h. zu registrieren, und sie auf Verlangen zu reproduzieren,” and furthermore that they “bilden also nicht nur eine äußere Nachahmung des natürlichen Organes, sondern sie üben auch gewisse Funktionen des Gehirnzentrums des betreffenden Organes aus.” The distinction he makes between the role of the tools Spencer identified as expanding the scope of perceptual capacities, and therefore participating in social and cultural evolution, and the new category of machines (primarily the cinematograph), is that the operations of the machine restructured the function of organs they originally imitated through a process of training.

There is no doubt a feeling of profound familiarity for the contemporary reader in Lehmann’s argument about the education of the senses through technology, particularly in the case of film, perhaps because of the ubiquitous citation of Walter Benjamin’s much later observation in 1939:

So unterwarf die Technik das menschliche Sensorium einem Training komplexer Art. Es kam der Tag, da einem neuen und dringlichen Reizbedürfnis der Film entsprach. Im Film kommt die chockförmige Wahrnehmung als formales Prinzip zur Geltung. Was am Fließband den Rhythmus der Produktion bestimmt, liegt beim Film dem der Rezeption zugrunde.274

Albeit with a Marxist attachment to the modes of industrial technological production that inform the sequential logic of film and familiar from the studies of Münsterberg, Benjamin recognized that principles of sensorial training had already become formalized as principles of film by the time he was writing. Indeed, the emphasis on the mechanistic

273 Lehmann, Kinematographie, 5.
nature of the training involved in the perception of film highlights an important additional step that Lehmann makes, which is related to a diegetic logic that is derived from, but was not limited to, the operations of the camera and the projector.

As a second aspect of his analysis of the evolutionary implications of film, Lehmann was also attentive to the difference between the physiological and psychological responses to film. Drawing on the work of Paul Linke and Karl Marbe, who were at odds about the operations responsible for perceived stability of objects in cases of moving image apparatuses, Lehmann was clear to note that the continuities of stroboscopic effects must be considered as psychological and not only physiological problems:

Zunächst zeigt eine genaue Prüfung, daß die Grundlage der Kinematographie nicht nur physiologischer, sondern auch psychologischer Natur, und zwar in erster Linie psychologischer Natur ist. Denn wir sehen ja keine wirkliche Bewegung, sondern nur eine vorgetäuschte, d.h. unser Bewußtsein wird getäuscht, und alle Probleme, welche das Bewußtsein betreffen, find in erster Linie psychologischer Natur. Das Verdienst, hierauf zuerst hingewiesen zu haben, gebührt Paul Linke, einem Schüler des berühmten Philosophen Wilhelm Wundt, Man hat nämlich bisher als Ursache der stroboskopischen Täuschung die sogenannte Nachbildwirkung und die Verschmelzung angesehen.\footnote{Lehmann, \textit{Kinematographie}, 16. The historical significance of and exchange between Marbe and Linke, Linke’s criticism of Marbe, and the cultural reception of their work by figures like Arnheim and Münsterberg, along with a longer history of stroboscopic experimental design can be found in Christoph Hoffmann’s \textit{Unter Beobachtung: Naturforschung in der Zeit der Sinnesapparate} (Göttingen: Wallstein Verlag, 2006).}

In a way quite similar to the parallel relationship between the visual continuity achieved through the rapid frame rate and discontinuous procession of each frame synched with the projection shutter, and the experience of a closed narrative space arising from it, the continuity of movement was thought here to be psychological. The importance of this distinction at the level of pure mechanics is that it meant that the perceived continuities of objects in moving image experiments were \textit{not} due primarily to the “Verschmelzung” but
required *intervals* that were then bridged *psychologically*. This was counter to a belief that located the “Eindruck der Kontinuität” in the blending of individual images stemming from the “Dauer der Netzhautreize (also in Nachbildwirkungen),” which Linke attributed to Marbe.\(^{276}\) Instead, Linke shifted his emphasis to the necessary discontinuities as the primary source for the effect. He writes: “Wenn der stroboskopische Effekt erzielt werden soll, muß ein gewisses relativ geringes Intervall vorhanden sein: denn nur bei einer solchen können die Bilder simultan gesehen werden, nur bei einer solchen ist also der schlechterdings notwendige Ruheeffekt zu erwarten.”\(^{277}\) Such a “Ruheeffekt” was thus conceived as the psychological manifestation of a physiological operation that subtly transformed the idea of mental continuity into an outcome of measured intervals and discontinuities in the movement of the apparatus.

The significance of this discovery on the part of psychophysicists interested in the properties of mental continuity was that the psychological autonomy and experience of a stable perceptual contact with reality were thought scientifically bound in certain cases to the manipulation of *absences between images*. Psychological continuity, which generated a sense of spatio-temporal coherence was no longer believed to be the outcome of a simple reproduction of structurally coherent objects in the world, but the result of intervals, supported by the rapid succession of images. In this way there is a detectable movement from an emphasis on content, which would entail a replication of the world in the mind, to an emphasis on the logic of assembly as the determining force in the continuity of inner-life. The moving image apparatus structured the content of the psychological experience and these same apparatuses deployed a logic of discontinuity. If

\(^{276}\) Paul Linke, *Die stroboskopischen Täuschungen und das Problem des Sehens von Bewegungen*, 461.

\(^{277}\) Ibid., 463.
one then returns to Lehmann’s engagement with this psychophysical literature as an attempt to scientize the experience of early films and his musings on a Spencerian model of perceptual and psychic evolution, there is a sense that the dialectic of mind and machine in the case of film was theorized as involving a change from a duplication of empirical unities and continuities to a purely logical continuity based on breaks and cuts.

The evolution of the psyche therefore became a history of technological apparatuses’ intervention in the ordering instead of the content of experience. Lukács’ argument about early narrative film’s substitution of “Wirklichkeit” with “Möglichkeit” gains an added poignancy and clarifies some of the anxieties of the Kinoreformbewegung by showing that the early antagonism towards film was partly the byproduct of the importation of psychophysical literature that had already integrated cinematic and pre-cinematic devices as defining elements of the psychic model. Richard Guttmann’s warnings, both about cinema as a surrogate, and the substitution of Sein with Schein, thus also reflect the larger tendency to treat cinematic devices as a mediating force that imposed a logic of continuity that was treated as constitutive of psychic experience rather than imitative of it as Münsterberg had suggested. As the historian of science, Ludwig Fleck, posited in 1947, “Einen Apparat zu verwenden, ist immer Ausdruck eines gewissen, bereits entwickelten Stils des Denkens… Der wissenschaftliche Apparat lenkt das Denken auf die Gleise des Denkstils der Wissenschaft…”—a reasoning that was extended from science to entertainment in the case of early film criticism. Yet, the style of thinking mentioned by Fleck was already viewed by critics, in their reliance on

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existing psychophysical concepts, as precisely the result of a logic allowed by the devices at work in experimentation.

Charges by reformers that films divested their viewers of a control over the logic of their own thinking nevertheless seemed to acknowledge that the psychology of the cinemagoer was *autonomous*, even if it was deemed pathological. Within the reformist literature one senses the deep conceptual tensions about the development and nature of the psyche, which was simultaneously drawing upon divergent models of completeness, autonomy, and objectivity. In one way the force of the reform movement’s objectives derived from a received cultural understanding of the well-adjusted thinker as the product of a literary education in which psychological coherence was synonymous with literary narrative coherence. On the other hand, the vision of progress and objectivity used to legitimate the indictment of cinema as a physiological and educational hazard was inextricably bound, through psychophysics, to instrumentation that reproduced the operations of film. This is how it becomes possible for a prominent voice of the reform movement to speak of the results of psychophysical “Untersuchungen” in Stockholm that attributed to film an “Abspannung der Nerven” while also continuing to write in the following paragraphs of the virtues of a readerly education and the unities of time and space, as well as the narrative space it maintained through *Nachdenken*:

Wir möchten unsere Bildungsarbeit am Volk vertiefen und mit rechtem Geist erfüllen. Machen jedoch die Kinematographen durch ihr Vielerlei und durch all das Geistlose, das sie bieten, nicht oberflächlich und geistlos? Können wir gründlich *nachdenken* und starke Gefühle erwecken, wenn die Filmbilder durch die schnell vorüberlauschende Folge keine Zeit zum *Nachdenken* und zum Nachklingen der Gefühle lassen? Prof. Schrubring sagt wohl nicht mit Unrecht (*Frankfurter Zeitung* Nr. 149, 1912): “Wir sind seit 1870 immer oberflächlicher geworden, und nun kommen Apparate, die dieses Gift auch noch systematisch ausbreiten. Eine Folge des Kinos ist z.B. die Tatsache, daß *keine Bücher mehr*
gelesen werden; denn wer sich an diese Form der Unterhaltung gewöhnt hat, der findet es langweilig, sich daheim mit einem Buch zu vergnügen.’”

In den Filmen steckt teilweise eine solche abenteuerliche Romantik und eine solche wilde Phantastik, daß der regelmäßige Besucher aus dem Inhalt der Dramen allmählich jeden ruhigen, klaren Wirklichkeitssinn verliert und sich ein ganz irreges und phantastisches Weltbild zurechtlegt. Wir brauchen jedoch Menschen mit hellen und klaren Augen und mit einem praktischen Wirklichkeitssinn, die den Kampf ums Dasein mit aller Ruhe und Energie kämpfen, aber nicht lässige Leute, die sich mit ihren Gedanken und Wünschen in der Traumwelt eines Wolken-Kuckucks-Heim aufhalten.279

This is not the maniacal optimism of Edison about the obsolescence of books. The questions posed in this section of Sellmann’s book, and which the quoted article from the Frankfurter Zeitung demonstrates, was a larger cultural consideration, specifically take up persisting matters of Bildung and public education as a matter of media-specificity, while also appropriating the new language of experimental psychology. Just as Robert Gaupp had claimed in the same year, Sellmann formulated his criticism as a speculation about “Nachdenken” as the determining principle in the cultivation of a “Wirklichkeitssinn” that has both a physiological and cultural-evolutionary valence. As his use of the quote makes clear in its identification of an ever greater superficiality linked to the introduction of new media-technologies, there was a systematicity in the challenge to traditionally educated subjects. This was a challenge associated with cinema’s potential to rival books in the presentation of the “Phantastik” and the “Romantik,” which is to say, its maturation of a logic of diegesis. Even though the principle objection regarded a diminished sense of, or contact with, reality, books were the favored medium.

As many of the fiction films of the early period in cinema, such as Joseph Delmont’s Der geheimnisvolle Klub (1913), which was based on Robert Louis

279 Adolf Sellmann, Der Kinematograph als Volkserzieher?, 26-27.
Stevenson’s short story “The Suicide Club,” were adaptations of literary works, the attack on a lack of reality was not a function of film’s fictionality, but on the visual modes used to establish it. The “Weltbild” generated by film was paradoxically fantastic and erroneous, which indicates that the capacity at stake in accessing a true picture of the world was a medial question. Film’s reduction of the world to mere appearances that left it, following Lukács, with a body and no soul, occurred irrespective of the fact that in certain ways the images were thought to be more objective. What was important to critics like Sellmann was the “Sinn” of the real, namely, the logic or syntax by which things were made meaningful. Moreover, as his argument evidently draws on the perennial language of evolution and suggests an interaction in the mutual development of technologies and subjects, it is the mode of subjectivity produced by media that a proper sense of the “real” is made possible—it is, after all, a question regarding Bildung in a book about Volkserziehung, and therefore about the proper pedagogical implements for producing a certain kind of person.

Although Kittler noted of the Romantic pedagogical exercises of Johann Hermann Pestalozzi that they taught the rudiments of signification through an incremental building of “diskreten Quanten der Buchstaben,” and that Herder’s educational program emphasized “unmerkliche Grammatikübungen an Minimalsignifikanten,” there is a notion of classical education in the contentions of the Kinoreformbewegung that rested on a presumed totalizing semantic unification found in reading. The ideal psyche, then, postulated an autonomy and gapless coherence ascribed to language, which worked to generate a contact with the real that was likewise coherent and seemingly gapless.

Ultimately, the arguments about films’ peril for psychological development,

280 Aufschreibesysteme, 54.
“Wirklichkeit,” and “Sein” were not about the representational fidelity of the medium to the appearances in reality; if that were the case, then an education in photochemical traces would be paramount. Cinema was merely “Schein” because its supposed indexical powers belied the absences and Ruhepausen that were the foundations of the experience of continuity it inspired and critics feared as a new source for subjectivity. Later in the book, Sellmann goes on to add an important ad hoc etymology for the term that supports this understanding, where he writes:

Der Kinematograph, das heißt doch ‘Schreiber der Bewegung,’” zeigt uns klar und deutlich, daß wir uns mit unseren Forderungen auf rechter Straße befinden. Gerade hier ist der Kinematograph in hervorragender Weise befähigt, in kurzer Zeit viel, sehr viel zu berichten. Das beschreibende Wort oder das starre Bild versagen teilweise ganz und gar, weil sie uns dieses Leben und diese Bewegung nicht beschreiben können.281

Neither the image nor the single word were thought adequate to the task of description of life and movement, which were both marked conceptually by a notion of continuity—description being the principle of coherence, which made the world comprehensible to a perceiving subject. As the “writer of movement” the exteriorized syntax entailed in the editing and projection of movement failed, according to Sellmann, to capture the unitary nature of the world and in turn failed to produce a unitary psyche. At the same time, there was a conflation of this sense of reality with a naïve understanding of scientific objectivity leading nearly all early critics of film to invoke psychophysical theories of nerves, reaction times, and measurability that had already submitted their model of the psyche to the fragmentary and parceled regime of measurement that their cinematographic instruments demanded. In this sense, the real as unitary and coherent and the objective as discrete and measurable generated a widespread

281 Der Kinematograph als Volkserzieher?, 33.
and persistent fear that the cinematographic psyche was only an illusion of continuity made possible by the discontinuous logic of a machine.
CHAPTER 3  
Cinematic Bildung

“Menschen werden geboren. Personen entstehen durch Sozialisation und Erziehung.”

Good Pupils

The relationship between competing models of education based on disparate media were familiar to cinema reformers. They frequently drew upon earlier movements aimed at eliminating Schundliteratur in their attempts to contextualize their own objectives and were propelled by the opposition of morality movements (Sittlichkeitsbewegungen) to many forms of popular entertainment, which included films as well as novels and magazines. It was not uncommon for conservative reformers, who nearly all maintained an interest in pedagogy and psychological development to claim, for instance, that “Die kinematographenseuche fängt an, in unserer Jugend dieselben Folgerscheinungen zu zeitigen wie die moderne Schundliteratur.” In this case, Max Brethfeld’s review was of efforts by the Volksbund zur Bekämpfung des Schmutzes in Wort und Bild to enlist cinematographic programming in service of educationally

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283  Sabine Lenk situates the heterogeneous motives of the Kinoreformbewegung as part of a climate of morality movements concentrated on “Jugend- und Volksbildung” and the rhetorics of nationalistic moral preservation in her article “Völkisches Gedankengut im Umfeld der Kinoreformbewegung,” in Handbuch zur “Völkische Bewegung,” 1871-1918, eds. Frank Almai, Johann S. Koch, and Uwe Schneider (Munich: K.G. Saur Verlag, 1996), 797-805. The other essays in the large collected volume are also immensely useful for placing the reaction to film, and “Schundfilme” in particular, within a larger historical context of educational and pedagogical reform movements. While the nomenclature and announced objectives of opponents of Schundfilme and Schundliteratur were very similar, having a shared cultural and institutional lineage, Kaspar Maase notes: “‘Schundliteratur’ bezeichnete einen Sektor der erzählenden Literatur, die insgesamt als Kunstgattung anerkannt war; Schund wurde nicht zuletzt attackiert, weil er als geradezu blasphemische Karikatur dessen galt, was gute Literatur als wahre Kunst verkörperte. Anders beim ‘Schundfilm.’ Hier galten die Angriffe dem gesamten Genre des erzählenden Films; für die Mehrzahl der Kritiker gab es keine legitime Filmkunst.” In Die Kinder der Massenkultur: Kontroversen um Schmutz und Schund seit dem Kaiserreich (Frankfurt a.M.: Campus Verlag, 2012), 122.
sanctioned subject-matter in the wake of many Polizeibehörden’s decisions to forbid children from visiting the cinema.\textsuperscript{285} Brethfeld’s appraisal simultaneously draws upon an affinity between literature and film that treats literary and filmic content as interchangeable, while also hinting at real medial distinctions. Preoccupation with the “Bildungswerte des Stoffes,” including films of Niagara Falls, the attacks of torpedo boats, volcanic eruptions, and cellular protoplasm, were treated as specifically suited to the cinema, presumably because they could be easily comprehended in moving images, though it was mostly because they fit in a larger undefined category of appropriate educational material.\textsuperscript{286}

However, the cinematograph as a “hervorragendes Mittel im Dienste der Volks- und Jugendbildung,” had to avoid, in part, the “psychologische Unwahrheit der Vorgänge,” or run the risk of “erzieherliche[] Verheerungen.”\textsuperscript{287} Well-trained adults did not share the potential for cataclysmic miseducation, because the “gebildete Erwachsene vermag sofort” to identify everything “Gemachte und Unwahre,” while children lacked the training to make such distinctions.\textsuperscript{288} By designating adults who were not at risk from the influences of film as “gibildete,” Brethfeld implies that education served as a prophylactic bulwark against the psychological effects of film. This education was literary. As a “Mittel,” it was believed that film changed the nature of pupils’

\textsuperscript{285} The Brethfeld’s comments came in the wake of the “Gesellschaft der Freunde des vaterländischen Schul- und Erziehungswesens zu Hamburg,” or the “Hamburg Movement” which had instituted a commission of pedagogues and teachers to make suggestions about the oversight and regulation of film and movie houses which were beginning to proliferate. This resulted in the ban on children at the cinema without the accompaniment of an adult, which was later modified, and a series of new official regulations informed by the input of pedagogues. Although films were already routinely subject to censorship by state and city authorities, the intensification of oversight and regulation by the Berlin police in 1906 created a precedent for other cities and Bundesstaaten that continued to develop their own local rules and practices of censorship, increasing the percentage of films censored through the First World War. The history of these developments is outlined in Kaspar Maase’s \textit{Die Kinder der Massenkultur}.

\textsuperscript{286} Ibid., 503.

\textsuperscript{287} Ibid., 502.

\textsuperscript{288} Ibid.
representational relationship to the world and correspondingly their relationship to
themselves—a relationship that had been cultivated and maintained through a program of
literary training since the eighteenth century.

At work beneath the surface of an under-examined idea of education was a
principle of conspicuous mediation that allowed the viewer to differentiate the real and
the purely psychological, recognizing that neither was independent of the means for its
representation. The techniques for the production of “reality-effects” and fiction alike
were also the means, when internalized through structured educational programs, for
constructing the formative distinction between the external, objective world, and inner-
life. The difficult concept of Bildung involved, among other things, implied a
standardization of representational protocols that were thought critical to the formation of
individuals as well as the larger political and cultural imaginary.

Topics of films from early actualities to later adventure narratives may not have
deviated much from the reviled content of Schundliteratur, but the evolution of film’s
technological means of representation, the Kulturtechniken they entailed, and the
resulting vision of what counted as “gebildet” prompted a large-scale reconsideration of
education as a function of media-technologies. The ascendancy of proto- and early
cinematic technologies signaled a clash between textual and filmic media-technological
regimes, whose stakes were no less than the normative ideal of the educated individual.
Concepts of closure, autonomy, and continuity were the theoretical beacons for both a
long history of pedagogical meditations on Bildung and the practices of reading and
textual hermeneutics related to education. Where film became, or was at least perceived
to have become, the master medium in the socialization and definition of its viewers, the
attendant understanding of the nature of those viewers was also in crisis—and not always for the worse. The broad and various responses to this change located a transformation that was of a deeper cultural and epistemological significance than a change in the fair winds of popular fancy. It represented a large-scale reckoning with the media-contingency of educational ideals as ordered operations of technologies rather than organic forms of personal and social cultivation.

What must be left out of the story of film’s role in the reconception of the axioms of education in Germany are longer more nebulous, multiple, and irresolvable stories about Bildung and Erziehung in the history of German literature, cultural criticism, and pedagogy.\(^{289}\) If one were to rephrase Karl Morgenstern’s pronouncement about literature on the novel, “Ueber den Roman haben wir noch kein genügendes Buch,” it might likewise be said that, about Bildung and the Bildungsroman, we do not have “Buch genug” to undertake a faithful reconstruction of the term.\(^{290}\) However, the concept was nonetheless crucial to framing film’s participation in the total transformation of theories of psychology, education, and perception.

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\(^{289}\) There is undoubtedly a distinction between Erziehung and Bildung. However, the history of their usage is so bound to one another in philosophical, literary, and especially pedagogical writing, that to make a claim about one is to also make a claim about the other. In general, Erziehung relates to more practical programs of education and often prosaic concern with social norms and values. Bildung is often deployed to refer to higher philosophical questions about subject-formation, the individual’s relation to larger cultural dialectics, and aesthetic questions of completion and autonomy—all of which, of course would also imply certain forms of practical education. Martin Swales, for instance, qualifies the difference between the Erziehungsroman or Entwicklungsroman and the Bildungsroman as follows: “the Erziehungsroman is, unlike the Bildungsroman, explicitly (and narrowly) pedagogic in the sense that it is concerned with a certain set of values to be acquired, of lessons to be learned…the Bildungsroman both in theory and in practice is concerned with a much more diffuse—and therefore general—process by which the individual grows and evolves.” In Martin Swales, The German Bildungsroman from Wieland to Hesse (Princeton: Princeton University Press, 1978), 14. Especially in pedagogical literature at the end of the nineteenth and heading into the twentieth century the terms are used almost entirely interchangeably, with Bildung often only being used to provide an appearance of elevated discourse.

In perhaps the earliest programmatic assertion about *Bildung* and the *Bildungsroman*, Morgenstern argued that there were two dimensions to consider in the designation of a novel as a *Bildungsroman*: “erstens und vorzüglich wegen seines Stoffs, weil er des Heldens Bildung in ihrem Anfang und Fortgang bis zu einer gewisse Stufe der Vollendung darstellt; zweytens aber auch, weil er gerade durch diese Darstellung des Lesers Bildung, in weitem Umfange als jede andere Art des Romans, fördert.”\(^{291}\) The first part was what allowed reformers to equate literary pulp with cinematic pulp in debates about *Schund*. But the second, as I will argue, more important part, would render filmic education incompatible with literature, as it was the basic mode of representation, determined in its entirety by the limitations and potentialities of the medium, which structured and educated the reading subject. The second is media theoretical in that it suggests that meditations on *Bildung* very early on took the representational capacities and demands of the medium, their division of interior and exterior, the perceived and the imagined, and the fictional and the real, as defining properties of a text and its role in the formation of its reader.

Histories of educational reform and their accompanying prescriptions about the proper forms and techniques of reading are not new and have long been analyzed within discourses on subjectivity. The 1796 *Instruktion für Schulmeister in der Hochgräflich Oetting-Wallersteinischen Stadt*, which revised guidance to teachers on the appropriate structure, methods, and subjects for teaching, also suggested for the first time that that students should read “aus ökonomischen Büchern” and compose essays in order to

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\(^{291}\) Ibid., 64. Many have noted that this formulation as well as Humboldt’s was derived from or related to a letter from Körner to Schiller that was published in 1796 in *Die Horen*. The passage actually
become good citizens and also achieve a “reine Fertigkeit in der reinen Mutterpsrache.”

It was the seeds of an autopoetic reading subject, who not only conceived of the world through text and articulated an individualized relationship to text through text, but importantly, also through a “lived” language (a “Muttersprache”). Heinrich Bosse notes that this was not just a matter of learning to read or alphabetization, “es geht darum, selbst zu schreiben, selbst zu lesen…” Herder, at the end of the eighteenth century, and with more elevated theological and philosophical aims, also argued that textual operations were not transparent, but rather, constitutive. He wrote that one sees “die Dinge der Welt als Worte eines grossen Buches,” and:


The acquisition of specific reading protocols, even for a theologian, was not a neutral vehicle for the delivery of purely transcendental meaning, but a highly personalized, and personalizing form of mediation. It was not an attempt to “ground meaning beyond the text—either in a transcendental subjectivity, in convention, in mental representations”—but instead a recognition of “discourse itself,” texts, and reading practices as the basis for subjective cultivation. It was through pedagogically refined acts of reading, recitation,

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and writing that an “Autopoiesis, in der sich das Subjekt im Umgang mit sprachlichen
Zeichen selbst konstituiert.”²⁹⁶

It is understandable then, that when those concerned with the educational horizons established by film returned to eighteenth and nineteenth century conceptions of a literary training to assess film’s impact on certain kinds of ideal or non-ideal spectators, there was a notable tension internal to their arguments that highlights the increasing awareness of Bildung as a media-technological concept and operation. More than anything, the mobilization of Bildung at the end of the nineteenth and beginning of the twentieth centuries by pedagogues, scientists, and theorists of film, was as a teleological master-concept that functioned to organize the relationship between ontogenetic and phylogenetic psychological development, education, and technology. Discourses on the properties defining the genre of the Bildungsroman, ranging from the “thematic use of gender,” concepts of inheritance, and generational familial construction, to philosophical questions of the “double determination” of the subject as a Kantian figure that is both transcendental and heteronomous, and the role of “individuelle[] Schicksalen,” have no doubt been fruitful areas of research, but can be overlooked here in favor of a concentration on how technological means of education were thought to entail psychological and social outcomes.²⁹⁷

At stake in the idea of Bildung, spanning the eighteenth through the twentieth century, is a sense of how reading produced readers, and subsequently how viewing produced viewers. Most pedagogues who addressed film wanted to rescue readers who

were already cinema-goers. With the preservation of models of *Bildung* founded on reading in the analysis of cinematic viewership, theoretical discord emerged, revealing the degree to which the concept was not panhistorical, but was configured according to specific medial practices that had largely become invisible. Such practices were in fact constitutive of the semantic, narrative, and conceptual continuities that were related to, and were necessary for, educating and conceiving of individuals as distinct and autonomous. In his extended study of *Wilhelm Meister* that would serve as the foundation for his field-transforming work *Aufschreibesysteme*, Friedrich Kittler writes:


Fundamental practices of learning, and therefore self-conception, were tied to how one read, eventuating themselves in smooth ideational unities, whose connection to mechanical, educational protocols was less and less evident the more normalized those protocols became. Such protocols “eine kontinuierliche Entlechie finden oder erfinden,” and without an “Aufschreibesystem bleibe der Mythos vom Bildungsgang leer und unanschaulich.” Likewise a literary “Bildungsgang” for a public trained as cinema-goers was equally empty. And within the reception and appropriation of literary ideas of

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299 Ibid., 104.
Bildung to qualify the effects of film, the “key property of the modern individual [was] continuity.”

However, continuity is not, paradoxically, a continuous principle, owing instead to the operations of the media that produced it, which, in the case of film, were decidedly discontinuous. It is in these areas of discontinuity, between the means of Bildung and educational praxis, and the conception of Bildung, that this chapter seeks to intervene. Pedagogical, cultural, and scientific discourses on Bildung offer a unique window onto the theoretical interdependence of educational ideologies, the psyches they sought to produce, and the media-technologies they employed and from which they derived their understanding of subject-formation. Pedagogues designed educational programs that utilized various media to train pupils for the purpose of cultivating individuals who were both psychologically sound and socially integrated. Thus, the invocation of Bildung in writing about film was also an insight into the medial logic at work in the conception of the psyche as an extrapolation from the operations of media-technologies and Kulturtechniken. As the chapter argues, even where the virtues of reading were extolled, pupils after 1900 were already seen as primarily viewers, reconceiving of even readers as cinema-goers.

Reading Films about Reading

Secondary writing on the educational import of cinema was not the only source of insight about the historical transformation of attitudes toward the influence of cinema in crafting a specific kind of education, and with it, a specific kind of pupil. The divergence of media-technological educational regimes were acknowledged in films themselves.

300 Ibid., 55.
In a send-up of the pious rhetorics of cinema reformers, the film *Wie sich das Kino Rächt* (Trautschold, 1912) cleverly ridiculed popular arguments about cinema’s social-psychological hazards. The relatively short film, produced at a point of increasing narrative sophistication in cinema and increasing tide of reformist outcries about that same cinema, ironizes a fictional exponent of the *Kinoreformbewegung*, Professor Moralski, whose efforts to denounce cinema eventuate themselves in the revelation of his own improprieties. Upon reading about the meeting of the “internationale[n] Kongreß zur Bekämpfung der Kinematographie” convening in “Dummstadt,” the head of the film production studio “Flimmer,” enlists a young film starlet and a film crew to lure Professor Moralski into a staged extra-marital tryst, which they secretly film. Later, Moralski is given the film, entitled *Der Tugendbold im Seebade*, to present to the meeting of the congress the next evening as an example of film’s degenerative potential. Moralski’s transgression is exposed when the film is presented to the conference, the members of the meeting are titillated and scandalized, and the film ends with a flier advertising the film’s public release in theaters.

In addition to the meta-discursive commentary on the hypocrisy involved in the condemnation of cinema, the film also reflects on the technological training and production of its various audiences.\(^{301}\) As one of the “frühsten Filmen, die ‘Film im Film’ zeigen,” the film demonstrates the power of the medium as a constitutive pedagogical implement that “stellt sich an der Doppelmoral des Bildungsbürgers dar, der es

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\(^{301}\) More recent commentaries on the film limit their analysis to its reflexivity and general polemics against censors and reformers. Film scholarship on early German cinema has rightly focused on the ways in which the new medium made the conditions of its own production evident in the early years of its development, especially in narrative film. *Wie sich das Kino rächt* is used to adduce this line of argument in Sabine Hake’s “Self-Referentiality in Early German Cinema,” *Cinema Journal*, vol. 31, no. 3 (Spring, 1992): 37-55, *German National Cinema* (New York: Routledge, 2002) and Thomas Brandlmeier’s, “Early German Film Comedy, 1895-1917,” *A Second Life: German Cinema’s First Decades*, ed. Thomas Elsaesser (Amsterdam: Amsterdam University Press, 1996), 103-113.
bevormunden will.”

From the perspective of both the reformers skewered in the film and their film-maker adversaries, film had the ability to determine something about the nature of the moral agents in question by educating its audience. Film not only transmitted messages about morality, but its medial operations trained the capacities of a specific kind of viewer, who was fundamentally at odds with earlier educational ideals based on the textual training of moral agents as readers—something quite pointedly articulated later in the film. Morality was a property of an audience’s education, and education was the property of the media used to educate the viewers. By heralding its ability to define its audiences while at the same time parodying the inefficacy of reactionary moral-pedagogical discourses on cinema, the film provides a sense of the degree to which ethical and educational arguments were proxies for engaging modes of subject-formation that were contingent on media-technologies.

The film opens to a frontal shot of Professor Moralski declaiming to the *Sitzung des Vereins zur Bekämpfung der Kinematographie*, holding up a film reel, drawing the attention of the audience (of which we are initially a part) to the unspooled filmstrip he holds in his hands. The nitrate strip’s unprojected materiality stands as the object of his contempt, and the audience is depicted in clamorous approval. An intititle follows: “Also sprach Professor Moralski… so wird unser Volk vergiftet durch die Schlammströme der Unmoral, die der Kinematograph jeden Abend über sein Publikum ergießt.” In a parodic invocation of Nietzsche’s Zarathustra, as both a sage opponent of mean popular entertainment and also, paradoxically, a conservative defender of middle-class morality, the intititle acutely caricatures the nature of attacks by the

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Kinoreformbewegung. Film’s noxiousness corrupted its audience through its uninterrupted succession of images, flowing over them in a continuous stream—in Schlammströme—which infiltrated and overwhelmed psyches that had been “längst als eine elektrotechnische Anlage konzeptualisiert und repräsentiert.” Like the Ströme that accounted for the physiological vision of psychic function, the perpetual influx of stimuli participated in the formation of its viewer. The suggestion was clearly not just that reformers thought cinema merely presented lurid images that affronted the existing sensibilities of the audience, but instead, that the mode of presentation shaped those sensibilities at their psychological foundations. It is the materiality of the film that Moralski offers to members of the Verein as the source of the problem, and which produce the Ströme that washed over its audience. The immorality he decries resides in the filmstrip, signifying the medial operations of film in general, rather than a specific category of disreputable content associated with the images that remain unseen. Morality is conceived here as an effect of media-specific educational practices, rather than the selection of good content from bad content. The film reflects on cinema’s power as a pedagogical tool for defining the character of its audiences, and therefore the cultural values determined by the kind of subjectivity it inaugurates.

Moralski’s condemnation does not lead one to the conclusion that viewers should be scandalized by what films depict, but rather, that viewers are constituted by the mode of depiction. This becomes clear as the film demonstrates its ability to distinguish and establish multiple audiences through editing. In the first shot of Moralski we share the view of the audience at the Kongreß—the extra-diegetic audience and the diegetic

303 Cornelius Borck, Hirnströme: Eine Kulturgeschichte der Elektroenzephalographie (Göttingen: Wallstein Verlag, 2005), 17. Borck is primarily concerned with the graphical means for representing the psyche that accompanied Hans Berger’s work with the electroencephalograph beginning in the 1920s.
audience are synonymous through a shared perspective on Moralski. These two audiences are then differentiated from the hypothetical “Publikum” through the intervention of the intertitle, which identifies a universal audience at risk from exposure to film. Thus, the audiences capable of reflecting on the impacts of cinema, who are immune or less susceptible to its medial operations, are primarily identified through the act of reading—the educated critics of film are constituted as readers. Yet in the final shot of the sequence the film sets the terms for its satirization of the reform movement by cutting to the clapping audience, with whom the extra-diegetic audience is no longer identified. In the film’s own sovereign auto-distinction, the extra-diegetic viewer is neither the passive, imperiled audience invoked by Moralski, nor the reformers who support the censure and censorship of filmmakers. Instead, the filmic audience, as well as the producers, are both readers; the actress who seduces Moralski in the intra-diegetic film sits in repose reading a book when she is informed of the plan, word of the congress’s meeting is brought to the producer by way of the newspaper, the Fraktur text of which is shown in a close-up, and the final scene cuts to a written advertisement for the extended run of the film in theaters. News within the diegesis travels primarily by way of printed texts, unifying

304 Fraktur was itself the fulcrum for a debate about the essential properties of a specifically German moral character as bound to its literary tradition beginning in the seventeenth century and reaching an apex in the 1910s. Some pedagogical theorists, such as Joachim Heinrich Campe, who is discuss in greater detail in chapter 2, linked the typographisches Gestaltungsmittel of texts to the uncorrupted expression of characteristically German ideas, as well as a reduction of physiological strain in reading. In short, the disputes about the materialities of printed texts had long been involved in larger pedagogical and moral arguments about training readers, and were extended into a radicalized debate about the educational practices implied by films that drew from a media-pedagogical vocabulary developed in literary debates. For a comprehensive overview of these debates see Christina Killius’ dissertation published as Die Antiqua-Fraktur Debatte um 1800 und ihre historische Herleitung (Wiesbaden: Harrassowitz Verlag, 1999). As is well known, the metastacization of these ideas about the media-typographical implications of text for national and moral character eventuated themselves in the banning of Fraktur by the Nazi party. The media-technological elements of these debates were quite apparent and foregrounded in publications contemporary with cinema reform literature, explicitly making the connection between the cultivation of subjectivity and the materialities of reading. Thus, the experimental psychologist August Kirschmann began his book Antiqua oder Fraktur? (Lateinische oder deutsche Schrift)(Leipzig: Verlag des Deutschen
the internal informational economy through an implied textual exchange that is also made visible to the extra-diegetic audience. However, the extra-diegetic audience enjoys the last laugh strictly through the irony of the narrative’s construction, to which only it is privy, and which requires an education in the operations of film viewership.

The traditional literary education that characterizes the congressional audience, and which they assume threatened in the general cinema-going public about whom they wax apocalyptic, is shown insufficient for establishing and understanding the narrative effects of the film. Readers, as depicted in the film, are subordinated to the master-medium, which, as in the case of Moralski, is demonstrated to have the power to re-write his social and moral character through editing practices that transform him from a figure of moral esteem in the public-eye, into a deviant and hypocrite. Although it is not through the “reality” of the intra-diegetic film that this occurs, but through its “reality-effects.” As a result, the film suggests that those who lack the ability to “read” films, and whose sense of personal narrative is marked by literary training, become the ill-equipped heels of cinematic jesting. This is most pointedly underscored in the penultimate scene in which Moralski is given a film reel depicting his own extramarital exploits to approve for its presentation at the next day’s meeting of the congress. Examining the filmstrip, he fails to recognize himself as the anti-hero of the film, and therefore, is shown to be incapable of both reading films and of conceiving of himself according to the appropriate medial conventions. Technically, he reads the film the wrong way, examining it like a scroll, absent the projection mechanisms that render the discontinuous stills comprehensible as

Buchgewerbevereins, 1907) in a way that very much recalls the questions posed by Lukács about the transformations inaugurated by film: “Lesen und Schreiben sind uns allen so vertraute und geläufige Tätigkeiten, daß es uns wie bei vielen andern gewohnten automatisierten Bewegungen (z.B. Gehen, Laufen, Radfahren) schwer wird, unsere Aufmerksamkeit von dem Gegenstand oder dem Ziel der Handlung ab, und dem “Wie” der Tätigkeit selbst zuzuwenden” (1).
moving images. It is only as a trained reader of film that the dramatic contours of the
narrative and the acerbic meta-commentary become legible. By depicting Moralski
misusing film by unrolling it to read it as a text or a series of photographs, and thereby
misrecognizing himself as its subject, the film adeptly frames the pedagogical dispute
about the role of cinema in the production of subjective autonomy as one about media-
technologies and their corresponding techniques for “reading.” This is especially
important given that both the film and the intra-diegetic film examined by Moralski are
narrative, deploying cinematic devices such as cross-cutting for the construction of
diegesis. As a representative of the reform movement, Moralski fails to acknowledge the
means by which the individual frames form a narrative about his misdeeds, just as
reformers often failed to acknowledge the contingency of their models of education,
subjectivity, and morality on media-technologies. Against claims about cinema’s
reproduction of “Sein” as “Schein,” the meaning of the images, and thus the training
necessary to make them legible, was not merely a property of their photographic
representation, but rather, the editing and order responsible for diegesis. It is not that
Moralski just appears in the film, but how the film makes him look through its continuity
effects. He has been improperly educated as a cinematic subject to see himself
cinematographically, and he suffers the consequences.

The film diagnoses a continuing discord within the pedagogical theory of the
early twentieth century about the media-technological conditions of education and
specifically the concept of *Bildung*—the specific media-technological regime associated
with subject formation. Beyond its cultural parody of reactionary moralizing on the part
of reform associations, the film also gets to a fundamental concern provoked by the rise
of narrative cinema, namely, the educational import of not *what* audiences read, but *how* and *if* audiences still read. Encoded in the focus on the deterioration of the national moral fiber at the hands of narrative cinema and proscriptions about its proper educational use was a larger question about what kinds of viewers were entailed in the use of which technologies.\footnote{There were still many reformist charges whose central claim was mostly confined to a xenophobic suspicion about the infiltration of foreign influence over audiences prompted by the highly international nature of the early film industry. One of the most often cited examples of this critique is Karl Brunner’s *Der Kinematograph von Heute: eine Volksgefahr* (Berlin: Vaterländischer Schriftenverband, 1913). Fittingly, Brunner was also the most powerful advisor to the Berlin police censors responsible for controlling literature and film. As Andrew Lees remarks, Brunner attacked the “selfish, unscrupulous businessmen, many of them foreigners,” whose films undermined the strong German national moral fiber. In *Cities, Sin, and Social Reform in Imperial Germany* (Ann Arbor: University of Michigan Press, 2002), 129. However, he was also a secondary school teacher, and beneath his rather banal form of literary nationalism there is a sense that film itself was implicated in the moral degeneration, which was indeed tied to a national literary tradition. For the specific political and bureaucratic context of Brunner’s role in censoring film and guiding moral and aesthetic policy in the anti-Schund policies and what has been termed the “Hamburg Movement,” see Corey Ross, *Media and the Making of Modern Germany: Mass Communications, Society, and Politics from the Empire to the Third Reich* (Oxford: Oxford University Press, 2008). Ross’ argument that “concerns about targeting young audiences were compounded by the gradual shift in film content towards storytelling, drama, and fantasy,” supports the claim that anxieties about the educational effects of cinema were heightened once it was regarded as a psychological rather than physiological medium.}

Heide Schlüpmann situates such theorizations of early German cinema at the end of a philosophical tradition extending from Kant through Nietzsche. She describes film’s transformation of moral codes as a turn towards the simultaneous realization and destruction of a specific type of philosophical projection bound to a male utopian economy of desire, and one which offered an intersection of the real and the imaginary very similar to what Richard Guttmann had described. Moral philosophies, if one is to summarize the underlying premise of Schlüpmann’s argument, are bound by the representational economies that produce them. How the ideal moral agent is imagined is tied to the social and technological means for representing it. And as a result, cinema’s
competition with text as the means for depicting social realities introduced a profound shift in the philosophical and moral imaginary:


Early film emancipated morality from a certain kind of subjective idealism, according to Schlüpmann, through projections that were “nicht Projektionen physischen Zustände, innerer Bilder nach außen,” but the appearance of a utopian “Wirklichkeit” associated with “Einbildungskraft” that had long been a point of mediation between perception and ideas in the “bürgerlichen Kosmos.” In short, film did not produce an image of fantasy that reinforced the distinction between inner-life and the objective outer world instituted by silent reading practices, but instead manufactured a vision of a fantastical inner-world as if it were an outer world.

307 Ibid., 254, 257.
Counterfactual Contra Fictionality

One sees early films grappling with this eroded border between reality and fiction as a moral and pedagogical potential of the medium in their attempts to portray counterfactuals. In philosophical discourses on ethics the test of moral principles, especially after Kant, was frequently determined by way of counterfactuals. Positing fictional circumstances in which there is some moral ambiguity functions to test the validity of moral precepts in a concrete, yet altogether imagined situation, while also bolstering the reader’s sense of subjective autonomy by fostering an ability to project or imagine her/himself as a conceptual unity in invented circumstances with real import for her/his lived life. One can think here of the oft repeated dilemma of Kant’s 1797 reply to Benjamin Constant in the “Über ein vermeintes Recht aus Menschenliebe zu lügen.”

The appalling absolution of the categorical prohibition on lying, which has remained a source of endless dispute, is reinforced (or undermined, depending on the position) by imagining a situation in which someone is confronted with either surrendering a person to

308 Counterfactuality as a special category of fictionality in the development of narrative film and subject-effects has received almost no attention in the history of cinema. Use of the term in film scholarship is almost always in the sense of “historical counterfactual,” referring to a film’s representation of alternative histories of real events. These arguments are concerned primarily with the content of the film and genre conventions of historical fiction in films such as Quentin Tarantino’s Inglorious Basterds (2009). Counterfactuality thus becomes a measure for a film’s conformity with historical “facts” instead of its formal abilities for projecting possible subjective states as both a statement about the possibility of a state and its simultaneous fictionality. Historical counterfactuality in film is considered in Nitzan Ben Shaul’s Cinema of Choice: Optional Thinking and Narrative Movies (New York: Berghahn Books, 2012). In philosophy of aesthetics, ethics, and epistemology problems of counterfactuality have enjoyed a recent vogue. Many have questioned the philosophical value of thought experiments in literature and art for the production of knowledge and education based on arguments such as the “no-argument argument,” “banality argument,” or “no-evidence argument,” all of which rely on very straight-forward expectations about the truth conditions for literary products. There is almost no reckoning in philosophical literature with the vastly different conventions for the construction of “real” states between media, assuming instead that literary, poetic, artistic, or filmic representations either do or do not correspond with real states.

309 Immanuel Kant, “Über ein vermeintes Recht aus Menschenliebe zu lügen,” Rechtslehre: Schriften zur Rechtspolitik (Berlin: Akademie Verlag, 1988). The number of sources dedicated to this problematic counterfactual test of the categorical imperative in Kant make it impossible to list even the most influential considerations in subsequent literature. Heated responses to the section began almost as soon as it was published, spanning multiple continents and languages.
murderers who come to the house looking for him, or lying (a “Notlüge”), whereby Kant insists on the necessity of telling the truth. As a textual or rhetorical practice, such an exercise is relatively straight-forward: one describes a logically possible scenario, designates it as fictional, then requires the audience to consider it as if it were real for the sake of determining whether the principles guiding one’s original judgment are sound.

In films the practice was somewhat more complicated and located a mediotechnological rift in the tools for “projecting” a moral imaginary and the conditions for moral agency. Because moral arguments against film already focused on the misuse of the supposed power of cinematic “realism” and the use of the objective in service of the fictional, the counterfactual stood as a test case for the propaedeutic potential of film. While literary fiction has long been defended as a moral educational tool that “can be regarded as thought experiments that encourage conceptual discrimination of our virtue schemas through the imaginative deployment of structures of studied contrasts that function argumentatively,” the essentially non-fictional substrate of filmic depiction posed problems for its status in moral education. The operating assumption about the literary imaginary was of both a subjective identification with the space of narrative through the very act of reading and also the maintenance of a space of signification that allowed for multiple levels and valences of correspondence with the true, real, or objective. Not so in films.

A robust capacity for “Einbildung” or “Imagination” was central to notions of how to properly train autonomous, educated subjects, allowing individuals to develop a

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coherent, complete, abstract representation of themselves, which served as a prerequisite for thought experiments that were essential to moral discourse. Moral calculus relies on the ability of a person to extrapolate to a hypothetical representation of him/herself as an autonomous subject, and cannot therefore be unmediated. The narrativized, counterfactual version of someone as a moral agent is structured by not only conventions of narrative that frame a potential scenario of moral ambiguity, by which ethical codes are tested and affirmed, but those narrative practices are conditioned by the limitations and possibilities of the media used to express them. Schlüpmann’s examination of morality as a historically variable mode of projection that gets literalized in film suggests that representations of moral agents rely on the medium of their projection. While this is no doubt an important insight, the educational media not only changed the representational vision of a moral utopia, but also the people thought to populate it. If a condition of possibility for educated, moral subjects is their ability to represent themselves to themselves—to have counterfactual fantasies as universalizable agents—then the continuity of self-conceptions among those educated cinematographically would likewise be cinematographic.

Focus on the precipitous moral upheaval generated by film, often centered on the content and story of Kinodramas, evidences a deeper argument about the degree to which the medium dictated the conditions of learning and therefore the subjectivity to which morality was ascribed.311 Although she does not explicitly engage with the media-technical implications of reformers’ ideas about education, Schlüpmann’s largely psychoanalytic study identifies early cinema as the theoretical hinge of a perceived

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311 There was a general distinction made among the pedagogical reformers in the early years of cinema between Naturfilmen and Kinodramen.
change in the concept of morality and its corresponding “Bildungsprozeß.” Further, there is an acknowledgment that “Weil der Film Aufnahme und zugleich Aufführung ist, wirkt Einbildungskraft in ihm nicht nur als die physische des Lichts, sondern auch als psychophysische des Menschen.” What remains open in this analysis is the extent to which psychophysical theorizations of “Menschen” and their cognitive capacities were already informed by cinematic practices that likewise changed ideas of the end state for education. Schlüpmann incisively notices that “Das frühe Kino war ein Kino der Einbildung,” and correspondingly “hatte sich Projektion noch nicht in den technischen Apparat einerseits und den psychischen Mechanismus anderseits gespalten, verdinglicht und als Form über den Inhalt der Einbildung gestülpt.” Yet, it is precisely in not having been reified, but instead, supposedly clarified as an object of scientific inquiry, that the cinematograph achieved its cultural significance as a determining factor in the production of a continuous psychic space. *Einzulung*, while still primary to the understanding of the cultural technics of *Bildung* and the *gebildete* psyche, was not an ahistorical concept. Both *Bildung* and relatedly, *Einbildung*, and *Phantasie* also underwent a transformation, from concepts based on reading practices to scientized functions of new media-techniques, even going so far as to submit reading itself to a matrix of cinematographic experimentation.

As a result, there was an internally discordant center to pedagogical literature dealing with narrative cinema. This is not to claim that the concept of *Bildung* was submitted to a cinematographic reworking—no work from the period does this—but that the discourses dealing with the educational and psycho-developmental import of cinema

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312 Ibid., 258
313 Ibid., 277.
suggested a divergent mode of training from those pre-dating cinema and proto-cinematographic experimentation. On the one hand there was a perpetuation of older, existing concepts of psychic continuity and Bildung threatened by cinema and heralded by reformist opposition. On the other, the models of psychic development upon which the charges against cinema were leveled participated in a cinematographic logic, and therefore suggested a new vision of Bildung which reconstituted the ideal pupil as the cinema-goer.

Einbildung was the means by which a mediated “real” conditioned an inner life, which could be reproduced in an individual’s imagined encounters with the world. There was a permanent entanglement between the formation of an individual, his/her distinction from the world, representations of that world, and her/his ability to manipulate those representations internally. Dilthey, who schematically reconceived the history of Bildung for the twentieth century, dismissed the argument that “Nur vager, nebliger, unbestimmter, grenzloser denkt sie sich die Phantasie, aber niemals in der charakteristischen Vollständigkeit der Wirklichkeit,” writing:

Welches ist nun das Verhältnis zwischen der angesammelten Erfahrung und der frei schaffenden Phantasie, zwischen der Reproduktion von Gestalten, Situationen und Schicksalen und ihrer Schöpfung? Die Assoziation, welche gegebene Elemente in einer gegeben Verbindung zur Vorstellung zurückruft, und die Einbildungskraft, welche aus den gegebenen Elementen neue Verbindungen herstellt, scheinen voneinander durch die klarste Grenzlinie getrennt.\(^\text{314}\)

It was the responsibility of the historian and the literary scholar to disentangle these elements and to reveal their contours, though the processes by which each arose were inseparable. This being the case, the representational means available to Einbildungskraft and the logic according to which it “neue Verbindungen herstellt,” were defined by a

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medium. The interplay between theses processes, and particularly the reciprocal, imperfect “Reproduktion” of Einbildungskraft of Gedächtnis was itself “zugleich Metamorphose.” The successive infidelity between reproductions marked the medial nature of the “elementarsten Vorgängen unseres psychischen Lebens” and constituted the realm of Phantasie and artistic creation. It was also the case for Dilthey that “Die Reproduktion selber ist ein Bildungsprozeß.” In this view, what distinguished individuals from one another, the great artist from the lesser, or the realist from the surrealist, was an exponential ramification of the noise in each reproduction. Individuality signified the materiality of the medium, with each medium leaving its signature on the final psychological outcome.

This was certainly true for film, and had a broad register of implications, one of which was for the deontological moral imaginary. Narrative cinema’s production of the appearance of a continuous world with which the viewer identified was also capable of structuring her relationship with herself and of therefore being re-projected as an “imaginary.” As it turns out, particularly in the case of early film, imagination was a property of the media through which it was not only expressed, but also through which its internal continuity was established. Films such as Wie sich das Kino rächt issue a clarion call about both the reception of film at the time as well as the conception of the psyche. In contrast with “Uncle Josh” films, which affirmed the sophistication of the audience’s viewing habits by ridiculing an uneducated rube, showing him mistaking films for reality, the humor of this film is executed through the designation of two separate educational

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315 Ibid., 149.
316 Ibid.
regimes. There were old techniques of reading and new techniques of reading, and the legitimacy of cultural values was tied to the medium of one’s education. Albeit a paragon of an older educational model, Moralski lacked the training requisite to imagine himself according to new media practices and therefore thematized the breach between a cinematographically literate audience and pre-cinematic literacy.

The pedagogically crucial capacities of imagination and fantasy responsible for the cultivation of autonomous individuals and their rational, but personalized relationship to the world, were upended by a devious formalization. The world was the source of shared perception, and fantasies were supposed to be internal and personal; built from common, objective images into highly individual narratives, according to one’s own logic. Dangers of a mechanization of fantasy were even thematized in doggerel verse as the epigraph to an issue of Bild und Film, noting the manipulation of Sein by film into an impoverished dream. No doubt an equally impoverished poem, the fact that poetry was marshaled for the expression of film’s destruction of the fantasies necessary for educating a thinking individual can be read as a collision of ideas about how socialized subjects were cultivated according to various media practices:

Traum, in deinem wechselnden Gewande,
Bald voll Schatten, bald voll Schmuck und Schein,
Wie so seltsam fangen deine Bande
Allbetörend unser Denken ein,
Du, ein Gast aus fremd Nebellande.

Wer kann, Ungewisser, dich beschreiben?
Hier lässt fürchten du und dort erfreuen,

317 Uncle Josh at the Moving Picture Show, from which the genre takes its name, was a remake of Robert Paul’s 1901, The Countryman’s First Sight of the Animated Pictures. For more on the larger genre of the “Rube film,” see Thomas Elsaesser’s “Discipline through Diegesis: The Rube Film between ‘Attractions’ and ‘Narrative Integration,’” in The Cinema of Attractions Reloaded, ed. Wanda Strauven (Amsterdam: University of Amsterdam Press, 2006), 205-226. Here he considers the rube film as an internalized form of training of cinematic spectatorship.
Hier verzweifeln, dort die Hoffnung treiben,
Bald im Dunkel malst du uns das Sein,
Bald im Glanze bunter Kirchenscheiben.

Manche Stunde haben wir gesonnen
Auf Gewinn der guten Gaben dein.
Und die Frucht? — Es ist das Spiel gewonnen
Spötter — sieh — jetzt musst du Schmeichler sein.
Nur noch Freude quellen deine Bronnen.

Nur im Licht, auf goldenen Strahlgleisen
Darf noch wirken deine Zaubermacht,
Nur auf wunderbaren Märchenreisen
Darfst du aller Erdenschätze Pracht,
Geistbezwungner, dem Bezwinger weisen.

Sieh, wir wölbten stille Bogenhallen,
Nachtbewohnt, wie du sie schaffend braucht.
Säum denn nicht, es soll uns wohlgemahnt,
Wenn du über uns dein Leuchten hauchst
Und ein Klingen wachruft in uns allen.

Zeig uns denn in allen Farbentönen
Flur und Forst und Berg und Wogenbrand.
Ruf, um Wunsch und Wahrheit zu versöhnen.
In den Bannkreis deiner Zauberwand
Alle Mächte, die das Sein verschönen.

Dass wir ledig aller Erdenqualen.
Ungehemmt von Schwere, Zeit und Raum,
Aus dem Siebenglanze deiner Strahlen —
Geistbezwungner, dienstbereiter Traum —
Das verlorene Paradies uns malen.318

*Knittelvers* of this kind does not lend itself to poetic analysis, but rather, uses poetic form as an empty vehicle for the affirmation of an attitude towards certain educational and cultural values. Poetry here functions as poetry writ large—as an immediately recognizable placeholder for a medium and mode of acculturation that was threatened by

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318 Willy Langer, “Der bezwungene Traum,” *Bild und Film: Zeitschrift für Lichtbilderei und Kinematographie*, Vol. 2, No. (1912-1913), 1. Emphasis is mine. No significant biographical information about Willy Langer is available, though it appears that he was not a poet by profession, but rather a mathematics pedagogue.
film—one that was a primary literary form for the production of educated, autonomous subjects. The abject mode of enjoyment associated with the cinema, and instituted in the evacuation of the poetic form of all but a description of what film can offer—namely a re-construction and manipulation of Sein—represented a training that sacrificed the imaginary or fantasmatic at the alter of the supposed real. The cultivation of the educated subject, marked primarily by a continuity of thought, depended on specific conceptions of media-techniques, and in particular, specific forms of reading. As Friedrich Schiller averred in a December 25, 1788 letter to Christian Gottfried Körner on the “Verhältnis der Kunst zur Wahrheit,” the “Dichter behandelt niemals das Wirkliche, sondern immer nur das idealische.” Moreover, in a rumination on sentimental poetry quite pertinent for the analysis of both film and empiricism, he claimed that while art aspires to and inspires unities, and nature itself is a whole, one must separate between the natural and the ideational unities that approximate them and which were the principle of individual autonomy:

Wendet man nun den Begriff der Poesie, der kein anderer ist, als der Menschheit ihren möglichst vollständigen Ausdruck zu geben, auf jene beiden Zustände an, so ergibt sich, daß dort in dem Zustande natürlicher Einfalt die möglichst vollständige Nachahmung des Wirklichen—daß hingegen hier in dem Zustande der Kultur die Erhebung des Wirklichen zum Ideal oder, was auf eins hinausläuft, die Darstellung des Ideals den Dichter machen muß.

Without following Schiller down a literary and historical garden path, it suffices to note that at least since the eighteenth century in Germany, discourses about poetics doubled as a discourse about the education of proper modes of subjectivity and therefore the form of

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mediation between the real and the imaginary. This point is made perhaps clearest in Schiller’s epistolary meditations on education in the wake of French Revolutionary reception of Rousseau’s ideas about the denigration of humanity through acculturation. For Schiller as well as many members of the early twentieth century resistance to film, the “Sensibilität des Gemüts” depended on the “Reichtum der Einbildungskraft,” which could not be derived purely from nature nor a physical, corporeal “Stimmung.” The richness and power of imagination could be “robbed,” so Schiller claimed, by “das Übergewicht des analytischen Vermögens” which divided and limited the sphere of possible objects of contemplation. For this reason, Schiller notes that the “abstrakte Denker” very often had “eine kaltes Herz” because “er die Eindrücke zergliedert, die doch nur als ein Ganzes die Seele rühren.” Here, in a moment that almost seems to predict the later theoretical condemnation of psychophysics, the imagination is identified as a unique faculty for producing psychological unities that did not reproduce nature, but reaffirmed the unity and autonomy of the artist in his/her individuality. To protect Einbildungskraft, whose apotheosis was in the figure of supreme of individuality—the artist—one forfeits the “Sphäre des Wirklichen” to strive “aus dem Bunde des Möglichen mit dem Notwendigen das Ideale zu erzeugen.” Imagination, however, and as much as Schiller suggests that it is a province of preternatural genius, was a trained faculty whose character was defined by the medium of its articulation, and whose medium-specificity also dictated the vision of the psyche it represented.

322 Ibid.
323 Ibid.
324 Ibid.
Because reading and writing were already recognized as modes of signification (which is to say, already mediated), and therefore distinct from mere perception, their inculcation of the subject necessitated development of individual faculties, by which memories and perceptions could be evoked and arranged according to an individual logic. The naïve assumption of unmediated images of Sein in photographic images, combined with a logic of editing that destroyed the coherence of space and time, suggests the possibility that viewers would lose their individuality through a combination of hyper-positivism and machine-logic. This fear had already been expressed in a reaction to the first generation of associationist psychologists, who, as Wolfgang Iser has shown, had proposed a passive, mechanistic model of the psyche that involved the mere combination of perceptual inputs:

Historisch gesehen hat die Assoziationspsychologie in einem doppelten Sinne als Antrieb dafür gewirkt, die Imagination als ein Vermögen zu detaillieren. Zunächst wurde die Imagination als eine Erklärungskategorie für die Ideenassoziation verstanden, da die empfangenen Daten sich nicht von selbst zu komplexeren Vorstellungen zusammenschließen. Es galt zu ermitteln, wodurch die Kombinationen gesteuert wurden—mehr noch, wie es möglich wurde, disparate Daten miteinander zu verbinden. Eine solche Leistung der Imagination zuzuschreiben hieß, sie mit Zielen auszustatten, da eine Kombination empfangener Daten auch immer etwas bezweckt…. Eine solche zum Gemeingut gewordene Ansicht ließ nun den Imaginationsbegriff der Assoziationspsychologie obsolete werden; denn dieser beruhte auf der Passiven Wahrnehmungstheorie des Empirismus, der alles, was im Geist ist, als durch die Sinne eingeschleust verstand. Die Produktivität der Imagination konnte nicht auf diesem Wege in den Geist gelangen, mußte der tabula rasa vorausliegen, nicht zuletzt, weil die Imagination auch “Bilder” von Dingen zu erzeugen vermochte, die als Gegenstände nicht gab. Darüber hinaus war die von ihr bewirkte Kombination ein Sachverhalt ohne Realdeckung.325

At the point that films for public consumption were longer narratives, with a high degree of diegetic closure, the charge against the medium was that it substituted raw perceptual

material with an already structured imaginary object. This was achieved by combining both the “realness” of perceptual continuities with a narrative logic that was not the viewer’s. The overtly mechanical nature of the filmic apparatus could thus be easily attributed to a mechanistic version of experimental psychology that, as Iser notes, had summoned the ire of defenders of the imagination. In fact, for Kittler the entire history of both film scholarship and psychophysical experimentation on movement could be essentialized in this problematic: “Zerhackung oder Schnitt im Realen, Verschmelzung oder Fluß im imaginären—die ganze Forschungsgeschichte des Kinos spielte nur dieses Paradox durch.”

While Langer (the “poet”) acknowledges the beautifying effects of the filmic medium, there is also a latent cultural unease about scientific positivism articulated with respect to the way “unser Denken” was captured (einfangen). Cinema reconciled “Wunsch” and “Wahrheit,” painted images of paradise, and “verschönt” reality, but did so with Sein itself and with a sequential “Kettenlogik.” The anxiety in the epigraphic opening gambit to a Kinoreform publication can be read as fear about the fact that personalized logic which transformed the real through dreams, Schein, and wish, was

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326 Much later in the history of film scholarship Gilles Deleuze commented on the distinction between the “real and the imaginary” that: “In an organic description, the real that is assumed is recognizable by its continuity—even if it is interrupted—by the continuity of shots which establish it and by the laws which determine successions, simultaneities and permanence: it is a regime of localizable relations, actual linkages, legal, causal and logical connections. It is clear that this system includes the unreal, the recollection, the dream and the imaginary but as contrast. Thus the imaginary will appear in the forms of caprice and discontinuity, each image being in a state of disconnection with another into which it is transformed.” In Gilles Deleuze, Cinema 2: The Time-Image, trans. Hugh Tomlinson and Robert Galeta (Minneapolis: University of Minnesota Press, 1989), 127. What is interesting in Deleuze’s description is that by the 1980s the filmic “real” was still attributed to a continuity deriving from the conventions and logic of their presentation, which could then be distinguished by those same principles from the “imaginary” in the film; both poles falling within the domain of a filmic representational logic. In other words both the real in the fictional came to be defined, in this framework, by the adherence to or breaks with the rules of continuity imposed by the film. In one way this is essentially a recapitulation of fears of early reformers about the mechanization of both the real and the imaginary, which would make the distinction between the two not a mere function of cinematic representation.

327 Friedrich Kittler, Grammophon, Film, Typewriter, 187-88.
formalized in a way that nullified models of subject formation tied to medial forms like poetry. Ingeniously, and against its own vulgar iteration, the poem enacts the supposed transparency of cinema by emptying the poetic form of its supposed status as a medium for the cultivation and expression of individuality. Instead this jaunty epigraph captures a worry that renders thought and desire according to a mechanical, exteriorized logic of *Sein* resulting in a “Geistbezwungner,” compelled by a purely empirical causality. Such a vision, indeed, was not far from the complaints about the positivistic objectives of empirical psychology and Edmund Delbarre’s invocation of “mechanischen Gesetzes in der physischen Welt.”

The erasure of the tenuous medial distinction between the real and the imaginary, requiring a long and nuanced education in the codes of textual representation was seen as film’s essential danger to psychological development and education, as well as the reason for its immense success during the period of its narrative development. Film did not require the difficult suspension between signifier and signified, nor the learned detachment and identification that textual training enforced. It is for this reason that Ernst Schultze diagnosed the success of the cinema in 1913 as essentially an obviation of the difficulties of textual and dramatic representation. The success of film even in the face of a glut of mass-printed trivial literature could be found purely in the character of the *Bildung* required by its medial operations—the educated ability to make distinctions in a representational space:

*Welche Gründe haben diesen Siegeszug ermöglicht? Die außerordentliche Sinnfälligkeit der Darbietungen des Kinematographen macht diese für jedermann verständlich; um ihnen folgen zu können, ist weder höhere Bildung noch auch nur geistige Anstrengung nötig; ja es sind überhaupt keine geistigen Voraussetzungen auf dem Lichtschirm ebenso schnell in sich aufnehmen kann wie der auf höherer Kulturstufe stehende, der wenigstens Lesen und Schreiben gelernt hat. Ferner*
Film’s demands upon the viewer diminished the intellectual strain and Bildung necessary for the identification with a fictional space, because the representational ambivalence that characterized the theater and text was eliminated. Film was believed to simply show what it showed and began hiding its diegetic operations in invisible functions of perspective, editing, and sequencing—essentially in what was not present—once methods for producing narrative closure evolved. Thus, the viewer was believed to remain unconfronted with the distinction between the real and the fictional that was inescapably foregrounded in novels and theater and the reason that textual education encouraged a strong distinction between interiority and exteriority.

Schultze’s reflection on theater highlights the extent to which the advantage of film was in its ability to disguise the operations of its fictionality at the expense of its audience. In direct distinction to theatrical scene changes that inevitably, no matter how artfully executed, drew the audiences’ attention to the artificial institution of a distinct temporality in the play and the proscenial separation of the space of fiction, the cinematograph’s temporality was not only seamless, but, as Münsterberg had argued, indistinguishable from basic cognitive operations already in place in the viewer. Separating the possible from the real was an attribute of the autonomous and “gebildete” reader, specifically attributed to an internalization of reading and representational

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328 *Kulturfragen der Gegenwart*, 111-112. Schultze’s work and place in the larger conversation with larger figures like Friedrich Wilhelm Foerster and Friedrich Paulsen is provided by Andrew Lees in his book *Cities, Sin, and Social Reform in Imperial Germany.*
practices in the audience’s own formation. Schultze links the cultivation of individuals and the fate of western civilization at large to this internalization, which he then frames as a physiological effect of new media operations and a problem of “Bewunderung,” which bears non-trivial resemblance to Gunning’s (as well as Eisenstein’s) notion of “attraction.” It was not just that unrefined, sensational material “auf die Phantasie der Masse durch Stärke oder Brutalität einen Reiz üben, der dem geläuterten Geschmack unverständlich ist,” but that it played only on “das äußerlich Sichtbare.”

As examples of what these fascinations with the visible on the part of “der grossen Menge” might include, he lists “etwa Telegraph, Telephon, andere Transport- und Verkehrsmittel, am allermeisten aber Sprengstoffe und Kriegsmaschinen.”

What film cultivated, even in cases of pure fiction, was a dangerous illusion of presentism that did not demand that the viewer erect a stable enough boundary between the immediately visible and the possible to allow for introspection, making audiences ultimately unreflective; reflection (or Nachdenken) being an ability to imagine one’s self or sensations from a fictional outside. Paradoxically, the lack of inwardness was a cause of violent solipsism, because the connection between physiological impulse and visual gratification was thought to be immediate and did not prompt one to think beyond the limits of what was right in front of him/her. Without the firm and trained distinction between signifier and signified and thus between interior and exterior—a lack Schultze interestingly associates with telegraphs, telephones, and in the end, war, bombs, and war machines—society was doomed to become “kulturwidrig” at the hands of the

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329 Ibid., 80.
330 Ibid., 81.
“Zerstörende” and the “Brutale.”331 The cinematographic presentation, according to pedagogues, was the apotheosis of a media-technological immediacy that destroyed subjective space by eliminating contemplation of the means by which fiction was produced. It established a direct line of sensation and excitation between the viewer and the event to produce a seeming unity of time and place that was not marked by traditional subjective continuities. Or as Schultze remarks:

Die technische Eigenart unserer Zeit trägt ungemein viel dazu bei, diese Sucht schnell nach allen Richtungen zu verbreiten. Wenn man sich früher an einem sensationellen Vorgang ergrötzte, so griff die Aufregung doch nur langsam um sich, und sie drang nicht in jede Stadt, in jedes Dorf hinein. Heute sorgen Zeitungen, Telegraph und namentlich Kinematograph dafür, jedweden die Sensationslust, die Rohheit oder die Blutgier aufstachelnden Vorgang mit Blitzschnelle nicht nur über ein Land, nein, über die ganze Welt zu verbreiten.332

As an antidote to the rapidity and presumed realism of modern media-technologies, Schultze returns to quote Goethe’s *Wilhelm Meisters Lehrjahre*, the paradigmatic German *Bildungsroman*. The passage he selects is from an episode in the third chapter of the second book after Wilhelm criticizes his own poetic and theatrical talents, burns his poetry, and sets off on a debt-collecting trip at his father’s behest. In the town of Hochdorf Wilhelm is convinced by a man with debts to his father to attend the performance of an amateur theater troupe in a barn. The production was “voller Handlung” but one “ohne Schilderung wahrer Charaktere,” and Goethe notes that the “rohe Mensch ist zufrieden, wenn er nur etwas vorgehen sieht; der gebildete will empfinden, und *Nachdenken* ist nur dem ganz ausgebildeten angenehm.”333 In the context of its citation by Schultze, the “gebildete” here can be viewed as those who have

331 Ibid.
332 Ibid., 63-64.
internalized the operations of a certain kind of textual mediation, one which insists on and makes apparent the separation between the representation and the represented, and in turn, between the audience and what it sees. “Wahre[] Charaketere” and properly trained viewers are formed by the projection of a space of fictionality that is more than the simple correspondence between what is presented and what is seen.

_Nachdenken_, the educational and subjective ideal, was deemed absent among early film audiences, and repeatedly referenced in _Wilhelm Meister_, Schultze, Friedrich Paulsen and cinema reformers, such as Robert Gaupp and Adolf Sellmann as the primary characteristic of educated audiences.\(^{334}\) _Nachdenken_ is treated as something more than just fictionality. It is a psychological space and _Kulturtechnik_ that emerges from counterfactual considerations that focus as much on the contents of a fiction as the medial constructions of those fictions. As “after-thought,” _Nachdenken_ is a readerly practice that requires a pause in the act of transmission, one which allows the reader to constitute

\(^{334}\) In _Wilhelm Meisters Lehrjahre_ the term “Nachdenken” is repeated throughout the novel, very often in relation to an elevated subjective state associated specifically with literary training. Thus, when Serlo, however much the fool he is in the novel, addresses Wilhelm’s overly literal rendering of Hamlet, the conversation becomes one of the problems of representation and correspondence and ultimately “Nachdenken.” Wilhelm’s insistence on following the play to the letter is shown to be a form of immaturity and misunderstanding of the truth at the core of the play, which is not to be found in the text itself, but in the autonomous, projected space of fiction it produces. This is a part of a continuing series of conversations between the two characters about the nature of the aesthetic unity, and the proper internal relations to the events of a play produced in the audience. About the exchange between Serlo and Wilhelm and the relationship between novels and theater Karl Morgenstern commented in “Der Unterschied beyden Dichtungsarten liegt nicht bloß in der äußern Form,” namely, in the difference between spoken and read text (56). _Nachdenken_ is a perpetual part of the _Bildungs_ discourse since Goethe, considered by all of the pedagogues and commentators mentioned in relation to the media-technical conditions of learning. See Gaupp’s “Die Gefahren des Kinos,” Sellmann’s _Der Kinematograph als Volkserzieher?,_ and Friedrich Paulsen’s _Pädagogik_ [1911] (Paderborn: Salzwasser Verlag, 2013). In the latter Paulsen claims for instance that, unlike in scientific and mathematical pedagogy, in which the student is confined to the passive reception of laws and forms, literary and aesthetic training requires active “Nachdenken” and the translation of sentences from mere forms to larger meanings (383). In keeping with the problems of realism versus the educational values of fiction, he also lauds the special value of the humanities, writing: “Die humanistischen Disziplinen haben für die allgemein-menschliche Geistesbildung eine unmittelbare und größere Bedeutung als die realistische (381).” The relationship between Nachdenken and the divide between physiological and psychological effects of early film is considered in chapter 1, and is discussed with respect to the pathologization of film in chapter 4.
her/himself abstractly and project him/herself into fictional circumstances. And to do so it was necessary that the medium through which a fiction was presented enforce a boundary between the events represented and the mode by which they are represented, as well as between the internal fantasy inspired by the medium and the medial operations that caused it. On this point, early pedagogical commentators on film were unified in a refrain that “die zeitliche Konzentration der Vorgänge” of film allowed no time for “Nachdenken,” or as Sellmann questioned in a passage that is considered in greater detail in the final chapter:

Wir möchten unsere Bildungsarbeit am Volk vertiefen und mit rechtem Geist erfüllen. Machen jedoch die Kinematographen durch ihr Vielerlei und durch all das Geistlose, das sie bieten, nicht oberflächlich und geistlos? Können wir gründlich nachdenken und starke Gefühle erwecken, wenn die Filmbilder durch die schnell vorüberraschende Folge keine Zeit zum Nachdenken und zum Nachklingen der Gefühle lassen?335

Likewise, the pedagogical theorist O. Götze wrote similarly that the overwhelming immediacy of early films worked both to damage sensory organs (again through “Flimmer”) and to prevent the development of contemplative, that is to say, self-mediating faculties that were the core of education:


Götze’s appraisal reflects the period in which he was writing, a period between the prominence of short one-act films and the flourishing of long format narrative films. Accordingly, there is an ambivalence in his text about where the threat of film resides—whether in the mechanical, energetic economy of the physiological apparatus, or the representational economies of psychological space. As a result, what emerges is an argument about the media-technological materiality of representation, contemplation, and the educational cultivation of subjectivity. Because there is neither a distinction between the two types of apparatuses—cinematographic and psychic—what takes place is a mere overwhelming of the inputs of one apparatus by the outputs of the other. At the same time, he is also describing techniques of narrative editing that introduce “unverständlicher Szenenwechsel” and temporal disunities that are too fast to be appropriately accounted for through older representational models. The logic of filmic narrative is not native, but a product of media training, and a training that is specifically at odds with the educated reader, where depth, concentration, and contemplation are prized against “Oberflächlichkeit, Zerstreuheit und Zerfahrenheit.” The contemplative faculty proves to have, according to Götze, its foundations in the very materialities of media education, whereby the devices for the construction of fiction are identifiable as distinct from what they represent, allowing the pupil to develop a reflexive mode of engagement that creates a partition between what is experienced and how that experience is constructed. The child, in his estimation, “in seiner relative Beschränktheit faßt die Bilder als Ausschnitte

337 Ibid., 418.
der Wirklichkeit auf,” and “sein Vorstellungskreis wird durch falsche Vorstellungen von intensive Stärke verseucht.” This was a position that was often repeated by newly minted experts on the pedagogical import film, such as Adolf Sellmann, who was more measured in his survey of the diversity of medical and pedagogical opinions on the effects of “Flimmern der Bilder” and whether children should “ideally” come to know and differentiate “Wirklichkeit mit ihren eigenen Augen”—that is to say, through a form of internal mediation that did not hide its mediation in the immediacy of its “reality-effects.” For Sellmann and others this was explicitly a question of “Bildung,” which was framed as a physiological, and thus mechanical, problem of the speed of reflection, and therefore a problem of the foregroundedness of a medium’s operations. Both of these factors were weighed as advantages of text in the cultivation of individuals as thinkers:


Cinema is positioned here as a troublesome bridge between physiology and psychology in the training of students because it linked physical mechanisms to hermeneutical mechanisms. Nachdenken in this view, then, was precisely the division of physiology from psychology. It was a program of media training that erected a subject by the very act of recognizing the differences between stimuli, representations, realities, and fictions, and reproducing them internally. And this was a training specifically attributed to texts.

The problems of Nachdenken, and therefore Bildung, in the reception of film were essentially an early, psychologized form of what Boltin and Grusin have called

338 Ibid.
339 Adolf Sellmann, Kino und Schule (Gladbach: Volkvereins Verlag, 1914), 7, 5.
340 Ibid., 8.
“hypermediacy.” Just as there was no unmediated contact with the real, there was no unmediated contact with the imagination, interiority, or self, all of which were products of a trained construction of an inner, representational world. To promote an adeptness with the modes of mediation by which one became representable to one’s self was to pay attention to the space between the means for constructing the real and the fictional and the content of those constructions. Where the “logic of immediacy leads one either to erase or to render automatic the act of representation, the logic of hypermediality acknowledges multiple acts of representation and makes them visible.” For theorists and reformers, narrative film’s mode of mediation was primarily in its veiling of its medial conventions—an illusion of immediacy between exterior and interior—which is why counterfactuals and moral projection, which were touchstone devices of subjective autonomy and education, held a difficult status in the history of early cinema.

André Bazin describes this problem as a part of “the guiding myth of cinema,” namely, “an integral realism, a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist.” Unlike the foregrounded

341 Jay David Bolter and Richard Grusin, Remediation: Understanding New Media (Cambridge: MIT Press, 2000). Outside of the strictly philosophical debates about transparency, which Bolter and Grusin do not seriously address, there is also an important distinction in the field of media studies between “looking AT” and “looking THROUGH” made by Richard A. Lanham in The Electronic Word: Democracy, Technology, and the Arts (Chicago: University of Chicago Press, 1993). Although Bolter and Grusin do refer to Gunning’s notion of “attractions” and make the distinction between early and more contemporary films, they do not consider the ways in which their highly useful concepts were implicated in histories of subjectivity. That is, the confrontation (or non-confrontation) with the technological and material conditions for perception do not play a significant role in thinking through the essential role of media for understanding who is doing the looking THROUGH or looking AT. They also make a broader historical association of immediacy with a period before modernism, which is at odds with what I would like to claim were the aspirations of education starting in the eighteenth century. Debates about the role of text in the production of socialized individuals would seem to have a greater emphasis on remediation than worries about early films, which were committed to often very crude notions of immediacy.

342 Ibid., 33. Again Bolter and Grusin are focused on “hypermediacy” as a property of contemporary, “heterogeneous spaces,” though I would like to suggest that, at least when compared with the period of early film, theorizations of the textual production of subjectivity were much more hypermedial in character.

representational devices of traditional “artistic” and literary practices, such as chiaroscuro, synecdoche, or meter, all of which “reveal something of [their] nature,” the evolution of film offered “stages of a technical development that little by little made a reality out of the original ‘myth.’” Debates about cinematic counterfactuality in the philosophy of film and aesthetics have ritually misconstrued the significance of this issue by treating what is a historical and media-technological problem as an ontological problem. They feud, for instance, over the “transparency” of the medium instead the historical conventions of presentation, representation, and spectatorship that produce a belief in “transparency,” or what Bazin so lucidly called the “original myth.”

One had to find devices for re-mediating filmic reality effects—for showing the audience how the cinematographic projection was not showing the audience its means for producing the illusion. Again, as Bolter and Grusin claim, in the epistemological sense “hypermediacy is opacity” and in the “psychological sense” it is the experience that one has “in and of the presence of media; it is the insistence that the experience of the medium is itself an experience of the real,” and thus the locus for “authenticity.”

Perhaps counter-intuitively, and certainly against Bolten and Grusin’s historical analysis, this was much truer in eighteenth and nineteenth century addresses of text as a tool for pedagogy than it was for reformers around 1900. In general, for pedagogues this was not a problem for literature, because the distinction between the acts of reading and perceiving were already conceptually distinct. In fact, for popular commentators on

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344 Ibid.
345 Noël Carroll has written extensively against the assumption of transparency, though his work frequently accepts the philosophical terms of the debate, adding to a sense of a-historicity in problems of mediation. For an introduction to these debates see Noël Carroll, “Towards an Ontology of the Moving Image,” in *Philosophy and Film*, Cynthia Freelan and Thomas Wartenberg, eds. (New York: Routledge, 1995), 65-85 and Kendall L. Walton’s *Marvelous Images: On Values and the Arts* (Oxford: Oxford University Press, 2008).
346 *Remediation*, 70-71.
education and social values, such as Friedrich Paulsen, counterfactuality can be read as a mainstay of moral education as it forced readers into discriminating acts of contemplation. After making sure to remark of himself that he was “kein Freund der Prüderie,” Paulsen writes:

Ich bin nicht ängstlich, wenn das Gebiet des Sinnlichen berührt… solange der Dichter darstellt, was ist, ist er in seinem Recht und hat keine Pflicht, als die der poetischen Wahrheit; daß Dinge in einem Roman vorkommen, von denen wir, wenn sie in der Wirklichkeit vorkommen, sagen, daß sie nicht vorkommen sollten, ist kein Vorwurf für den Dichter. Wenn er aber solche Dinge nicht bloß mit ihrer inneren Notwendigkeit und mit ihren notwendigen Wirkungen darstellt, wenn er sie ausdrücklich als unbedenkliche und rechtschaffene hinstellt und dazu die Wirkungen, die sie der Natur der Sache nach haben, unterdrückt, dann hört er auf, Dichter zu sein, dann wird er Moralist, und es ist das Recht der Lesers, diese Moral zu prüfen und zu verwerfen.347

Although Paulsen does not specifically take up the issue of counterfactuality, the treatise addresses the polyvalent representational status of literature with respect to moral education that is the theoretical core of counterfactuals. In addition to instructing viewers on how to read a film, the evolution of counterfactuality taught viewers how to conceive of themselves cinematographically.

There was no shortage of films dealing explicitly with the problems and possibilities of counterfactuals in the early period of narrative film’s ascendancy as the popular medium in the minds of critics. One can think here of a variety of examples that would qualify as attempting to visualize some form of counterfactuality—leaving aside the obvious fact that all fiction films offered a form of counterfactuality—including Percy Stow and Cecil Hepworth’s 1903 film Alice and Wonderland, Edwin Porter’s 1903 Life of an American Fireman, Opium (1919) and Nerven (1919), two brilliant films by Robert Reinert, and somewhat later The Fugitive Futurist (1924) attributed to a director with the

347 Friedrich Paulsen, Moderne Erziehung und geschlechtliche Sittlichkeit: Einige pädagogische und moralische Betrachtungen für das Jahrhundert des Kindes (Berlin: Reuther & Reichard, 1908), 44.
cryptonym “Gaston Quiribet.” Yet, no film between 1895 and the end of WWI pursues counterfactualy as a potential of the medium with the same degree of technical and narrative primacy as *Das Geschenk des Inders* (Louis Ralph, 1913).

Thematically the film addresses a host of favorite topoi in the history of early films; enchanted colonial visions of the east, black magic, hypnotism, rogue scientists and inventors, modern travel, and the frailty of the female psyche. What unifies these modalities of geographical, political, scientific, gender, and psychological fictionality is a central plot device of filmic clairvoyance. Upon leaving India, Sir Henry Ward’s faithful native servant presents him with the only gift that his modest means will allow: a spell that gives Ward the power to see people who are in great danger three days before their peril. As one would expect, the “Geschenk” turns out to be a curse. The first instance of his predictive “visions” serves to prove the authenticity of the gift. Ward has returned to England on his way to Scotland and asks after a charming young woman who he has recently seen. He is informed that the woman is Kathleen Burns, a celebrated performer and horseback rider. From the lavishly decorated café the film cuts to a riding ring in a circus with Ms. Burns standing atop a horse. Cutting back to the room in which Ward stands with his company the two scenes are slowly merged, with the scene of Ms. Burns riding at the circus framed within the mise-en-scene of the café. In a panic Ward spills his drink and attempts to draw his male companions’ attention to the vision he sees in the middle of the room, pointing to the physical location of the apparition. The men assure him that Ms. Burns is in fact at the circus and sure enough, because Ward fears that others will think he’s crazy, he decides not to confront Ms. Burns and she dies in a stunt riding accident three days later.
The initial “vision” sequence does a number of things with significance for thinking about the film and early narrative films in general. First, it makes the technical and representational norms of the film a matter of narrative concern. Conventions of temporal continuity dictate that parallel editing depict events that are simultaneous, yet spatially distinct, often for the purpose of generating suspense heading towards a dramatic conclusion. Ward’s vision breaks this convention as it breaks with expectation about temporality of the film, depicting Burns riding the horse—something that was previously established as simultaneous through parallel editing—within the frame of the counter-shot. This deviation is met with resistance by characters in the film, who seek to dispel Ward’s vision and maintain the continuity of the narrative space through a rejection of non-standard editing techniques that make it possible. Cinematic continuity here becomes simultaneously normative and technical. Relatedly, there is a question of the agency and causality within and outside of the diegesis. Ward’s decision not to intervene is revealed later through another vision as a moral failing and thus is framed in the classical philosophical terms of the thought experiment—whether an event could have been otherwise. The film introduces the terms of the diegesis as a kind of experimental grounds of moral speculation in which technical, narrative, representational, and ethical problems overlap. In the second half of the film, the competition among these representational logics becomes increasingly acute.

The dramatic architecture of the rest of the film is somewhat convoluted, though its theoretical ramifications become ever more interesting. We are introduced to Nora, the daughter of a British scientist and new love interest of Ward’s, who is placed under the hypnotic control of the rival scientist and inventor Professor von Stael, who steals her
away to Berlin. As Ward exits the train station in Berlin in pursuit of Nora, who he does not yet know to be under the control of Stael, he has a vision of himself, indicating that he too faces mortal danger in the coming three days. As in the original appearance of Kathleen Burns, Ward’s vision of himself begins with parallel editing, cutting from what we know to be the present, with him looking off-screen in horror, to a scene of him walking and smoking carrying a suitcase. Once again the film collapses the separation of the alternating syntagm, with Ward and his Doppelgänger acknowledging one another through eyeline matches across the cut. The Doppelgänger then approaches the camera, runs, stumbling towards the audience in distress and goes out of focus. The causal relationship between Ward and his future self is articulated purely through editing, and through a short circuit in the typical relationship of cross-cutting. His agency is thus subordinated to the operations of the film. Fate is depicted as formal function of the film’s logic and the disruption of the usual alternation between simultaneous but spatially separate events drives Ward into an anxious furor. Moreover, the continuity between Ward’s earlier self and his later self—a hallmark of the Bildungsroman—is very explicitly made legible as a filmic device.

With his fevered state subsiding, Ward begins to pantomimically work through the logical if/then sequences that would potentially lead to a seemingly inevitable fatal outcome. As if story-boarding the sequence for the rest of the film, which is now identical with his agency, he walks through the possible events, which have yet to be seen, and thus presumably yet to be determined. In the background of the straight on medium shot a large picture of women sitting in meadow in the style of a seventeenth century Dutch painting hangs prominently, which slowly transforms into a screen. The
representational figurations of the painting are replaced with a film that doubles as a
counterfactual of the film’s own events and Ward’s projected imagination of possible
alternative outcomes. Ward paces in front of the picture, which corresponds roughly to
his gesticulations, although he never looks at it, emphasizing a strong sense that his
thoughts, which might have been occupied with painterly images, were now a logical
domain of film. From his initially anxious considerations of his own future, the framed
intra-diegetic film shows us what might have happened to Kathleen had things gone
differently, and had Ward properly intervened. What the film shows us is not only the
predictive reasoning of the protagonist, but film’s ability to negotiate counterfactual
events, and specifically as a matter of moral speculation. Ward suddenly shows a calm
resolve and comprehension of what he must do and the intra-diegetic film dissolves back
into a painting. By working through a sequence of potential logical outcomes within its
own diegesis as if through visual syllogisms, the film demonstrates a sovereignty over not
just Wirklichkeit but also the entire modal universe of logical possibilities as well, and in
direct contrast with the representational powers of painting. The intertitle provides the
capstone for counterfactual design of this episode, reading: “If Kathleen had kept to her
original intentions, she would certainly not have been killed.” What is more, the
identification of Ward’s thinking with the counterfactual scenario is figured as his
triump over fate; over blind subjection to the real. Ward has become “gebildet” in the
sense that he has acquired a pictorial form of reasoning associated with the cinema that
grants him the agency to determine his own end.

348 As with many films from this period, the intertitles were translated for a foreign audience. Though, this
film was made in Berlin and all of the signage and advertisements that appear in the film are in German, the
copy now available at the Deutsche Kinemathek is a British copy.
That this result can be perceived as a victory of the filmic medium over other medial regimes is made uncontestable in the film’s final scenes in which Ward narrowly escapes being murdered by Stael’s latest “invention,” a modified typewriter rigged to administer snake poison when touching the keys. The final intertitle itself is formulated as an if/then clause: “If one presses on the plate, two needles come out filled with snake poison which must have deadly consequences.” Just before depressing the key, Ward is stopped by Nora’s father and the film cuts to a close-up of the typewriter which has been used to write the word “ideal” on the paper. The film likely had the arguments of Kinoreformers and church advocates in mind, whose anti-film rhetorics often used the imagery of poison to describe the influence of film on the formation of its viewers, with Walther Conradt claiming, for instance, that film bankrupted and “vergiftet” the German people. In an inversion of these arguments the logic of film is shown to save Ward from the poison of a textual ideal and to offer a moral training and Bildung superior to other media. The saving grace for Ward, who is already an esteemed, world-travelling colonialist, and thus a member of the educated upper-class, is his ability to finally conceived and project himself as a cinematographically defined unity into a counterfactual space. When one considers that one of the lamented impacts of film was its extension of this power of projection to a larger segment of the public, who may not have been able to read, film presented a truly revolutionary assault on traditional literary Bildung.

Social Mechanisms as Technical Mechanisms

The idea of the democratization of fantasy, and the re-presentation of an expanded moral universe that included a more encompassing cross-section of the “masses” who were exposed to the cinematic mass medium and who had been excluded from the moral “projection” of philosophical reasoning also radically altered the categories of representation that had provided the foundations for morality. Not only did narrative films depict new audiences, which included unskilled workers, petit-bourgeois businessmen, and female servants alike, they also afforded a fictionalized vision of “real life” with the benefit of cinematic reality-effects. The content of the films captured a certain reality of the audience’s life, while also constructing fictions that allegorized those realities through a subjective identification with the space of diegesis. Films such as the remaining fragments of the Asta Nielsen film Vordertreppe Hintertreppe (Gad, 1915) or the Messter produced Henny Porten film Tragödie eines Streiks (Gärtner, 1911) took conditions of real social and gender disparity as their narrative focus, while also constructing a world of fictional resolutions that reinforced dominant principles of social unity as a kind of moral education.

In Tragödie eines Streiks, for instance, the male workers’ strike at the electrical plant has the unintended effect of cutting power to the homes of their families, resulting in the death of one of the worker’s children, who dies because of the power outage at the hospital. The grieving father of the child restores the machines to working order (which

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350 For more on this film see Thomas Elsaesser and Michael Wedel’s Kino der Kaiserzeit as well as their Second Life, Sabine Hake’s German National Cinema, Corinna Müller’s Frühe deutsche Kinematographie, and Heide Schlüpmann’s “Cinema as Anti-Theater: Actresses and Female Audiences in Wilhelminian Germany,” in Silent Film, ed. Richard Abel (Rutgers University Press, 1996), 125-141. The frequency of the film’s mention in secondary literature belies the lack of adequate analysis of its formal and historical operations. Most literature confines itself to listing the film as an early success of Messter’s company with Henny Porten as the star, reinforcing a standard narrative in the history of early European cinema about the
the management, in an excellent and perhaps accidental commentary on the modern
division of labor, is shown to be absolutely incapable of doing itself) while a mob of
laborers protests outside. Invisible social mechanics are rendered apparent through
editing, which arranges scenes across social strata to produce a sense of both industrial
and social interdependence through operations of filmic diegesis. By cutting from the
bumbling middle managers, to the lavish office of the plant owner, to a mother working
at a sewing machine, to machines on the plant floor, to the operating room, industrial
causality is rendered cinematically comprehensible in such a way that it is
indistinguishable from ethical imperatives of social responsibility. The film presents yet
another example of a thought experiment, this time as the social counterfactual. It
envisages a counterfactual array of strike outcomes as a negative universe of morally
reprehensible consequences to labor actions, whose logic would remain unseen were it
not for the order revealed by the film. The continuity of the editing is directly tied to the
chain of production, which also imposes the coherence on the social order. And the film
hangs together because the social order hangs together, because a working division of
labor is maintained—a kind of sequencing that could, and was, arranged
psychotechnically to make film more primary in establishing social cohesion through the
production of industrial subjectivities. Thus, the individual is made an ethical agent
through participation in an industrial causality that is at once the source of social
coherence and also the source of narrative subject-effects.

Industrial, visual, narrative, and social relationships are conceived of
synonymously here, enhancing the sense that cinema assumed the mantle as the
development of monopoly films and film celebrity. Likewise, Schlüpmann’s comments about the film are
left somewhat thematic when she summarizes the film as Henny Porten being made to “portray motherhood
as a human principle that could only be damaged by class struggle” (136).
collective pedagogical medium. If a part of the reigning concept of Bildung was to create an autonomous agent with an ethical imperative of participating in and maintaining social continuity, cinema became both a tool and model of education in a period of mechanical rather than metaphysical continuity. In his definitive work on the Begriffsgeschichte of Bildung, Reinhart Koselleck notes that the process of programmatic cultural and psychological individuation was in fact always inseparable from economic and social conditions in thinking about Bildung. He writes, “Die Einbindung der Selbstentfaltung in die sozialökonomischen oder politischen oder geistigen Bedingungen, unter denen sie allein stattfinden kann, gehörte zur reflexiven Verarbeitung, die alle Bildung zugleich gesellschaftlich verpflichtete.”

There is immense imbrication of the concepts at work—social, individual, economic—but also the organizational logics at work, which was something that film was particularly suited to uncovering. Cinema could manufacture counterfactual visions of social unity or disunity with which the audience identified and was therefore an instrument for training viewers in ethical projection, which was made possible through serial, mechanically sequenced images.

Moral agency as conceived in a film like Tragödie eines Streiks was fundamentally different from an Enlightenment model, which Schlüpmann claims was a universalized perspective of an idealized male subject treated as the conditions of possibility for all thought. She is clearly playing on the coincidence between “projection” as a function of cinematic technology and “projection” as a psychological and longstanding literary philosophical technique of utopian morality, which postulated a fictionalized realm of possibility based on real drives and circumstances. Cinematic

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projection for Schlüpmann “realizes” the reified philosophical imaginary first formalized as a transcendental subject in Kant’s *Kritik der reinen Vernunft* and which served as the “groundwork” for the analytic elaboration of a metaphysics of morals in the *Kritik der praktischen Vernunft*. Some, such as Wolfgang Hübener, have been right to wonder, whether characterizations of the megalithic, rationalized Kantian “subject” and its subsequent crisis in modernity are a “narrative Instrumentalisierung aller Geschichte” for justifying the preoccupations of contemporary theory—a strawman of radical literary receptions of the history of philosophy.\(^{352}\) The question even extends to the period of supposed crisis, where the question can also be asked: “Sind am Ende die jüngeren Debatten um den Tod des Subjekts nur Nachhutgefechte, die sich gar nicht an der Originalerscheinung sondern an ihren Renaissancen—dem Neukantianismus und der transzendentalen Phänomenologie—entzündet haben?”\(^{353}\) This is certainly a problem in Schlüpmann’s essayist address of the Kantian legacy in confrontation with the rise of the filmic medium. On the other hand, the earliest theorizations of film such as Richard Guttmann’s had themselves made recourse to expressly neo-Kantian formulations of the “subject” through figures like Hans Vaihinger.

In either case, narrative film made the counterfactual position of moral agency real and present rather than imaginary through a subjective identification with a putative space of “Sein.” In addition to the potential sociopolitical ramifications of including previously under-represented classes as a part of both a collective moral “Wirklichkeit” as well as the collective moral imaginary, film was also thought to change the very contours of concepts like the “imaginary” and the “real.” Or as Münsterberg remarked,

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\(^{353}\) Ibid., 106.
“the mind develops memory ideas and imaginative ideas; in the moving pictures they become reality.”\textsuperscript{354} It was not just that the living conditions of the “nichtbürgerliche[] Menge” were assimilated into the world of films. It was that the very nature of the distinction between the real and the possible collapsed with the depiction of the audience’s desires as realized through cinematic rather than philosophical projection. This was something that had been built into the textual model of bildungsbürgerliche subject cultivation and could not be maintained through cinematic fiction. Even in much of the applied pedagogical literature inspired by work in experimental psychology, educational models remained wedded to presuppositions about the development of subjects who were implicitly and explicitly derived from the textual training readerly faculties. This is not surprising, since education through the end of the twentieth century was conducted primarily through book learning, but it does point to a theoretical schism introduced with the popularity of narrative film.

W. A. Lay, the Karlsruhe pedagogue, revered as the “leading German authority on the experimental study of teaching” or what was referred to as “experimentelle Didaktik,” mobilized experimental psychology to show that fantasy was indeed key to psychological development as a part of Bildung, that such development was of inestimable aesthetic and ethical significance, and that it was bound to certain key functions of language.\textsuperscript{355} Lay described fantasy generally as the “Fähigkeit, lebhaft, anschaulich, ausdruckbereit

\textsuperscript{354} The Photoplay, 113.
\textsuperscript{355} John William Adamson, The Practice of Instruction: A Manual of Method General and Special (London: National Society’s Depository, 1907), 115. As is considered in greater detail in the previous chapter, experimental pedagogies’ appropriation of scientific psychology for the sake of scientizing education was not well received by some psychologists, with Wilhelm Wundt acting as the most vocal critic.
vorstellen zu können." As the description suggests, this was not an unstructured mode of invention, but instead a medial logic of combination; the ability of students to creatively reorganize textual elements to produce multiple meanings or to fill "Lücken," within a text, between a current situation and a projected future situation, or as a fictional recombination of existing knowledge. To this end Lay refers to Ebbinghaus’s well-known "Kombinationsmethode," which tested the time required for subjects to complete "a meaningful whole" from sentence fragments called "stems." More than testing intelligence as Ebbinghaus had desired, these types of tests were believed by many, such as Guy Montrose Whipple and Emil Kraepelin to test exhaustion, or in the case of difficult versions of the test, to test the “active or creative imagination of the literary type.” In each case, Lay’s testing methodology linked fantasy to the speed with which one was able to introduce a logical ordering of individualized textual components such as “Buchstaben” or “Wörter.” Training this ability to unconsciously process the operations of the textual medium to produce meaning was the cornerstone of Bildung, and signified a high degree of psychological autonomy connected to aesthetic and ethical agency.

Fantasy then was the internalization of a logic of text that reinforced the notion of individual autonomy as an idiosyncratic order of representations that corresponded with

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357 He called the projective mode related to scientific hypothesis “wissenschaftliche Phantasie” (447). This mode of fantasizing had also been dissected in great detail by the Ernst Mach, who called such thinking “Gedankenexperimente.” Ernst Mach, “Über Gedankenexperimente,” *Erkenntnis und Irrtum: Skizze zur Psychologie der Forschung* (Leipzig: Johann Ambrosius Barth, 1906), 183-199.


perceptions, but did not replicate the external world. As Lay writes “die konkrete Individualvorstellung” were especially important for artists and more generally for “Anschauung und Phantasie” as were the “Wahrnehmungen in der Wirklichkeit.”360 On the other hand, one must never “eine Photographie, eine Kopie der Wirklichkeit bringen, und niemand, am allerwenigsten dem echten Künstler, ist es möglich, die Wirklichkeit wiederzugeben, wie sie ist.”361 Bildung was precisely not photographic, because it did not showcase the medial operations that accounted for individuality. This was a theoretical atavism, however, in that it unintentionally recapitulated neo-humanistic visions of Bildung as “die schöne Menschheit,” and as an “ästhetische Bildung der Einzelpersönlichkeit” derived from the Greek notion of Kalos kagathos (καλὸς κἀγαθός) as maintained by “Herder, Goethe, Schiller, Jean Paul, Schleiermacher,” while also simultaneously adopting the anti-metaphysical methods that emerged with the “Entwicklung der physiologischen und experimentellen Psychologie” after Herbart.362 In a sense, the problem for experimental pedagogy was to understand how the unique psychological continuity associated with ideas of beauty, as well as moral agency, could survive the death of irreducible metaphysical unities. Despite the emphasis on textual operations and the explicit prohibition on photographic representation, the answer, especially in 1910 appears to be cinema. The origin of continuity, meaning, and autonomy, both psychologically and semantically, had been displaced from ideal unities to logics of sequences, whose organization and presentation had been scientifically administered according to cinematographic mechanisms.

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360 W. A. Lay, Experimentelle Didaktik, 452.
361 Ibid.
362 Ibid., 27, 33.
Of paramount importance for considering the relationship between Bildung and cinema was the sustained interaction of notions of equivalence at work in democratization and empiricism. This is something that Schlüpmann’s analysis hints at, though her tendency is to associate the aesthetic and epistemological innovations of philosophical works with media-dependent perceptual changes that they either presaged or through which they were actualized, such that philosophy is not determined by technology, but is unintentionally enacted or negated in it.\textsuperscript{363} In short, her objective of establishing an alternative history of the “Ästhetik des Kinos” can be described as an attempt “die Möglichkeit ihrer theoretischen Begründung in Nietzsches philosophischen Schriften sichtbar zu machen.”\textsuperscript{364} However, aside from this somewhat precarious pan-historical objective, there is an important underlying claim about cinema’s intervention in conceptions of subject-formation as they related to the empirical sciences. In addition to her claim that, against the rationalistic projection of a transcendental subject, the history of film represented a reception of the natural sciences “in der die Aufhebung der Negation der Individualität stattfindet,” the socio-political democratization of subject

\textsuperscript{363} One sees this most expressly undertaken in her extended essay \textit{Abendröthe der Subjektphilosophie: Eine Ästhetik des Kinos} (Frankfurt a.M.: Stroemfeld Verlag, 1998). One such example of her penchant for finding philosophical principles unconsciously enacted in the operations of filmic technologies is where she writes “Der Film aber ist das Objekt, das Nietzsches Schriften aus der Dekonstruktion herausholt und ein Subjekt in ihnen bestimmt: das Subjekt seiner, des Films, Erkenntnis” (137). Film is the technological, medial, cultural, social, and historical instrument by which Nietzsche becomes readable as something besides a mere text in the canon of deconstruction. She continues along this same argumentative vector to a larger disciplinary conclusion about the place of film: “Diese Geschichte stellt sich durch Nietzsche als Vorgeschichte des Films dar, die den Film als die einzig gelungene Emanzipation naturwissenschaftlicher Wahrnehmung von der Vormundschaft von Philosophie und Schrift enthüllt, auf die das 19. Jahrhundert hindrängte, das aber—aus Gründen der Selbsterhaltung—weder Natur- noch Geisteswissenschaften zu erkennen willens waren und von dem die Medienwissenschaft profitiert, indem sie den unabweisbaren Anspruch des Objekts—des Films und seiner technologischen Folgen—auf Erkenntnis mit Verdrängung des emanzipatorischen Ereignisses verbindet.”(137).

\textsuperscript{364} Ibid., 19.
matter was matched in the quantitative equivalence of empiricism. A datapoint was not privileged above others just as votes ideally count equally in a democratic election.

Viewed as an apparatus whose history and purpose was inextricable from its scientific origins, cinema’s representation and education of a broadened public was also a making-empirical of social and political representation. Where practices of reading thrived on the fundamental difference between the world represented by texts and the imaginary encouraged by reading, as well as the class distinction between those who read and those who do not, film went a long way to eliminating such distinctions. What Schlüpmann’s idiosyncratic socio-philosophical revision of early film history does not provide, despite its impressive scope, is a historical and media-technological framework for explaining this media-technological convergence.

Where one does find indications of such a framework is in a source frequently cited in Schlüpmann’s work—Emilie Altenloh’s 1914 study of the composition and motivations of early film spectators, considered the first sociological work on the cinema. Altenloh speculates that while film spectatorship spans class, occupation, age, and gender, the educational training, which often overlapped with, but was nonetheless independent of class, affected a viewer’s disposition and susceptibility to the content of films. So, for instance, she noticed that film played an inordinately small role for those with strong “wissenschaftliche oder parteiinteressen.” The reason, as she explains, is that “bei solchen Menschen ist das Leben viel zu rationell eingeteilt und ihr Sinnen und Trachten zu stark auf einen Punkt konzentriert, um ‘für derartigen Schund’ Zeit und Geld

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365 Ibid., 179.
367 Ibid., 75.
aufzuwenden." On first inspection the claim would seem to be simply that elevated tastes would not deign to indulge paltry filmic themes. But that scientific and political interests designated a mode of thinking more than a class, and the fact that such thinking privileged the rationalized partitioning of life that excluded the realism of cinematic fantasies, implies that the aversion to film among this strangely circumscribed group was in the logic of filmic presentation, not their content.

Throughout her survey Altenloh praises the highly educated groups, who preferred scientific non-fiction films, for their insistence on the separation between the space of fiction, which was to be internal, and the external space of objectivity. This was a boundary that even *Schundliteratur* in its raciest incarnations preserved. In the section on “Kolportageliteratur” she writes:


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368 Ibid.
369 Altenloh’s ethnographic survey of cinema audiences in Mannheim and Heidelberg is actually quite detailed, if often presumptuous in its account of the kinds of films attractive to people of various ages, occupations, and genders. However, it becomes immediately apparent in her descriptions that she is eager to reaffirm prevailing social and cultural distinctions in the reasons for cinema attendance. For instance, women of higher social classes, which she is clear to distinguish from the “intellectual elite,” were thought to seek out highly stimulating adventurous films in proportion to the boredom of their own lives or to get exposure to Paris fashions. This was in contrast to other cross-sections of the cinema-going population, such as men of the petit-bourgeois, who claimed to have rarely seen the more scintillating films and when they had, only by accident. Proletariat boys, as one might expect, all had uniform tastes for adventure and sex and the young male workers whose occupation was a matter of chance rather than training (called the “bottom group”) were prone to cinema addiction, had imaginations geared toward adventures in the wide world, and emulated criminal figures in the films, which she not so subtly ties to the potential formation of youth gangs.
370 Ibid., 98.
The nostalgic undertone of the passage is certainly not for a specific genre of pulp fiction, but for the absolution of distinction between the representational space of “Wirklichkeit” and “Phantasie” that was believed to be destroyed by film. This was the distinction that made reading the vehicle for the production of inwardness against the undifferentiated mayhem of reality. As the site of reading, the “ungestörter, stiller Winkel” was both the closed individual space of the Bildungsbürgertum, fortified against the “nichtbürgerlichen Menge,” as well as the psychological space of fantasy, distilled from the marauding sensations produced by stimuli in reality through the operations of textual signification and fictionality. In much the same way that experimental psychology was vilified for mechanically applying principles of empirical observation to the study of experience, and thus destroying the point of mediation between inside and outside, film as the popular extension of scientific psychology eradicated the partition between fantasy and reality-effects, principles of reality and inwardness.

Niklas Luhmann locates this operation of textual fictionality, and novels in particular, as a form of differentiation at the heart of both the production of the humanistic and neo-humanistic faith in the “subject,” as well as the social system of Gesellschaft, writing:

Altenloh’s pessimism about the sociological consequences of filmic fictionality stemmed from its jeopardizing of the narrative autonomy involved in educational subject-formation. “Punkt-für-Punkt Übereinstimmung,” was the trademark of a positivistic scientific ideology in which photographic and moving image technologies had been vested with the power and potential of reproducing “Realgeschehen” as “Realgeschehen.”

Cinema, however, offered “Realgeschehen” as a part of social vision radically distinct from the bourgeois ideal, concerned with the peccadillos of workers and shopgirls, and often mistaken identities that confused class distinctions. Whether in comedies like Fräulein Piccolo (Hofer, 1914) or In Vertretung (Oberländer, 1913), or dramas such as Die Wahrheit (Ostermayr, 1910), mistaken identity films instructed audiences in class definitions that were not based on education, but appearance only. They were a kind of Ausbildung in the trivial exchangeability of status that did not require, as in the case of Thomas Mann’s Felix Krull, that the masquerading characters be identified as a Hochstapler. The power to clarify these false distinctions was the province of filmic technique alone, and therefore, the actual act of defining one’s status and role in the social order, or Bildung, was a function of narrative autonomy.

The very fact that films about mistaken identity abounded in early cinema supports the idea that the new medium grappled with techniques for narrative continuity as also techniques of a kind of training or subjective formation. Comedic effect and dramatic irony in these films was intensified by the visual “realism,” as the audience was

372 Die Wahrheit, which was one of the earliest long-format productions of Munich’s film industry was never actually released in theaters, though it has been an important source of subsequent scholarship on early films. Jan-Christopher Horak discusses the production of the film and the reasons for its failed release in “Munich’s First Fiction Feature: Die Wahrheit,” in A Second Life, 86-92.
always in the position to properly identify the characters, whose intra-diegetic personae were signified primarily by situation and costumes, while witnessing the confusion of characters as the plot engine.\textsuperscript{373} The significance of mistaken identity films, aside from the obvious socio-political commentaries engineered through role reversals, was that they functioned as statements about film’s control of identity affirmation. This was sometimes even placed in blindingly apparent contrast to the devices available to text, as in \textit{In Vertretung}, a comedy about a house servant who impersonates his master, Oberlieutenant Gernsdorff, and which overflows with references to competing medial regimes for the production of identities.\textsuperscript{374} Beyond riffing on the semiotic exchangeability at the heart of the term “lieutenant,” which simply means “placeholder,” and is underscored by the film’s title, its story also hinges on the inability of written letters to confirm one’s identity, as was so often the case in early films, and involved the additional play of the central female character’s name, Meta von Redern.\textsuperscript{375}

\textsuperscript{373} These films tend to establish difference through changes in wardrobe that maintain the apparent identity of the character for the audience. \textit{Verwechselungkomödien} were very common in the early period of cinema, and have been much discussed in the secondary literature, especially about early Ernst Lubitsch films, which were frequently premised on mistaken identities. Valerie Weinstein, for instance, explores the sartorial conventions of identity politics as represented in Lubitsch \textit{Verwechselungkomödien} in her paper “(Un)Fashioning Identities: Ernst Lubitsch’s Early Comedies of Mistaken Identity,” in Visual Culture in Twentieth Century Germany: Text as Spectacle, ed. Gail Finney (Bloomington, IN: University of Indiana Press, 2006), 120-133. Ernst Lubitsch also plays a very minor role in \textit{Fräulein Piccolo} as a \textit{Handlungsreisender} who makes an unwelcome advance on the film’s protagonist. Reminiscent of the later commonplace in Hollywood films of the irrational star cameo, Lubitsch winks to the audience upon his entrance, announcing his presence primarily as Ernst Lubitsch, which can be seen as a nascent convention of film celebrity, in which the film makes use of the star’s status as film star without grander narrative conceits.

\textsuperscript{374} Military officers were a mainstay for films throughout the beginning of the twentieth century, frequently playing on the intentional lack of personalized distinction in military hierarchy as a foundation for criticizing rampant militarism. One of the best examples of this was the brilliant adaptation of the Russian formalist Yuri Tynyanov’s novella \textit{Lieutenant Kizhe} (Feinzimmer, 1934) with a soundtrack by Sergei Prokofiev, in which Feinzimmer mobilizes Tynyanov’s work on signification to parody the processes of reproduction and error (and the reproduction of error) that are at the heart of translation from one medium to the next.

\textsuperscript{375} These same character names were featured again in the better-known 1931 comedy by Fred Sauer, \textit{Stolz der 3. Kompanie}.
In all of these films the same editing techniques used to create subject-effects and narrative autonomy were also used to cinematically clarify the identity of characters within the film—providing autonomy and closure to both the subjective perspective and subjects within the diegesis. In Franz Hofer’s Fräulein Piccolo, a story of the daughter of a hotel owner, played by Dorrit Weizler, who is forced into perpetual wardrobe change, playing the roles of both the chamber maid and the waiter, while also deflecting the advances of military lieutenants, one of which has the meta-critical name Lieutenant Clarion, the film asserts itself as singularly capable of confirming Fräulein Piccolo’s real identity. Where letters of introduction, written signatures, and formal titles failed to preserve the continuity of characters’ personal and social identities, film inserted itself as uniquely able to clarify the problem and in the process instructed the audience in its methods of subject formation.

376 Identity confusion is often executed through cross-dressing or the impersonation of people of social significance, such as military officers, as is the case in In Vertretung. Cross-dressing, and especially in what is referred to as Hosenrollen, has been the subject of extensive analysis. See, for instance, Heide Schlüpmann’s Unheimlichkeit des Blinks and Richard Dyer’s Now You See It (New York: Routledge, 1990).

377 Cryptonyms were used frequently in early comedies, helping to further caricature the roles in the farce. However, both in In Vertretung and Fräulein Piccolo these names, in rendering their bearer ridiculous, also refer to an alternative medial regime unavailable in silent films. “Lieutenant Clarion” makes reference to the military reveille, but also to the accompanying notion of audible clarity. Likewise, Fräulein Meta von Redern, can be taken to be a reflection ("Meta") on the problems of “Reden” or speech.
Er war seltsam, es war ihm dieser Tage schon mehrmals aufgefallen: er konnte durchaus nicht denken, an was er wollte, er hatte keine Verfügung über seine Gedanken, sie liefen wie sie wollten, und sie verweilten trotz seinem Streben mit Vorliebe bei Vorstellungen, die ihn quälten. Es war, als sei sein Gehirn ein Kaleidoskop, in dem der Wechsel der Bilder von einer fremden Hand geleitet wurde.\textsuperscript{378}

\textit{Medium Pathology}

The effort at the end of the nineteenth century to create a definitive, scientific classificatory system for diagnosing psychopathologies frequently ran aground on general problems of continuity. The question was whether patients afflicted with manic depression, melancholia, paranoia, or dementia praecox, whose symptoms ranged from mild to severe, represented a continuous spectrum from the healthy to the pathological. Or, alternatively, whether there were fundamental discontinuities between the healthy and pathological psyche, and if so, which symptomologies were included in the total distinction from the healthy psyche. In what has been called the “continuity view,” or “continuity model” supported by many scientists who thought “\textit{morbid phenomena} were quantitative variations of ‘normal’ mental functions,” psychopathology became “a branch of normal psychology.”\textsuperscript{379} The competing view, if one is to coarsely divide between camps, found that there were “psychological anomalies in the insane to which there is nothing analogous in the state health.”\textsuperscript{380} Even among adherents to the former continuity

\textsuperscript{379} German E. Berrios, \textit{The History of Mental Symptoms: Descriptive Pathology Since the Nineteenth Century} (Cambridge: Cambridge University Press, 2002), 26.
model, however, the “emergence of a discontinuity model of mental illness prompted redefinition, indeed reinforcement, of the continuity model.”

The necessity of finding a model of psychological continuity that accounted for revelations about the extent of difference between profoundly disrupted psyches and healthy psyches was most pronounced in cases of paranoid and schizophrenic delusion and found a reiteration in miniature in case studies dealing with such pathologies. What paranoid and schizophrenic delusions and hallucinations revealed, and particularly those of persecution from external menaces, was a compensatory mechanism developed for the purpose of rationalizing the frightening chaos of psychic disorder. An intensely unpleasant inner-world could be explained through the invention or hallucination of malevolent forces external to a patient that functioned, if not to soothe him/her, then at least to make sense of the seeming irrationality of the experience. In other words, the pathological mechanism (whether megalomania, hallucination, or persecutory fantasy), which was precisely what made the pathological psyche discontinuous with the healthy one, actually worked to reassert a psychic continuity, even where discernably at odds with what would be considered “normal.”

The question then became, beyond a social consensus, what means existed for scientifically distinguishing between rational hallucinations and fantasies, and irrational hallucinations and fantasies in a way that indicated a “discontinuity” with the healthy development of a psyche. As I will argue, both the problem and the solution entailed disguised commitments to media-technological models of the psyche. So, for instance, Oswald Külpe described the difference between regular and irregular hallucinations as a matter of the model of transmission:

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Die Hallucinationen, bei denen subjective Eindrücke fälschlich objectivirt werden, sind damit als abnorme, pathologische Erscheinungen charakterisierbar, weil die normalen Irrungen nicht continuirlich in sie übergehen, sondern durch die Kluft übermerklicher Reizunterschiede von ihnen getrennt sind.  

Interestingly, here, discontinuity characterizes the normal psyche, as the healthy person at some level acknowledges the mediation and latency involved in the production of the hallucination. There is a “Kluft” that distinguishes representational space from the “real” and forces confrontation with the medial means for producing the experience. What irrational hallucinations lack is the discontinuity that marked the continuous psyche. Further, however, there is a subtle indication here of the medial regime properly suited to the definition of the healthy psyche. The normal psyche is structured, as Freud would claim later, by “words and concepts,” not images. Images were the raw perceptual material, which underwent a processes of organization and signification that defined a psyche’s relation to the world. And conspicuously unmediated images, whose fact of having been transmitted from the sense organs was not evident, were therefore deemed pathological, even when, or exactly because, they produced the illusion of continuity—and this is exactly the setting that came to characterize the cinema around 1913.

Consequently, as the two case histories considered in this chapter reveal, theories of psychopathology were forced to navigate the media-technological premises for certain assumptions about the mechanics of psychological continuity and its role in defining the healthy against the pathological psyche.

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Prior to Viktor Tausk’s presentation of the paper, “Über die Entstehung des ‘Beeinflussungsapparates’ in der Schizophrenie” to the Wiener Psychoanalytische Vereinigung in 1918, case histories and memoirs detailing pathologies involving hallucinations of persecutory machines and captivation by malevolent, invisible forces had already proven to have a long half-life in psychological and psychoanalytic literature. In one of the earliest records of such cases, John Haslam, the apothecary at the Royal Bethlem Hospital in London, compiled the writings of James Tilly Matthews, who was committed to the asylum in 1797, and believed he was subject to a nefarious “air loom” apparatus, which among other things, supplanted his thoughts with “magnetic impregnations,” or administered control by way of “rays,” pneumatism, or a fantastical inventory of recondite gadgetry. Freud too, despite some reluctance and difficulty submitting schizophrenia to the psychoanalytic apparatus, offered an interpretation of the Daniel Paul Schreber case based largely on the autobiographical writings found in his book, Denkwürdigkeiten eines Nervenkranken, in which Schreber claimed that he was manipulated by God and “kleine Teufel” alike—the influence of his tormentors being exacted by means of “Strahlenzüge” as well as complex apparatuses such as a “Kopfzusammenschnürungsmaschine.” In this respect, the schizophrenic delusions

384 John Haslam, Illustrations of Madness (New York: Routledge, 1988). Matthews was also a talented draughtsman and made beautiful and involved diagrams of the machines, as well as architectural blueprints for the re-design of the Bethlem hospital.
385 Dr. Jur. Daniel Paul Schreber, Denkwürdigkeiten eines Nervenkranken (Leipzig: Oswald Wüße, 1903), 159. Freud’s analysis of the case is published in “Psychoanalytische Bemerkungen über einen autobiographisch beschriebenen Fall von Paranoia (Dementia Paranoïdes).” Interest in the earliest accounts of schizophrenia has been reinvigorated by reassessments of psychoanalysis. Some notable examples of works returning to famous cases histories to problematize the category of “pathology,” and particularly
Tausk examines in his paper are a part of a familiar psycho-pathological history in which irrational fantasies of technological menaces paradoxically provide a supplementary, even hypertrophic technological rationality to account for the experience of psychic rupture. Much like Matthews and Schreber, the patients in Tausk’s study were also frequently besieged by hallucinations of machines, whose perceived intrusions into their thoughts were carried out via invisible wires, telepathic communications, or magnetism, and whose machinations remained impenetrable to the patients’ further inquiry.

Following Freud’s lead, Tausk concluded that all schizophrenic hallucinations of mechanical influence were the result of a regression to a developmental period prior to the firm definition of the ego from the world, and therefore a necessary invention to make sense of the indistinction between the patient’s feelings and their external causes. Yet, what was novel in Tausk’s account, beyond his important theoretical innovations for dealing with such cases, was that the influencing machine he describes was not merely a telegraphic conveyer of thoughts and messages, but also an image-machine, characterized in its terminal manifestations as either a “Kinematograph” or “lanterna magica”—patients seemed not merely to hallucinate the existence of a machine, they also witnessed a kind of pre-cinematic spectacle.386

If schizophrenia on its own represented a theoretical impasse for Freud, because the patient’s solipsistic psychic life precluded the analyst from introducing textual

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386 Tausk, 7.
associations that corrected the short-circuited relationships between experiences of the world and the corresponding responses to them, the specter of a schizophrenic delusion involving only an image-machine was especially disruptive. Hallucinations of a mechanical persecutor partially satisfied the need for an apparently rational continuity of the ego that the afflicted person was not able to properly generate him/herself. Under “normal” conditions, according to Freud, this continuity would have been provided by an intellectual, linguistic faculty. And in earlier cases, like those of Schreber and Matthews, the influencing machines were still textual apparatuses, transmitting messages that remained within the purview of psychoanalysis. So while Tausk theorized an orthodox psychoanalytic answer to the problem of schizophrenia, he also sanctioned the possibility that the continuity of the ego, even if only in cases of extreme pathology, might originate with images. A model for such continuity effects was already recognizable in cinema at the time the paper was presented, though I contend that it is precisely for this reason that Tausk had to emphatically reject the cinematic operations of the influencing machine in his paper, and sought instead to identify it as a more antiquated projection device, such as the magic lantern, which relied heavily on the textual, linguistic interventions of the projectionist. Tausk’s double-movement of theorizing and disavowal regarding the nature of the cinematic device was not merely a response to Freud’s low opinion of the cinema and irritation at its nagging relevance to psychoanalysis, but more so an oblique recognition of the challenge such an argument for ego continuity based on images posed to the foundations of psychoanalysis.  

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387 Stephen Heath, in his essay, “Cinema and Psychoanalysis: Parallel Histories,” argues that “film for Freud is the intruder with whom psychoanalysis cannot negotiate” (29). He likewise discusses Freud’s persistent opposition to the enthusiastic appeals of Hanns Sachs and Karl Abraham, who sought to, and eventually did, act as the “scientific advisors” to G.W. Pabst’s filmic rendering of the principles of
Establishing Boundaries: Tausk, Freud, and the Problems of Schizophrenia

Absent any aspiration to provide a psycho-biographical account of Tausk’s objectives, it remains necessary to briefly discuss his relationship to Freud as a way of situating his positions on schizophrenia. Before Tausk became a lauded, if controversial, member of Freud’s early psychoanalytic circle, he was a lawyer, who moved to Vienna in 1908 and received a medical training to support his commitment to the science of psychoanalysis. Tausk was acknowledged as one of the most promising members of the early circle, with an aptitude for metapsychology, often expanding the scope of Freud’s theories, particularly on problematic pathological symptomatologies such as schizophrenia. Unlike Alder or Jung, however, Tausk had a fraught relationship with Freud stemming not from his radical break with the master, but from his perhaps too profound allegiance to Freud, who described him to Lou Andreas-Salomé as “gescheit und gefährlich.”


Lou Andreas-Salomé, In der Schule bei Freud: Tagebuch eines Jahres, 1912-1913 (Zürich: Max Niehans Verlag, 1958), 191. In a more extreme formulation of the same sentiment and one contradicting his public encomia for Tausk, Freud also wrote directly after Tausk’s death that “I confess I do not really miss him; I had long taken him to be useless, indeed a threat to the future. I had a chance to cast a few glances into the substructure on which his proud sublimations rested; and would long since have dropped him had you [Lou Andreas-Salomé] not so boosted him in my esteem.” This segment of the letter can be found in Paul Roazen’s Brother Animal: The Story of Freud and Tausk (New York: Alfred A. Knopf, 1969), 140. Unfortunately, as Roazen notes, Freud’s legacy has been so carefully curated that the original letter cannot be found untranslated without these remarks excised. In his book, Roazen gives a detailed, unvarnished biographical account of the relationship between Freud and Tausk, itself controversial. Hanns Sachs, Salomé, and others have likewise remarked on the brutal relationship Tausk had to Freud and the threatening nature of Tausk’s talents. Roazen comments elsewhere about the 22 year lapse between first recovering Tausk’s work in Brother Animal and the publication of Tausk’s work in English: “The fact it took me until 1991 to find a publisher willing to print Tausk’s writings for the English-speaking world should say something about how threatening the story connected to him remained for the powers-that-be within international psychoanalysis.” Paul Roazen, The Historiography of Psychoanalysis (New Brunswick, NJ: Transaction, 2001), 46. François Roustang has also written a scathing diagnosis of the psychoanalytic institution’s response to Roazen’s historical revelations about Tausk, who had remained a hidden figure prior to his book. For instance, Roustang calls the secretary of the Sigmund Freud Archives, K. R. Eissler’s book that seeks to “find faults in Roazen’s book,” a “pitiful work, a paradigm of stupidity,
on Freud’s suggestion, Tausk committed suicide on July 3, 1919, leaving a small but rich
corpus of psychoanalytical writings. His filial obedience to Freud, and his theoretical
indebtedness to him, is remarkably apparent in the paper on the Beeinflussungsapparat,
and underscores the precariousness of Tausk’s contributions to the theory of
schizophrenia; a stumbling block about which Freud had repeatedly admitted his
limitations.

It is not surprising then that Tausk begins his paper with a series of prefatory
qualifications, in which he is clear to remark on the methodological restrictions of his
analysis. Accordingly, his case study is framed as a “sehr seltene Variante des typischen
Beeinflussungsapparates,” though he insists that it is “zulässig, von abweichenden Typen,
von Varianten, auf die Konstruktion des allgemeinen Typus zu schließen.” In this
narrow circumscription of his goals for the paper, the larger implications of his analysis
are both veiled and starkly outlined. By accounting for a type of pathological
symptomatology, Tausk was likewise commenting on the typical operations of the psyche
under “normal” conditions, and as a result, making a more universal claim about the
nature of psychic functions in psychoanalysis. As such, Tausk’s general aspirations for a
psychoanalytic description of the Beeinflussungsapparat both confirmed and ran afool of
Freud’s treatment of schizophrenia—in a way I believe is distinctly related to the
troubled status of images in Freud’s metapsychological model at the time.

The schizophrenic condition Tausk describes is one in which patients suffer from
the delusion that they are under the influence of, and often persecuted by “eine Maschine

which clearly shows the numbing effect that master-worship can have on those who fall under the spell.” In
389 Tausk, 2.
von mystischer Beschaffenheit,” the construction of which they can only hint at
“andeutungsweise,” though they endeavor to explain its design through recourse to
“verfügbaren technischen Kenntnisse” that he attributes to the “Fortschritt der Popularität
der technischen Wissenschaften.” In its final stages, the influencing apparatus took on
an incomprehensibly complex character, consisting of “Kasten, Kurbeln, Hebeln, Rädern,
Druckknöpfen, Drähten, Batterien u. dgl.” which were operated, most often by a male
figure, and usually someone of intellectual or medical distinction, such as a professor or
physician. One of the most remarkable effects of the machine was that “er macht den
Kranken Bilder vor,” appearing “in der Fläche, an den Wänden oder Fensterscheiben,”
and which unlike “die typischen visuellen Halluzinationen,” were “nicht
dreidimensional.” In these instances, the machine was generally identified as a “laterna
magica” or “Kinematograph,” though his later mention of the projection technology
refers only to a “laterna magica.” Tausk provides almost no detail beyond the type of
projection device and the two-dimensionality of its images about the nature of the
“Bilder” the patients experienced when under the apparatuses influence, and we are left
to infer from the pathological function ascribed to them what kinds of images they were.
Tausk tells us in broad terms that the appearance of the influencing machine is “eine
Schöpfung des dem Menschen immanenten Kausalitätsbedürfnisses” and that its
emergence is partially attributable to the “Entwicklung des Beeinflussungswahnes”
deriving from “alte Liebesimago.” The images produced by the influencing machine,
and the delusion of the apparatus itself, return to more developmentally primitive images

390 Ibid.
391 Ibid.
392 Ibid.
393 Ibid., 2, 8.
394 Ibid., 3, 5, 11.
in order to restore a fundamental sense of logical coherence that was interrupted in the
ego’s developmental process—one which presumably leads away from images and
towards language. Yet the question persists about the etiology and why the magic lantern
or cinematograph recurred as a suitable means for supplanting the lost psychical order.

Deferring to Freud’s 1914 analysis in his paper “Zur Einführung des Narzissmus”
Tausk identifies this peculiar form of schizophrenia as a problem of narcissistic
regression, locating the beginnings of the condition in a possible fixation point
[Fixierungsstellung] occurring at a stage of innate narcissism [angeborenen Narzißmus],
to which the patient returns later in an acquired state of narcissism [erworbenen
Narzißmus]. At the stage prior to the ego’s self-identification as a distinct psychical
unit—a period of “Objektlosigkeit,” before object-finding and cathexis, which then
allows the child to intellectually acknowledge the external causes of internal sensations,
and thus develop a sense of psychic and bodily autonomy—all stimuli are experienced as
endogenous [endogene] and immanent [immmanente], and Tausk speculates that the child
who later becomes schizophrenic does not achieve the appropriate libido organization to
establish a relationship between the internal world of the ego and the external world.

As a primarily defensive entity, guarding against the appearance of undisguised fantasies
and preserving psychic autonomy, the ego of the child must somehow jettison, and
therefore project, an image of his/her own body to account for the sensations that cannot
be explained through purely internal means—hence the idea of “Beeinflussungswahn,” or
a pathology emerging from a disrupted sense of causal coherence in which the influence
responsible for sensations or experiences must be invented. Furthermore, the ego has to

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on narcissism, the distinctions he makes between the two periods of narcissism are different than Freud’s.
396 Tausk, 17.
disguise the true nature of this bodily projection through a series of transmutations, by which the machine becomes inscrutable as a body image. Tausk in turn coins the phrase “Verlust der Ichgrenzen,” as it is precisely through the patient’s inability to properly find and cathect objects, and subsequently, to devise a frontier between the inner and outer world, that he/she must project the body as the origin of externally caused sensations, allowing the ego to manufacture a pathological form of autonomy; or as Tausk writes: “Wir können also sagen, bei einer krankhaft veränderten Libido findet das Ich eine verrückte Welt zu bewältigen und darum benimmt es sich verrückt.” Alternatively phrased, the schizophrenic “finds his loneliness so close to death that he is therefore forced to create his own world.” The indistinction in Roazen’s revision, between the “inner-world” and “external reality,” is a truly existential threat, because it challenges the ability of the patient to maintain his/her conceptual autonomy as an individual.

Tausk was well aware that Freud had already offered a similar analysis of the mechanics at work in the Schreber case, which provided an essential template for thinking about the type of schizophrenia encountered with the Beeinflussungsapparat, even if Freud termed Schreber’s symptomatology “Paranoia.” About this constellation of symptoms and the function of projection, Freud wrote:

An der Symptombildung bei Paranoia ist vor allem jener Zug auffällig, der die Benennung Projektion verdient. Eine innere Wahrnehmung wird unterdrückt und zum Ersatz für sie kommt ihr Inhalt, nachdem er eine gewisse Entstellung erfahren hat, als Wahrnehmung von außen zum Bewußtsein. Die Entstellung besteht beim Verfolgungswahn in einer Affektverwandlung; was als Liebe innen hätte verspürt werden sollen, wird als Haß von außen wahrgenommen. Man wäre versucht, diesen merkwürdigen Vorgang als das Bedeutsamste der Paranoia und als absolut pathognomonisch für dieselbe hinzustellen, wenn man nicht rechtzeitig daran erinnert würde, daß 1. die Projektion nicht bei allen Formen von Paranoia

The function Freud attributes to “Projektion” in the paranoiac bears immediate resemblance to the way in which the patients Tausk describes seek to reassert ego-boundaries. Yet Freud demurs on the question of projection, precisely because of its significance for “allgemeinere psychologische Probleme,” and therefore other symptomatologies that psychoanalysis had the conceit of remedying or at least explaining. Pathological projection, and schizophrenic projection especially, posed the threatening possibility that ego formation (however problematically) might occur even in the absence of proper external object-finding and cathexis, thus circumnavigating a necessary step in which language emerged and analysis became possible. No doubt the cases of schizophrenia that troubled Freud, and with which Tausk dealt so deftly, involved a failure of ego-boundaries. But they also plausibly involved the successful reparation of those boundaries through images.

In one way, the schizophrenic ego under the influence of the *Beeinflussungsapparat* does succeed at demarcating a boundary between itself and an outer world through projection and hallucination, the ‘unreal’ nature of which does not diminish the efficacy of the images for producing the distinction. If anything, the two-dimensional images experienced by the schizophrenic patient by way of the narcissistic

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398 “Psychoanalytische Bemerkungen über einen autobiographisch beschriebenen Fall von Paranoia (Dementia Paranoidea),” 303.
defense mechanism appear at least as powerful for delimiting ego-boundaries and mastering “eine verrückte Welt” as the ‘intellectual,’ which is to say, textual practices of “Verschiebung” and “Verdichtung,” thought posterior to the early stage of object finding and associated within the typical functions of the “healthy” ego. Delusional images in Tausk’s account likewise function equally well for preventing the admission of repressed material, in that they successfully disguise the reasons for the projected body image, introducing disfigurations that preclude the patient from recognizing him/herself in the image. In the single complete case history that Tausk includes, beyond his general characterizations of the disorder, he describes how the image-producing apparatus evolves from an image of the body to obscure its origins as a projection of the patient herself. The patient, Frl. Natalija A., a former student of philosophy, and therefore a woman possessing a mature linguistic faculty, is persecuted by an “elektrische[ ] Apparat[ ]” that “in Berlin erzeugt wird” and “von der Polizei verboten wurde.” This forbidden machine, which evolves from a fractured or underdeveloped relationship between outside stimulus and inner sensation to maintain the appearance of its causal

399 Freud introduces these terms to describe the relationship between dream work and unconscious material as mediated or rejected (and thus censored) by the ego in Die Traumdeutung [1900], Studienerausgabe, vol. 2 (Frankfurt am Main: S Fischer Verlag, 1989).

400 Tausk, 9. While one can only speculate, this description of the image-making device certainly does suggest a strong affinity with the censorship and regulation of early German cinema. Police censors and censorship advisors, such as Karl Brunner, who either banned or cut material deemed subversive, treasonous, or immoral offer a structural analogy for the behavior of the ego in admitting, denying, or reconstituting material that becomes conscious. One example of this is given by Jürgen Kasten in “From Peripetia to Plot Point: Heinrich Lautensack and Zweimal Gelebt (1912),” in A Second Life, 213-218. His treatment of the Max Mack film Zweimal Gelebt (1912) makes clear how police censorship assumed a social function in its prohibition and alteration of the content of films that paralleled the ego’s censorship of forbidden psychic content. He writes: “Shortly before the premiere was due to take place, however, the film was banned by the Berlin censor. There is no record of the film ever being shown in Germany. The grounds for banning the film are indicated in a peculiar list of motifs: ‘a woman’s nervous breakdown, illness, crisis, death, laying out. Waking from a feigned death loss of memory, a leap into the water…The grounds given for banning the film conceal the social and psychological foundations of the melodramatic turn of events, which is certainly not there merely for sensation as an end in itself…” What the film illustrated, however, was “the tense relationship of a given social order to the vital emotional and sexual demands of mankind. This central—often latent—conflict is one of the characteristics of the German cinema in the period 1910-1914” (218).
objectivity (or a relationship of the patient to objects that seem to be truly external),
produces two-dimensional images, and indeed an image of the apparatus itself, which are
not visibly related to the repressed body relations from which they emerge. As such,
Tausk notes:

> daß die Kranke anfangs angab, die Gliedmaßen seien am Apparat in natürlicher Form und Weise angebracht. Wenige Wochen später jedoch erzählte sie, die Gliedmaßen seien auf den Deckel eingezeichnet. Ich bin nun der Meinung, daß ich hier Zeuge eines bedeutsamen Entwicklungsprozesses des Wahnsbildes war. Es handelt sich offenbar um ein Stück eines fortschreitenden Entstellungsprozesses, dem der Apparat zugeführt werden soll, indem er Stück für Stück die Merkmale, die seine menschliche Form charakterisieren, verlieren und sich zu einer typischen, unverständlichen Beeinflussungsmaschine ausbilden soll. ⁴⁰¹

The exteriorization of foreign sensations through a projection of the body is not itself
sufficient to produce ego continuity and autonomy, but must be coupled with successive
distortions that render the mechanics of the process invisible. For the illusion of influence
to succeed, and in turn, to produce ego-boundsaries and satisfy the
“Kausalitätsbedürfnisse,” the apparent logic of the apparatus and its relation to the patient
becomes “unverständlich.” This is different than suggesting that the workings of the
machine are illogical. Instead, the transformation of the body image into an
incomprehensible machine institutes a logic through images that is both impenetrable to
“verfügbaren technischen Kenntnisse” and the normal modes of linguistic association
found, for instance, in dream work, while also making sense of the ego’s experience and
mollifying a general anxiety about causality. Consequently, one gets the sense that the
pathological image-machine is not only adequate to the task of establishing ego-
boundaries and repressing countervailing material that might threaten disrupt them, but
perhaps more effective than normal ego operations, in that it repairs a breach of

⁴⁰¹ Tausk, 13.
boundaries while staving off a world full of conflicting evidence that might draw the patient’s attention to the fact that she/he is in fact really very crazy.

Tausk argues that thoughts and images must first be assimilated \([\text{einbezogen}]\) into the “Bewusstsein der Icheinheit” before they can become a part of the “automatische Ichfunktion” and that this cannot occur until the “Intellekt zum Stadium der Erinnerungsvorstellungen vorgeschritten ist.” Here, the intellectual faculty is inseparable from the later capacity for concepts and language that presuppose the ego’s distinction from the outer world. In order to generate the abstract or linguistic associative networks by which representations or images achieve an order and significance beyond their mere inclusion in or exclusion from the inner-world, demands that the original images be properly marked or cathected according to their relationship with the subject, who must already have arrived at a robust sense of autonomy sufficient to support such an ordering. Thus, Tausk’s analysis reasserts a Freudian subordination of images to language with the assumption that images cannot become meaningful or participate in the ego-unity until the intellect is developed enough to intervene and make sense of them. This requires that the images occur to the intellect as “Erinnerungsvorstellungen,” meaning that it is the intellect and its deployment of language that gives them their temporal situation as “memories,” and likewise, their significance as uniquely a part of on an autonomous ego. It is orthodox for Tausk to claim that the images are integral to the intellect’s preservation of ego boundaries, but not that they are sufficient on their own to invent them.

Tausk continues in the passage by citing Freud’s contention that such a development is contingent upon an even earlier stage of “Halluzinationen der

\[402\] Ibid., 24, referring to an early draft of Freud’s “Metapsychologische Ergänzung zur Traumlehre.”
Erinnerungsbilder,” in which “die Vorstellungen tatsächlich in der Außenwelt auftreten und nicht als innere Vorgänge erkannt werden.” In both the early developmental stage and regressive, pathological hallucination, the images are a form of “Objektivierung, Objektfindung und Objektwahl” and therefore contribute to the establishment of boundaries that serve to fortify the ego, even if they are not the primary force in constituting it. In the latter case, though, Tausk is clear to indicate that the schizophrenic’s use of “Worten und Begriffen” to describe his/her experience of omniscience, influence, or hallucination derives from a “Gedächtnisvorrat einer späteren Entwicklungsstufe,” despite serving as an indication of a “regredierten Libidoposition” and permeable ego-boundaries that arose earlier in the developmental process. Furthermore, Tausk speculates that the ability to only experience these images two-dimensionally may correspond to an actual physiological retardation of the visual faculty associated with this stage. The suggestion is that while the visual faculty and memory images are essential to a maturing psyche, the final autonomy of the ego hinges on an intellectual, here linguistic, continuity. In one respect, this accords with Freud’s pronouncement in his 1914 paper on narcissism, where he wrote that schizophrenic patients suffer from “den Größenwahn und die Abwendung ihres Interesses von der Außenwelt (Personen und Dingen),” and as a consequence of the latter change, “entziehen sie sich der Beeinflussung durch die Psychoanalyse, werden sie für unsere Bemühungen unheilbar”—an obstinacy to analysis that was already evident in his trouble accounting for projection in the Schreber case.

\[403\] Ibid., 24.
\[404\] Ibid.
\[405\] Ibid., 25.
It seems that Freud’s, and in turn Tausk’s, persisting difficulties with cases of schizophrenic delusion, stemmed not only from the hermetically sealed, narcissistic field of the schizophrenics’ world of reference, but equally from the absence of intellectual development, or the invention of ego-boundaries based on textual narrativity. The inability of the schizophrenic patients under the influence of the Beeinflussungsapparat to do more than hint “andeutungsweise” at the construction of the machine, or to verbally account for its incomprehensible operations, does not appear to impinge on the ability of the image-machine to reassert ego-boundaries, though it does expose some of the possible limitations and blindspots in the operations of analysis. To whit, Tausk claims in the paper that the failures of object finding and inability to intellectually identify with the body entail problems of time and space, as it is the recognition of an external world’s influence on the body that the child is engendered with a sense of causality.\footnote{407} But because the origin of the schizophrenic symptomatology is prior to such an identification, the images never acquire the causal, or one might say, narrative continuity lent by the intellect. This coincides with Freud’s contention in the 1915 paper, “Das Unbewuβte,” that the “Vorgänge des Systems Ubw sind zeitlos, d. h. sie sind nicht zeitlich geordnet, werden durch die verlaufende Zeit nicht abgeändert, haben überhaupt keine Beziehung zur Zeit;” instead, “die Zeitbeziehung ist an die Arbeit des Bw-Systems geknüpft.”\footnote{408} The temporal ordering, and therefore meaning, of images in dreams or stored as “alte Liebesimago” is supplied by the structure and tenses of language, through which the

\footnote{407}{Tausk, 14, 17.}
\footnote{408}{Sigmund Freud, “Das Unbewusste,” 286. Daniel E. Schneider has written convincingly on Freud’s theory of time-space and its relation to Einstein and Infeld’s views of relativity in “Time-Space and the Growth of the Sense of Reality: A Contribution to the Psychophysiology of the Dream,” Psychoanalytic Review, vol. 35, no 3 (July 1948): 229-52. The importance of the relationship Schneider identifies resides in his demonstration of Freud’s concern with how the experience of time and space are constituted in the conscious and unconscious and his active awareness of theoretical models in other fields.}
disordered contents of the psyche are arranged as part of a coherent subject. However, such content must first be admitted to consciousness by an already fully constituted ego that protects continuity and autonomy through a sovereignty of language, according to which certain material is admitted and other material is repressed, leaving a massive inventory of unsuitable images in the unconscious. As a result, wherever images are unaccompanied by language, and thus lacking narrative, ego-boundaries are weak. Yet, the heterodoxy of Tausk’s paper lies in the fact that for the schizophrenic patient there are still ego-boundaries, however compromised or ad hoc they may be; a difficulty that can plausibly be related to the cinema.

**Psychic and Cinematic Continuity**

Film theory has long acknowledged that narrative continuity can be achieved by substituting spatio-temporal relations with editing practices that rely precisely on spatial and temporal discontinuities between individual images. The fundamental disunity of images instituted by the cut between one shot and the next, which interrupts the “natural”

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409 The theorization of both the spectatorial viewing-position elaborated in film and the nature of continuity effects has been extensive and various, and it is not my purpose, nor would it be possible here, to adumbrate all or even the most important contributions to this field. With that in mind, though, it is worth mentioning Jean-Louis Comolli’s pronouncement in his essay “Machines of the Visible” about misled expectations of verisimilitude in film, relying on misconceptions about the role of the camera as a courier of the real. About this, and especially during the period of early film, he writes: “It is at the cost of a series of blindnesses (of disavowals) that the silent image was able to be taken for the reflection, the objective double of ‘life itself’: disavowal of colour, relief, sound. Founded on these lacks (as any representation is founded on a lack which governs it, a lack which is the very principle of any simulacrum: the spectator is anyhow well aware of the artifice but he/she prefers all the same to believe in it) filmic representation could find its production only by working to diminish its effects, to mask its very reality” (132). Comolli’s comments make clear that the core of film’s reality effects, and for that matter, the success of any representational economy, is a radical absence or disjunction, which must be actively repressed or ignored in order to maintain the appearance of continuity. Based on this view, one can certainly imagine a profound structural affinity between the viewing position of the cinema-goer and the schizophrenic as conceived by Tausk. Similarly, Jean-Louis Baudry has written in his discussion of the ideological surplus value of cinematographic techniques that film “lives on the denial of difference: difference is necessary for it to live, but it lives on its negation,” in “Ideological Effects of the Basic Cinematographic Apparatus” (42).
procession of time and the stability of a single perspective on the events in the frame produces a logical coherence through the assembly of shots according to a film-specific, visual syntax. Film is thus often theorized as delimiting a continuous diegetic space not in spite of, but because of its negative relationship to the “typical” experience of space and time. As one of many arguments concerning this phenomenon/practice, Stephen Heath contends in his famous 1976 essay “Narrative Space,” that “fragmentation is the condition of a fundamental continuity. There are no jerks in time or space in real life. Time and space are continuous. Not so in film.” Here the distinction is made between the continuity of lived experience and the narrative cohesion that arises though the continuous presentation of temporally dislocated, two-dimensional images in films. Viewed in this way, the serial presentation of images and their establishment of a diegetic space offers a relevant model for understanding the potential re-establishment of ego-boundaries by the schizophrenic image-machine—and without recourse to the typical linguistic systems of ordinality and association Tausk locates in the development of the intellect. The logic of images produced in the continuity effects of narrative film, which were maturing into a robust practice around the time of Tausk’s paper, provide a timely counter-example to the presumed narrative deficiencies of images in Tausk’s commitment to Freud’s psychic model.

410 Borrowing from Lacan, by way of Jacques-Alain Miller, Jean-Pierre Oudart introduced the term “suture” as a way of elaborating how the cut or absence, particularly between the shot and reverse shot, is central to the way continuity editing functions for the establishment of diegesis. The gap between shots is “sutured” through a complex interaction in which the discontinuity between images is effaced by the viewer, inventing a space of the “Imaginary” and the resulting possibility for narrative. Jean-Pierre Oudart, “Cinema and Suture,” (1969) trans. Kari Hanet, Screen, vol. 18 (Winter, 1978): 35-47.
411 Stephen Heath, “Narrative Space,” 86-87. Later in the essay he writes: “classical continuity is built on fragmentation rather than the long take—on a segmentation for recomposition that can bind the spectator in the strong articulations of the unity it seeks to create.”
Tausk’s treatment (or non-treatment) of the technical specificity of the influencing machine becomes a figure for his difficulties reckoning with images’ participation in the construction of ego-boundaries and thus their potential role in structuring the ego. After commenting that the end-stage influencing machine “macht den Kranken Bilder vor” and is described by patients as either a “Kinematograph” or “lanterna magica,” he quickly adds that “Die lanterna magica, die Bilder vormacht, wollen wir jedoch von vornherein außer acht lassen, weil ihre Konstruktion zu gut zu der ihr zugeschriebenen Wirkung paßt und keinen anderen Denkfehler aufweist, als daß sie nicht existiert.” He continues, claiming, “Der Psychoanalytiker wird keinen Augenblick daran zweifeln, daß diese Maschine ein Symbol sein muß,” a fact that he notes Freud had recently emphasized.

Even if the technical ambiguity of the apparatus, which prompted Tausk to explicitly abandon further interest in its mechanics, was the result of a lack of familiarity among patients with various cinematic and pre-cinematic devices, Tausk’s disavowal of its technical specificity was mandatory. As a disciple of Freud, Tausk had to consolidate the operations of the image-apparatus into a single symbolic element—the “machine”—that could be dealt with psychoanalytically, and had even been pre-assigned a pathological value by Freud. In a moment that seems to anticipate Freud’s prescription, he notes: “Freud hat in seinen Vorlesungen erklärt, die komplizierten Maschinen stellen im Traum immer Genitalien vor.” His inclusion of “immer,” to the degree that it reveals Tausk’s cautious subservience and the perceived immutability of Freudian gospel, also perhaps indicates Tausk’s awareness that the influencing machine functioned as more than a symbol, though he was not at liberty to make that claim. Furthermore, the solipsistic lack
of external reference among schizophrenics, which prohibited the development of an intellectual, linguistic faculty that could deal adequately with symbols, appeared to render the simple symbolic interpretation of the influencing machine impossible. The *Beeinflussungsapparat* arguably recuperated some form of ego autonomy, but even according to Freud’s estimation, it could not have occurred through the usual textual operations of censorship, displacement, or condensation.

Based on their involvement in the reassertion of some kind of ego-boundary and their two-dimensionality (i.e., their distinction from regular visual input), one gets the sense that the images projected by the influencing machine are not arranged or experienced in a way that is “zeitlos,” as is unconscious material, nor primarily structured by their insertion into the symbolic economy of the intellect, which Tausk already deemed insufficient for understanding the mysterious operations of the influencing machine. Freud attributed the difficulty analyzing schizophrenics in part to the regression to old libidinal imagos prior to language, and similarly to the closed circuit of their hallucinatory world; which is say that Freud isolated the problem of schizophrenia in *images*. As a result, any logic used to delimit a pathological psychic order would not have “Worten und Begriffen” at its disposal. The surrogate logic would only have access to images. But, again, this is unthinkable according to Tausk’s reliance on Freud’s model of ego development, in which the linguistic faculties of the intellect must have already developed and established an “Ich-einheit” before images could be recognized as a part of the narrative complex organizing memories and perceptions. This fact is complicated by the much-diminished status of images in Freud’s vision of the phylogenetic evolution of the psyche—where for instance, Freud associated the role of images instead of words and
concepts with children and “Primitiven.” And still, the images in cases of the magic-lantern-like influencing machine must do at least some of the work of maintaining ego continuity—after all, how else could the schizophrenic be thought to remain “unheilbar” on account of his/her “Größenwahn”? The developmental problem that Freud located was indeed that the ego’s lack of differentiation caused it to encompass too much, not too little.

Unlike Freud, who was unapologetic about his allergy to film, Tausk seems to have been an avid cinema-goer. A February 1913 entry in Lou Andreas-Salomé’s diary from her time studying psychoanalysis under Freud would appear to confirm this:

Tausk, die Buben und ich frönten einem einigermaßen ähnlichen Genuß in der “Urania.” Wie denn das Kino überhaupt keine kleine Rolle für uns spielt—worüber ich nicht erst jetzt nachdenklich geworden bin. Zu dem vielen, was man über dieses Aschenbrödel der ästhetischen Kunstbetrachtung an Ehrenrettendem sagen könnte, gehören auch ein paar rein psychologische Erwägungen. Die eine betrifft den Umstand, daß allein die Filmtechnik eine Raschheit der Bildfolge ermöglicht, die annähernd unsern eignen Vorstellungsvermögen entspricht und auch gewissermaßen dessen Sprunghaftigkeit imitiert.

While the cinema represented a simple “Genuß” in which they periodically indulged as a kind of family outing, the entry suggests a more substantial, shared interest in film’s technical approximation of psychic operations. The “rein psychologische Erwägungen” film solicits stem not merely from an analogy between the illusion produced by the succession of images and the mental “Vorstellungsvermögen,” but also from the “Sprunghaftigkeit” of both experiences. Films of this period, precisely due to their jerky imperfections and inchoate continuity effects, captured something about the

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416 Lou Andreas-Salomé, 102.
hallucinatory character of the imagination. Without too much extrapolation, one might also claim that film in this account provided a model for ego operations where the sovereignty of the imagination was uncontested by encounters with objects in reality; namely, in cases of schizophrenia. Without seeking to have Salomé’s private writing ventriloquize Tausk’s later positions, the entry at least substantiates an interest and familiarity on Tausk’s part, with how films worked, and perhaps even an interest in their affinity with mental processes. And it is such affinities that get repressed in his election to speak only of the older “laterna magica” and then to dismiss the relevance of its operations to psychoanalysis altogether.

Examples of a visual syntax and early filmic “Vorstellungsvermögen” that might hope to replicate mental life were already available in the year of Salomé’s diary entry, and a watershed moment in the production of long-format narrative films. One such film is Jospeh Delmont’s Der Geheimnisvolle Klub.\footnote{In addition to the basic dramatic architecture, Delmont also appropriated certain elements from Robert Louis Stevenson’s short story “The Suicide Club,” \textit{New Arabian Nights} (London: Sovereign, 2013), 7-33. For instance, one of the film’s intertitles giving Gerhard the magisterial introduction to the principles of the club reads: “Dies ist der Klub der Lebensmädchen…” mirroring exactly the introduction given to the club in Stevenson’s story: “If you are truly tired of life, I will introduce you to-night to a meeting…(14).”} The film is a surprisingly complex narrative about an investigation into a brother’s untimely death as part of a high society suicide club headed by the criminal Verstaraaten, who is played by Joseph Delmont himself. Among the many noteworthy scenes in the film there is one scene in particular that is highly illustrative of both the logical autonomy of filmic editing practices and also their erraticness [Sprunghaftigkeit]. In a curious sequence, the protagonist, Gerhard, fires a gun through the deadbolt of the door to escape his captors, which is repeated from the other side of the door as we see a puff of smoke come towards the camera. Subsequently we see the men waiting outside respond to the gun shot, followed by a scene in the
basement of the house of Ilse, the film’s heroine, and a detective’s pantomimed response to the sound, which occurred several floors above them. Here the film invents a simultaneity through the inference to a sound that travels throughout the club as the gun is fired—creating both a spatio-narrative continuity (i.e. the belief in the acoustic connectedness of the basement to the upstairs, enhanced by a blue tinting in the basement and red tinting in the upstairs), as well as the causal continuity between shots. The travel of the sound is portrayed as taking no time at all and requiring no absence, though we see the moment of the gunfire dismantled into multiple shots, though with a clear presumption of diegetic simultaneity. In this way the film captures both the “power of imagination” and “erraticness” lauded by Salomé, by showcasing its visual and narrative autonomy, while also leaving the conspicuous fringe of its own mechanics apparent to the viewer.

What one also finds in films from not only the period of Salomé’s diary entry, but shown to German audiences that year, is an inchoate ability to not only produce subject-effects with a diminishing recourse to text, but to actually intervene in the process of subject formation and the reparation of ego-boundaries. This found perhaps its most powerful articulation in Leonce Perret’s 1913 film Le Mystere des roches de Kador (The Mystery of the Rocks of Kador), which was advertised and shown in Germany as Ewige Zeugen. As a part of a burgeoning genre of psychological crime drama, the film presents a story of a young woman—Suzanne Lormel—who succumbs to hysteria after falling victim to her cousin Ferdinand’s plot to defraud her of her inheritance. The film begins, as did nearly all dramas of the period, designating Suzanne as the heir to her

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418 The available copy of the film to which I will refer is the original French version, including French intertitles, which I will translate here into English.
uncle’s estate with the stipulation that, were she to die, enter a convent, or succumb to
great weakness or blindness, the estate would be left to Ferdinand, who, we find out, is
two hundred thousand francs in arrears. Motive established.

After a half-hearted and promptly rebuffed attempt to marry his cousin, Ferdinand
resolves to kill both Suzanne and her fiancé, Captain Jean D’Erquy, with whom she has
recently been exchanging love missives. Ferdinand forges a letter from Suzanne to the
captain, inviting him to the rocks of Kador, and on the day of the misdeed drugs
Suzanne—the idea being to shoot the captain and allow Suzanne to drown as the tide
comes in—all made to look like an unfortunate end to a very bad rendezvous. However,
the twice-shot captain (both literally and figuratively, as will be the case) manages to
rouse himself and place the unconscious Suzanne in a rowboat, from which, after a night
of her “demented screaming,” they are rescued by fishermen. Afterwards, the captain is
not well enough to testify about the events, Suzanne is catatonic and left in the custody of
her uncle, and Ferdinand inherits the estate.

In part two, the captain has recovered and arranges to have Professor Williams
conduct an experimental treatment on Suzanne involving the “application of the
cinematograph to psychotherapy.” Thus begins the sequence of greatest interest, and one
that captures the subversive import of Tausk’s paper for interpreting media-technologies’
real and heuristic role in the development and understanding of psychic operations.

Professor Williams’ method is to film a re-enactment of the traumatic events that
prompted the breakdown, and to then re-present them to the afflicted patient, replacing
the “talk” of the talking cure, with a cinematographic representation. The film cuts to the
beach at the rocks of Kador, and the site of the attempted murder, where the professor,
acting as a director, provides scene instructions to Captain D’Erquy, as the cameraman loads film and prepares to roll in the foreground. The composition of the shot, importantly, does not correspond to how it was originally presented in the earlier scenes of the events responsible for Suzanne’s traumatic break. Instead, it shows the camera positioned in such a way that our original perspective on the scene is rendered legible to us—we see our earlier vantage point revealed from an extra-diegetic position that is integrated into the unfolding diegesis. In other words, we are made extra-diegetic witnesses to the creation of our own earlier identification with the subject position of the film, while still remaining within the ever-widening boundaries of its narrative space. As the camera rolls and the captain performs the moment of his having been shot on the shoreline, the film doubles down on the audience’s commitment to the continuous space of the narrative by confronting us with the conditions for its production. Even the outside of the narrative is figured as a part of the diegesis, demonstrating the mastery of the filmic medium for manufacturing subject-effects. We see, much like appearance of the influencing apparatus in Tausk’s paper, a fantasmatic exteriorization of the mechanics of our own experience, which, rather than having a demystifying effect, reinforce the logic of the illusion, by expanding the scope of the diegesis to include its own outside. One might even say, following Tausk’s analysis, that the film entails a narcissistic regression at the hands of a cinematographic machine operated by a psychologist who also happens to be a filmmaker.

The film then cuts to a laboratory doubling as a projection room, where, together the captain and Professor Williams examine the filmstrip, assistants pull curtains, position the screen, and remove all indications of the constructed nature of the cinematic
performance. Suzanne is led into the frame like an apparition divested of worldly agency and dressed in a long white gown, and is guided off-screen in preparation for her “therapy.” Cutting on action to an empty, darkened frame, Professor Williams seats Suzanne in a chair, illuminated only by the light from the screen, and clinically positions her head to direct her vacant gaze toward the source of the light. Williams withdraws into the background, effacing evidence of his influence, and the intertitle reads “Look, Suzanne…” The therapeutic command of “listen” replaced with looking. We then see only Suzanne’s disembodied head, illuminated by the screen, and in a shot/reverse shot construction, Suzanne appears suspended in rapt attention to scenes from a trauma she could not have seen while unconscious on the beach. We understand this scene as Suzanne viewing a film, rather than as the exteriorization of her mental state, in part because of the syntagmatic alternation of close-ups of her increasingly dismayed expressions with shots of her facing the floating images in the darkness, as well as our inference to a projector as the source of the light. The mechanical conditions of possibility for both the diegetic and intra-diegetic film are obscured. It is only the visual continuity effects of the film and the light of the intra-diegetic projection that establish the causal connection between Suzanne and the images from Kador. In short, the film’s own subject-effects resolve the indeterminacy of her relationship to the projected images. As filmically acclimated viewers, we know that these cannot be her memories, although this fact functions to strengthen, instead of to attenuate, the affinity between cinematic and psychological continuity. Against a potential tendency to read this sequence as the therapeutic repetition of her traumatic experiences, it is apparent that the curative property of the cinematographic method resides in Suzanne’s identification with the
diegetic space of the film, which reasserts a narrative order—such that the intra-diegetic film *becomes* her interior state. Cinematic subject-effects that neither replicate the seamlessness of lived experience, nor re-present her actual memories, nevertheless offer a restoration of psychological autonomy as a product of visual continuity, and Suzanne is healed.

However, Suzanne is not the only spectatorial subject in question. In a moment reminiscent of rube and Uncle Josh films from 10 years earlier, Suzanne stands, desperately extending her arms toward the screen, as the lights come on—revealing the material conditions for the illusion, but likewise, because we no longer see what she sees, suggesting that narrative continuity of the images has been internalized. The comedic effect of Rube films derived from seeing a supposedly provincial, film-illiterate spectator fail to recognize the filmic conventions of verisimilitude as a way of confirming the audience’s own visual sophistication or of training proper modes of viewership. In a

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419 Unlike later films “die sich mehr oder weniger explizit auf die Psychoanalyse beziehen,” and which “visualisiert der Flashback die verbalisierte Erinnerung,” Frank Kessler and Sabine Lenk claim in “Die Anwendung der Kinematographie auf Gemütskranke: Le Mystere des Roches de Kador (1912),” *Psyche im Kino: Sigmund Freud und der Film*, eds., Thomas Ballhausen, Günter Krenn, and Lydia Marinelli (Vienna: Verlag Filmarchiv Austria, 2006) that “In *Le Mystere des Roches de Kador* dagegen dient der Kinematograf als Hilfsmittel, das vermittels der Aktion auf der Leinwand die Erinnerungsbilder evozieren soll. Die Befreiung Suzanne de Lormels aus ihrem apathischen Zustand wird nur dadurch möglich, dass sie den Aufnahmen gegenüber die Haltung einer Zuschauerin einnimmt: vom Geschehen gleichzeitig affiziert und distanziert (53).” They additionally argue that although the model of psychic restoration that the film indisputably references can be found in Sigmund Freud and Josef Breuer’s “Über den psychischen Mechanismus hysterischer Phänomene,” [1895] in their *Studien über Hysterie*, the film starkly distinguishes its psychotherapeutic model from this pre-psychoanalytic study, because it attributes a cathartic power to film that could only be accomplished through “Rede” in Freud and Breuer’s estimation. On this point they cite Heike Klippel who writes “Der Kinematograph als Heilmittel für die Hysterie—nach den Regeln der Psychoanalyse muß das reiner Unsinn sein, da gerade das Bild den im Infantilen befangenen Stillstand der Hysterie repräsentiert und die Kranke nie aus dem Zirkel ihrer zwanghaften Wiederholungen befreien dürfte, den das Trauma löst sich nur in der Verbalisierung auf (52-53).” In *Gedächtnis und Kino* (Frankfurt a.M.: Stroemfeld, 1997), 194. Indeed, both Kessler and Lenk’s, and Klippel’s understanding of the film’s “Unsinn” in its depiction of an imagistic psychotherapy underscores the diminished, primitive status of images in Freud’s work, and their fundamental inability to repair ruptures in narrative and psychic continuity. In one way this is just a byproduct of early popular film’s fabulistic nature. However, it is also quite clear in Tausk that cinema did pose a significant threat to Freud in its ability to produce subjective identification and an autonomous space of narrative that did not derive from text.
fashion similar to the rube, Suzanne’s deeply affective response to the narrative space of
the film, equated here with her psychological restoration (‘‘She cries…she is saved,’’
[‘‘Elle pleure… Elle est sauvée’’]) thematizes and also participates in the elision of
psychological continuity and filmic continuity. The cinematic reassertion of ego-
boundaries through continuity editing witnessed in a scene in which the mechanical
origin of the projection is disguised, functions therapeutically to produce a subject
position in Suzanne, even though, or especially because, it could not have been her own.
It also therefore serves as an affirmation of the extra-diegetic audience’s own acclimation
to the visual conventions of cinematic spectatorship, by showing us the very ruse by
which we are captivated, as itself a part of the film’s subject-effects. By allegorizing the
success of filmic subject-effects, perspectival stability, and narrative continuity as
conditions of psychological coherence and autonomy, the film suggests that Suzanne’s
restoration was actually a training in modes of cinematic spectatorship that were already
integrated to the point of invisibility in the audience.

Furthermore, this mode of ‘‘subject formation,’’ or ‘‘restoration’’ was in fact the
adoption of, or subjection to a male perspective, in the form of film spectatorship and
psychoanalysis, both of which had histories of seeking to cure ailing women from over-
exposure to the nerve-shattering fugue of a modern urban experience, filled with man-
made machines. Psychoanalysis by substituting the narrative authority of inner
monologue with the voice of the male analyst, and film through cultural anxiety about
 technological sensitivities that might morally compromise women—the actual term being
‘‘Frauenverblödung’’—which, among other things, required special films suited to
gendered educational demands. In each case, the threat as well as the narrative structuring
apparatus was male, dispossessing women of control over even their own illnesses, not unlike the male operators of the influencing machines described by Tausk. In all cases however—from cinemagoers to analysands—the cultural implications were clear.

Cinema had not only developed subject-effects, but had affected models of the subject, progressively disguising the sources of its influence. This was decidedly not the case for the magic lantern or similar devices.

By the time that Tausk presented his paper on the influencing machine, or Salomé wrote of their trips to the cinema, the public heyday of magic lantern shows, the spectacles of Johann Schröpfer’s Gespenstermacher, lanterns of death, travelling lanternists, and even Wanderkinos, was an anachronism preserved in the memory of a cultural consciousness occupied by cinemas with a permanent address and increasingly broad audiences. At the beginning of 1909 there were already 62 permanent cinema theaters in Vienna, a list which the Urania theater, mentioned in Salomé’s diary, would join in 1910.\footnote{Werner Michael Schwarz, \textit{Kino und Kinos in Wien: Eine Entwicklungsgeschichte bis 1934} (Wien: Turia & Kant, 1992), 22, 295. Schwarz has also written about the permanent theater in Vienna as one of the central organizing factors in the emergence of the concept of the “Großstadt” in “Alltäglich Explosionen: Die Organisation der Großstadt und das frühe Kino am Beispiel Wiens,” in \textit{Frühe deutsche Kinematographie: Formale, wirtschaftliche und kulturelle Entwicklungen, 1907-1912}, ed. Corinna Müller (Stuttgart: Metzler, 1994), 169-176.}

The existence and multiplication of permanent theaters did not mean that cinema as an institution had legitimated itself aesthetically, nor that films of this time exemplified the narrative sophistication available in films from just a decade later. By and large, films that Tausk would have seen at the Urania, were not the short spectacles of the varieté, but occupied a position with regard their diegetic effects somewhere between what Noël Burch has called the “Primitive Mode of Representation” (PMR) and “Institutional Mode of Representation” (IMR).\footnote{Noël Burch, \textit{Life to Those Shadows}.} The “narrative discourse” of films

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\item[421] Noël Burch, \textit{Life to Those Shadows}.\end{itemize}
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characterized by PMR was “located outside of the picture—in the spectator’s mind or the lecturer’s mouth,” in the form of the intertitle or external narrator—and persisted as a detectable trace in cinema for “twenty years and more,” even in cases where the externality of the narrative was “simply inscribed into the film” itself.\(^{422}\) By contrast, films from the period of Tausk’s paper were much closer to later films which had fully integrated the IMR and its “unity-ubiquity of the spectator-subject,” diegetic “closure” and “narrative self-sufficiency.”\(^{423}\) What was recognizable in the cinema with which Tausk was likely familiar, then, was an incipient form of a logic of successive images, capable of sustaining narrative coherence in the absence of text, even if it was not fully rid of its “Sprunghaftigkeit.” It is for this reason that when Tausk settles with the “laterna magica” as the apparatus most associated with the visions of schizophrenic patients that the reader is left to wonder: why, in a paper that some, like Andreas Killen and Stephen Heath have rightly associated with a climate of technophobic suspicions about machines, psychiatrists, hypnotists, and a general preoccupation with new technological menaces, does a magic lantern enter the picture?\(^{424}\) The answer, resides with the supposed psychoanalytically “primitive” nature of the images with respect to their internal narrative logic.

In a magic lantern performance, whether the phantasmagoric conjuring of Philidor or Gaspard-Étienne Robertson in the late 18\(^{th}\) century, or the dissolving view dream

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\(^{422}\) Ibid., 189.  
\(^{423}\) Ibid., 186, 188.  
sequences of Auguste Lapierre in the late 19th century, the projected images of the magic lantern required detailed oral narration or stage setting on the part of the lanternist to transform the slide projections into a story. The theatrics and narrative interventions of the lanternist imposed a diegetic structure on the colorful series of images that was lacking, or was at least pre-mature, in the images themselves, thus establishing the narrative space populated by the pictures. Moreover, lanternists, as well as early projectionists were often located in the spectatorial space of the projection, and many times could be seen by the audience turning the crank of early cinematic projection devices, moving the slides, controlling the speed of the images’ succession, or actively participating in the mise-en-scène. As the projectionist was repressed to a booth, evidence of the operator’s agency was effaced, reducing the attention to the material conditions for the production of the illusion of movement. This was a setting that was no doubt familiar to Tausk from his cinema-going, and one unsuitable to the explanation of a condition that involved a crisis of causality and estrangement from the bodily, and thus mechanical, relations between the phenomenal outer world and inner sensations.

The cinema of 1918, with its far from rudimentary continuity and diegetic effects and relatively well-disguised mechanical conditions of possibility, offered an example of

425 Mannoni, The Great Art of Light and Shadow, 294.
426 In his consideration of Lapierre, one of the most artful and “cinematic” practitioners of the magic lantern show, Mannoni writes that the advanced narrative quality of his performances is evident in the remaining slides from his “second period.” He argues that the slides “display some narrative features which suggest the language of the cinema. The Lapierre studio used ‘close-ups,’ ‘medium-shots,’ ‘establishing shots,’ and ‘long-panes.’ Framed texts were interspersed between the images, suggesting the explanatory ‘intertitles’ of the silent cinema. A desire for cutting and mise-en-scène seems evident in the way that the stories were presented for the screen” (292). However, it is clear from his descriptions that even the “best” magic lantern performances relied heavily on the textual and verbal narrative structuring of the projectionist or narrator.
427 Even with the Lumières’ much improved cinematograph, the conditions for the illusion of movement were painfully evident. Mannoni comments that the Lumière machine “did have the tendency to shake the image” and “for many years, film projectors continued to make spectators weep; there was even talk, later, of ‘cinematophthalmia’ or ‘cinema blindness’” (465).
the narrative autonomy of images that was too sophisticated to function as a model for a symptomatology that was ultimately pathological, and therefore a bad example of continuity. In returning to antiquated proto-cinematic technologies, such as the magic lantern, Tausk signaled a commitment to a conception of ego-boundaries that resisted the primacy of images, even while suggesting their power to establish continuity. The apparent urgency with which he then claimed that the psychoanalyst could not doubt for a moment “daß diese Maschine ein Symbol sein muß,” thereby consolidating the elaborate machinations of the influencing machine and its projected images into a single, manageable matter for the analytic apparatus, indicates a level of anxiety or suspicion about the prospect for a model of the ego that engaged with a logic of images without resorting to textual practices. His paper, however, seems to have surreptitiously done just that, lending credence to the notion that perhaps Tausk was indeed as “gescheit und gefährlich” as Freud thought he was.

The Case of Wagner

Robert Gaupp, the preeminent critic of the German Kinoreformbewegung, whose criticism of cinema drew on a techno-medial distinction between the mental processes of

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428 About the belief that films induce or simulate dream states among their viewers, and in turn offer an analogy to certain psychic functions, Christian Metz argues in *The Imaginary Signifier* that narrative film does not produce a state of sleep-like dreaming, but rather “encourages narcissistic withdrawal and the indulgence of phantasy…” and “In this respect, the novelistic film, a mill of images and sounds overfeeding our zones of shadow and irresponsibility, is a machine for grinding up affectivity and inhibiting action” (107). He continues later, writing: “Thus the regressive path has perception as its point of arrival, but its particular characteristic is to cathect it from within (this is the very definition of hallucinatory psychosis)…” (114). Metz generally writes about a much later period of film history, but his observations are nonetheless extremely useful for thinking about the correspondence between the experience of ego continuity and the early development of filmic techniques for establishing diegetic effects.

429 No doubt, there were models of psychic functions, such as Hugo Münsterberg’s *The Photoplay*, which identified structural isomorphisms between the diegetic effects of continuity editing in film and the operations of a healthy mental life.
reading as “Nachdenken” and the perception of moving images as a potentially damaging “zeitliche Konzentration der Vorgänge,” was also a revered professor of psychology and criminal psychologist. Perhaps his most well-known work in the latter capacity, at least among his contemporaries, was the case study of Ernst August Wagner conducted during his tenure as a professor at the University of Tübingen.\(^{430}\) On the night of September 3, 1913, Wagner murdered his wife and four children, then travelled by bike and train to the town of Mühlhausen where he set several barns ablaze before shooting twenty people with a pair of Mauser pistols, killing nine.\(^{431}\) While reloading his weapon, villagers struck him down and he was eventually taken to Tübingen, where he was admitted to Gaupp’s psychiatric clinic to be analyzed ahead of the trial.\(^{432}\) Although the bizarre and terrible sequence of events is interesting in its own right, it is not the focus of this section. Instead, the section concentrates on Gaupp’s diagnostic presuppositions and the conceptualization of Wagner’s illness as a psycho-medial disorder once he was already under examination. This is different than claiming that his exposure to media was responsible for the condition. As we have seen, the association of criminality with

\(^{430}\) Robert Gaupp, *Zur Psychologie des Massenmords: Hauptlehrer Wagner von Degerloch; eine kriminalpsychologische und psychiatrische Studie*, in *Verbrechertypen*, vol. 1, no. 3, eds. Hans W. Gruhle and Albrecht Wetzel (Berlin: Julius Springer, 1914). As David Trotter has rightly noted, “Wagner, unlike Daniel Paul Schreber...has not yet attracted any attention from cultural historians.” Paranoid Modernis, 19. The case has remained a mere curiosity that has been the subject of almost no scholarship, though it has been referenced infrequently in contemporary journalism as an early example of the Amokläufer that have become fixtures of the late twentieth and early twenty-first century media landscape. During its time, however, the case was a cultural and literary wellspring.

\(^{431}\) The unfolding of events was, in fact, rather complicated, involving multiple stops, and a failed attempt to cut the telephone and telegraph wires, which had been a part of his design for the rampage, and a visit to his brother’s house, who was thankfully not home at the time. Gaupp’s study is very thorough, detailing every stage of the events and commenting at length on Wagner’s verbal and written account of his biography, as well collections of letters, diaries, and several plays he wrote (“Nero” and “Saul und David”) as a part of his formal psychological evaluation, which spans roughly 200 pages.

\(^{432}\) The same volume also includes the official Gutachten from Professor Dr. Wollenberg. In it he adumbrates Gaupp’s observations and recommendations. He concludes that Wagner committed the acts of violence “in einem Zustand krankhafter Störung der Geistestätigkeit” in which “seine freie Willensbestimmung ausgeschlossen war”(216). Moreover he notes that “Der Besschuldigte ist auch jetzt noch geisteskrank und zwar leidet er auch jetzt noch an Verfolgungswahn...” (216). This repeats Gaupp’s own assessment, which found that Wagner was “außer Verfolgung” (188).
historical shifts in media-technologies is an established topos. Likewise, impromptu etiologies faulting the dangerous influence of new media, particularly in cases of shooting rampages, are by now so familiar as to be a rote fixture of media outlets’ reporting on such events.

What distinguishes the Wagner case, beyond Gaupp’s role in the cinema reform movement, which finds expression in the media sensitivity of his analysis, is Wagner’s exemplary literary training and the degree to which it posed real problems for understanding his condition according to new models of psychopathology. The nature of this problem is two-sided. First, Wagner was a Hauptlerer of German literature, who, although regarded as “exzentrisch” in performance reviews, was nevertheless officially revered and, in 1909, was “amtlich gelobt.” As we shall see, his commitment to literary canonicity and attempt to self-consciously construct himself as a part of the literary canon was a metastasis of educational ideals that Gaupp suggests as the foundation for his psychological disfiguration. Secondly, however, Gaupp’s own education as a psychologist was indebted to a tradition of psychophysical and psycholinguistic inquiry that frames his insights about Wagner’s pathology as essentially bound to a specific and conflicting medial regime.

Gaupp began his career in Breslau as an assistant to Carl Wernicke, the famous experimental psychologist, whose “spelling theory,” work on aphasia, and role in reading experiments is explored more in chapter 2. Later, in Munich Gaupp became the senior assistant to Emil Kraepelin, under whom he wrote his habilitation, and who helped to

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433 Zur Psychologie des Massenmords, 45, 37.
434 A professional biography for Gaupp and his relationship with Bonhoeffer, Kraepelin, and Wernicke is available in The University Department of Psychiatry in Munich: From Kraepelin and His Predecessors to Molecular Psychiatry, eds. Hanns Hippius, Hans-Jürgen Möller, Norbert Müller, Gabriele Neundörfer-Kohl (Heidelberg: Springer Medizin Verlag, 2008).
shift Gaupp’s methodology from a view of psychopathologies focused on somatic measures influenced by the natural sciences, to one that took up Kraepelin’s taxonomy of pathologies, and especially that of endogenous psychosis, which demanded a deep engagement with case histories.\(^435\) In Gaupp’s diagnosis that there was “kein Zweifel” that “Wagner an Paranoia leidet,” his description could have been lifted from Kraepelin’s account of *Verrücktheit* (Paranoia), where he observed that the “Kranke ist unzufrieden mit seiner Lage; er fühlt sich zurückgesetzt, glaubt sich vielleicht schon von seinem Eltern und Geschwistern nicht mit der rechten Liebe behandelt, sondern vielfach verkannt.”\(^436\) Importantly, however, Gaupp differed from Kraepelin in thinking that paranoia was not psychogenic, but an exogenous affective disorder.\(^437\) His investigation of the case history thus looked for external influences that guided the emergence of Wagner’s paranoia, and especially factors in his training that affected the logic of his self-conception and auto-distinction. In other words, the observational period

\(^435\) This was a part of what has been called “Kraepelin’s Dichotomy,” which asserts a total distinction between manic-depression and dementia praecox, or what would soon be redescribed as schizophrenia, with respect to their symptomatologies and treatments. Karl Leonhard notes that there was more nuance to Kraepelin’s distinctions, but that his "successors did not pay attention to this, they saw only the gross division of endogenous psychosis into dementia praecox or schizophrenia and manic-depressive illness” in *Classification of Endogenous Psychoses and their Differentiated Etiology* (Vienna: Springer, 1999), 1. Leonhard also observes that this distinction would not likely have been allowed to persist as far into the twentieth century as it did had Wernicke, Kraepelin’s rival, lived longer.


\(^437\) See the short entry on Gaupp’s “reactive paranoia (abortive paranoia)” in Edward Shorter’s *A Historical Dictionary of Psychiatry* (Oxford: Oxford University Press, 2005), 210. This divergence from Kraepelin also had implications for Gaupp’s understanding of criminality. Richard F. Wetzell notes that Gaupp “acknowledged that environmental factors played a role in criminal behavior but that this was not an argument against the sterilization of criminals” because those same conditions along with certain predispositions and a general milieu were likely to produce criminality in their children. *Inventing the Criminal: A History of German Criminology, 1880-1945* (Chapel Hill, NC: University of North Carolina Press, 2000), 243. Gaupp, unlike some of his radical contemporaries who emphasized the genetic underpinnings of criminality, was more interested in environmental and medial factors associated with modern living and the propensity to criminal behavior. In the extensive records Gaupp made of his interactions with Wagner at the clinic and his observations on Wagner’s literary and biographical writing, Gaupp is tremendously empathetic, which is striking given his more hardline treatises on film. Gaupp frequently makes note of Wagner’s reference to philosophical theories opposing the notion of free will and seems to see a certain cultural and media-technological inevitability to Wagner’s case.
concentrated heavily on the media by which Wagner’s inner life was configured. Moreover, from his training with Wernicke, Gaupp retained the practice of galvanometric testing, which assessed patients’ mental associative networks using short, controlled exposure to words and phrases, measuring their response time. As a result of these two competing backgrounds, Gaupp’s analysis sought to both detect the mechanics underlying the emergence of Wagner’s defining personal narrative as a function of his life-long literary training, but also reconstituted this narrative according to the quantitative intervals of the tachistoscope. The dissonance between these two approaches is particularly salient for determining the kind of pathology at work, because, as Gaupp’s own student in Tübingen later noted and Kraepelin had already established, paranoia was a “Beziehungswahn,” generally distinguished from schizophrenia through the logic and coherence of the associative and representational relationships that comprised the patient’s inner-world.438 The logic of the nineteenth century reader was not that of the tachistoscopic patient nor the cinema-goer, and a paranoid was particularly well suited to revealing this disjunction.

What is clear is that the extended period of psychiatric observation, which ultimately led to Gaupp finding Wagner “außer Verfolgung,” was not unrelated to his position within the reform movement. His diagnosis of the formative conditions for Wagner’s Amoklaufen were a part of a broader history of psychology’s cultural interventions that included the Kinoreformbewegung, in which the disputed conditions of psychological continuity were increasingly expressed as a clash of the media by which the psyche was trained and represented. Unlike the questionable and general attribution

438 Ernst Kretschmer, Der sensitive Beziehungswahn: Ein Beitrag zur Paranoiafrage und zur psychiatrischen Charakterlehre [1918] (Berlin: Springer, 1927). This was a term that was also frequently used by Eugen Bleuler.
of criminal behavior to exposure to new media by figures like Karl Brunner, the case of Wagner did actually hinge on larger questions of media training, as did the looming questions of diagnostic categories that were the source of disagreement between figures such as Eugene Bleuler, Gaupp and his student Kretschmer, Karl Jaspers, Freud, and Kraepelin. In fact the core question that Gaupp pursues in his study of Wagner is not just whether Wagner is a paranoid or a schizophrenic, but how sanity and insanity are configured as properties of the media training. Additionally, because the debate that dominated theories of psychopathology around 1900 was divided between continuity versus discontinuity models, Gaupp’s psychiatric assessment can also be seen as diagnosing an epistemic transformation in the media-technological premises for the concept of psychological continuity.

Almost at the exclusion of other attributes, Wagner is characterized as a reader. Further, Gaupp treats him as a text to be hermeneutically deciphered, close-reading his autobiography, letters, and dramatic writings as if it were Wagner himself. David Trotter argues that because “Gaupp’s diagnosis did not meet with uniform acceptance,” from psychiatrists and critics who maintained that Wagner suffered from a “mild form of paranoid schizophrenia,” rather than just paranoia, Gaupp’s own paranoia about the producing an “utterly coherent diagnosis” led him to find Wagner’s delusions “utterly

439 These historical debates through which diagnostic categories were elaborated at the end of the nineteenth and beginning of the twentieth century, especially with respect to manic-depression, paranoia, schizophrenia, and dementia praecox, which underwent various convergences and divergences in their classification and treatment, are too vast to countenance here. However, for an incredible, encyclopedic overview see German E. Berrios’ The History of Mental Symptoms. In short there was a prevailing dispute about whether paranoia could be subsumed under the category of schizophrenia, whether schizophrenia and related disorders represented the far end of a continuum between healthy and unhealthy or whether there were fundamental differences in the psychological and neurophysiological configuration of the patients in question, and whether these extreme instances of psychopathology were exogenous or endogenous, to mention only a few of the major schisms in psychopathology at the time.
However, as Gaupp’s numerous publications on the dangers of film establish, his conviction about Wagner’s fundamental soundness of mind stemmed not only from his “professional identity” being “crucially at stake,” but more so from an underlying belief in a literary form of psychic continuity. This is reinforced by Gaupp’s insistence on diagnosing Wagner as a paranoid, as the literary subject who inhabits and can be constructed from a text—who can be treated as synonymous in his/her cultivation with the act of being written—demands that language retain its faithful correspondence with a world it represents. As Louis Sass neatly summarizes, a characteristic of “schizophrenic language involves tendencies for language to lose its transparent and subordinate status, to shed its function as a communicative tool and to emerge instead as an independent focus of attention or autonomous source of control over speech and understanding.” For the paranoiac on the other hand, language is not divested of its correspondence and communicative function, but is overlaid with significance and hyper-invested with correspondences that may not exist. The paranoiac always finds more significance than is present in language, suspicious that an even greater field of meaning and more absolute level of correspondence hides beneath what is apparent, and in this way becomes an ideal subject for the clinician committed to a traditional form of literary Bildung; philology itself being a project of exhausting texts’ spectrum of possible interpretation. As a defender of text, especially in the face of the rise of cinema,
Gaupp’s program of analysis with Wagner became a kind of literary study, highly influenced by the fact that Wagner was well-educated.

Wagner was not just a *Hauptlehrer* of German literature, he was a representative of literary *Bidlung* par excellence. Beyond being a highly esteemed teacher of literature, Wagner’s project of becoming a literary figure himself was actually the most evident symptom of his psychological decline. Wagner repeatedly proclaimed his status as a dramatist and author of the highest order, who deserved to be recognized among the pantheon of German literary figures such as Schiller and Goethe. In his autobiography and letters as compiled by Gaupp he writes:

> Ich halte mich auch für den größten Dramatiker der Gegenwart (Stuttgarter Spaziergänge S. 280), für einen ganz Großen (Biographie I, S. 71), für einen, der neben Schiller bestehen kann (Spaziergänge S. 68), alles andere, was außer meinen Sachen in der Neuzeit geschrieben wurde, für Schund (Stuttgarter Spaziergänge S. 31). Ich bin nach wie vor der Überzeugung, daß meine Schriften zu den Besten gehören, was jemals der Leserwelt geboten worden ist, und daß meine Werke, wenn sie aufgeführt würden, einen großen Bühnenerfolg hätten (Stuttgarter Spaziergänge S. 186).\(^{444}\)

In line with the standard paranoid diagnosis, Gaupp frequently refers to Wagner’s “Selbsüberhebing als Dichter,” as a part of a typical “Größenwahn,” which was also

\(^{444}\) *Der Fall Wagner*, 123. As it turns out, Wagner did achieve canonical literary recognition, though not in the way that he would have wanted. 1919 Hermann Hesse published the novella *Klein und Wagner* about the psychological unraveling of a bourgeois man who embezzles money from his employer and leaves his family to travel south to Italy with a false passport, where he becomes infatuated with a young woman. Throughout the story the character is confronted with the specter of a mass murderer Wagner, who is not explicitly named as Ernst Wagner, but whom we can infer to be him, as he is described as a media sensation discussed by co-workers, a school teacher, and an otherwise normal man who killed his family. It has also been suggested that the indeterminacy of the name Wagner uses the coincidence between the last names of Ernst Wagner and Richard Wagner to critique the latter. The parallels between the story and Gaupp’s account discussed in Stefan Höppner’s “Klein und Wagner,” in *A Companion to the Works of Hermann Hesse*, ed. Ingo Cornils (New York: Camden House, 2009), 117-138.
involved in an escalating suspicion of his peers, whom he believed to mock and defame him, and which is the seed for his rampage.\textsuperscript{445} It is Wagner’s disgust and own megalomaniacal self-appraisal as a literary figure that formed the groundwork for a long-planned violence against his erstwhile neighbors. Yet part of what is so unusual about Wagner’s case is that his \textit{Bildung} was not just a process of subject formation, but the form of subjectivity. The boundaries of Wagner’s psyche were delimited entirely by text, which is why he could only find expression through writing, and could not distinguish himself from the literary canon with which he identified.

Gaupp uses the first hundred pages to carefully reconstruct and comment on the personal development prior to the shootings, drawn primarily from collections of letter, plays, and Wagner’s massive autobiography, as well as recorded excerpts from the observation and a long official paper trail documenting Wagner’s time as both a student and a teacher. As a young student Wagner was described as a “ruhige[], geordnete[], anständige[]” student whose “Lieblingsfach die Literatur war” and who had a “starke Einbildung.”\textsuperscript{446} From early on, “als Knabe,” Wagner “sehr vielgelesen hat,” although Gaupp, ever the reformer, also notes that “vor allem natürlich” he read “auch sehr viel

\textsuperscript{445} Ibid., 45. This corresponds with Kraepelin’s terminology in the definition of paranoia word-for-word. Kraepelin writes: “Demütigungen können zu trotziger Selbstüberhebung aufrütteln, die in der starken Betonung des eigenen Wertes ein Gegengewicht gegen die Mißachtung von außen schafft…Wenn sich der hoffnungsfreudige Größenwahn der Jugend an seinem Kraftgefühl berauscht, weil er den Ernst des Lebens und seine Widerstände nicht kennt, werden hier die niederdrückenden Erfahrungen des Lebenskampfes verdrängt, weil sie nicht überwunden werden können.” In \textit{Psychiatrie: Ein Lehrbuch für Studierende und Aerzte}, vol. 4, 8th edition (Leipzig: Johann Ambrosius Barth, 1915), 1761. The description of typical cases of paranoia is repeated in Kraepelin’s lecture on the subject and parallel’s Gaupp’s observations exactly. Kraepelin observes, “Auffallend ist zunächst nur rein gehobenes Selbstgefühl, die Überschätzung der eigenen Leistungen und Fähigkeiten…” in \textit{Einführung in die Psychiatrische Klinik: Zweiunddreißig Vorlesungen} (Leipzig: Johann Ambrosius Barth, 1905), 153. As in Kraepelin’s description, Wagner also faced crushing disappointment in his inability to have his work published and anger from his wife when she found out that he had spent a substantial sum to have the works printed by a vanity press.

\textsuperscript{446} \textit{Der Fall Wagner}, Ibid., 25.
Schundliteratur in den billigen 10 Pf.-Heften.” 447 In line with Gaupp’s arguments discussed in chapter 1, and evidenced again in this case study, that Wagner read was more important than what Wagner read, and Gaupp seemingly excused his youthful indiscretions and even highly disturbing sexual episodes with his “Vorliebe für schöne Literatur” and his later dedication to “deutscher Literatur.” 448 The most immediate consequence of this lifelong immersion in literature and pedagogy was that Wagner comported himself well in the observation period and displayed an immense power of reference and rationality, even when rebuking himself in his memoirs as a fraud:

Ich bin ja doch Lehrer, Erzieher, Bildner der Jugend… Nein, ein guter Erzieher bin ich nicht gewesen. Ich selbst bin schlecht erzogen und mit der Selbsterziehung habe ich es auch nicht weit gebracht, was ihr mir gerne glaubt. Aber was ich im Leben nicht getan habe, das habe ich um so besser gewußt. 449

This reflexive self-observation only adds to the sense that, as with his developed imagination, Wagner was educated and had a robust sense self as distinguished from the world. He did not, like the patients described by Tausk, suffer a breach of ego-boundaries. Gaupp, against his own expectations, is astounded by the man he finds in observation and comments that “unmittelbar nach seiner Ankunft hier in mein Untersuchungszimmer geführt wurde, da sah ich sofort, daß ich von ganz falschen Voraussetzungen ausgegangen war” and that “ein ernster, gramgebeugter Mann in würdiger Haltung trat mir entgegen, höflich, bereit, sich in alles zu fügen, in seinem ganzen Benehmen ein gebildeter Mensch.” 450 The frequency with which Gaupp reiterates Wagner’s psychological coherence based on his education, and the extent to which that

447 Ibid., 28.
448 Ibid., 28, 31.
449 Ibid., 59. This citation from Wagner’s autobiography occurs in a section appropriately titled “Erziehung, Bildung und anderes Schulmeisterliche.”
450 Ibid., 184.
harried his diagnostic outlook is telling in that it insists on the sense of proper psychological interiority as a function of readership. As the cases Tausk investigated show, the ruptured psyche was indicated primarily by subjection to visual hallucinations, even if Bleuler and others had advanced subcategories of paranoia that involved hallucination.\textsuperscript{451} If anything, the boundaries between inner-world and outer world in cases of pure paranoia were too developed, a problem that can be seen as the outcome of a hypertrophied silent readership.

The paranoid delusions tormenting Wagner and pathing the way to the massacre in 1913 were a part of a literary fantasy, amassing a textual self as a bulwark against a world perceived as hostile. Wagner’s identification with German literature was so total that the development of his personality was conceived of as a progressive canonization, reading and producing texts as inseparable from his the cultivation of his identity. Words, and especially text, ratified the threatening ephemera of personhood that was endangered since he was a child, through canonization. Both the act of reading and joining the canon offered the ultimate form of personal indemnification. This expressed itself in rudimentary ways at first, such as feeling deeply obligated “sein einmal gegebenes Wort zu halten,” exclaiming “Ich Narr des Worts! Wie viel Unheil soll diese Untugend noch über mich bringen!” when he had broken an oath.\textsuperscript{452} The earnestness of this compulsive obligation to the word itself as dictating his fate was symptomatic of the degree to which the architecture of his psyche was textual and expressed an anxiety about the


\textsuperscript{452} Ibid., 26.
indeterminacy of spoken language. This was underscored by another tendency that Gaupp mentions many times in his readings of the autobiography and Gutachten from administrators and teachers, namely that in addition to having “viel Büchern und Romanen gelesen,” he also curiously, “stets schriftdeutsch gesprochen.” Throughout his life Wagner refused to speak spoken German, which complimented what Gaupp calls his “reinen Wahrheitsfanatismus”—the conditions of truth determined solely through an enactment as text. Thus, in 1909 Wagner writes of the motivation for writing his autobiography:


In this most melancholic idiom, which he often takes in his appraisal of personal failings, writing becomes both a constitutive and negative act, annihilating the ambiguous indeterminacies of his inner life in favor of the perceived absolution of texts, where what is objective must be written. In a truly paranoid overinvestment in the power of medial truth conditions, the autobiography, even when disparaging, provides a necessary confirmation that requires that Wagner read himself as a part of text. Unlike Goethe’s autobiographical work Dichtung und Wahrheit, however, whose “Wahrheit” is self-consciously left to both activate and develop the interpretive faculties of the “initiated reader” as an educational enterprise, there is no truly hermeneutical dimension to Wagner’s writing—it is meant to simply make himself literature, and therefore to render hermeneutics reducible to psychology. Literature did not represent a vehicle by which to

453 Ibid., 24. Gaupp also summarizes the reflections of his teachers, writing “Er habe immer hochdeutsch gesprochen” (30).
454 Ibid., 40.
455 Ibid., 28.
express one’s inner state, but became for Wagner a substitute for an inner state, or as he wrote of the reason for his interest in literature:

Ich wollte aus meinen eigenen “Geschichten” mich herausflüchten in ein erträglicheres Milieu...Ich habe so ziemlich die ganze deutsche Literatur gelesen und getraute mir einen vozuglichen Standard aufzustellen.456

Thus, to express himself in conversation with Gaupp was for Wagner to cite himself—“ich zitiere mich selbst, mich den einstigen Barrikadenrevolutionär”—as the text became the primary, rather than secondary manifestation of his psyche and the barricade between himself and the world.457

Recognizing this, Gaupp becomes not an observer of Wagner, but a reader, quoting page after page of his texts. In the interview this is made explicit, when the Untersuchungsleiter Ho. and Gaupp ask about his play “Nero”:

Gaupp: “Was dachten Sie bei den Lektüre des Nero”

Ho.: “Den habe ich gelesen, habe mir aber nichts Besonders dabei gedacht.”

Wagner: “Ich habe oft gedacht, man könnte es merken, Ihr würdet in meiner Seele lesen; aber dann dachte ich, den Gedanken, zu morden, den trauen sie dir doch nicht zu.”458

In contrast with his assistant, whose outrage frequently predetermined his judgments about Wagner and prevented him from pursuing the necessary psycho-biographical hermeneutics, it is precisely Gaupp’s intention to read Wagner’s “Seele.” However, Wagner recognizes a danger in being read that attends Gaupp’s hermeneutical practices. Namely that the logic of Gaupp’s psychiatric method will not vindicate the literary soundness of his psyche; will actually find him outside of the canon, illegitimate, and a

456 Ibid., 61.
457 Ibid.
458 Ibid., 142. Emphasis mine.
madman. As such he remarks “sehr höflich”: “Ich erblicke in Ihnen meinen gefährlichsten Feind; ich fürchte immer, Sie könnten mich für unzurechnungsfähig halten und erklären…Ich gehöre nicht ins Zuchthaus und Sie werden doch selbst zugeben, daß ich nicht bin wie diese da.” Indeed, Gaupp does conclude that “außerhalb der überwertigen Vorstellungskomplexe,” his “Wahrnehmen” was “ungestört” his “logische Denken” was “intakt,” and “das Handeln ungebunden.” Yet, how is it that Gaupp could so often remark on Wagner’s psychological soundness when there was no question whether he not only went on the shooting rampage, but had meticulously planned it for years? The answer is in the model of psychological continuity by which Wagner was diagnosed. This was a tachistoscopic model that formed a picture of the patient through series of discontinuities. It was, in turn, sacrificing the very historical, canonical, linearity of literary narrative continuity that Wagner had envisaged in writing himself and the reason why, despite desperately wanting to be a famous literary figure he was terrified of being read by Gaupp.

The clinical, mechanically defined intervals of galvanometric, tachistoscopic word associations that were instrumental in the assessment were what, in part, made Wagner readable, but not according to a textual logic. If Wagner’s aim was to fortify and objectify himself by becoming readable to himself and others, erecting “Ich-Grenzen” through the textual production and readership that so impressed Gaupp and accounted for his “Wahrheitsfanatismus,” it required that he be read as text. The confrontation with the possibility of not becoming readable or read as Goethe and Schiller were was a reason for his violence, as he was forced to forfeit the logic of his own self-construction if it

459 Ibid., 144.
460 Ibid., 186.
remained entirely idiosyncratic and subjective. It is for this reason that when Gaupp asked him whether it bothered him that “seine Schriften als Beweismaterial bei den Akten bleiben werden” he responded with contempt, saying “das wäre eine Gemeinheit, das wäre ein Raub,” the victim being unclear—the public or Wagner himself.⁴⁶¹ This is also why Wagner claimed that the doctors had become his “gefährlichsten Feind,” as their ability to “erklären” would not vindicate the logic of his self-construction.⁴⁶² These were not literary readers, but clinicians, who, especially in the case of Gaupp, were trained in psychophysical assessments that did not preserve the logic of the psycho-literary whole that was the source of Wagner’s illness. Instead, Gaupp’s reading of Wagner was paired with tachistoscopic tests that, as explored in chapter 2, enforced the logic of their own mechanism. Wagner feared that his “Seele” would become readable to Gaupp, but according to a logic that was not readable to Wagner. The logic of text was his singular source of power in defining himself, as he could freely manipulate it in accordance with the literary conventions established by great canonical figures, such as Goethe and Schiller. To imitate them, as he did in his plays and autobiography and through years of study, was to objectively legitimate himself by collapsing the process of person-building in the process of canon-building. This is most pointedly expressed as a function of literary conventions and the mechanics of the textual medium through which he sought to construct himself in an incredible entry from his autobiography:

Ich habe mein Leben gedehnt, obwohl sich die Qual von Tag zu Tag geschärft hat. Weil aber Buchstaben leichter umzubringen sind, als Menschen, so will ich wenigstens im Rechtschreiben meine erbärmliche Schwäche überwinden.⁴⁶³

⁴⁶¹ Ibid., 153.
⁴⁶² Ibid., 144.
⁴⁶³ Ibid., 52.
By spelling himself out correctly according to the rules of literature, building a self from text, Wagner could exert a control over the production of his psyche and his place in the world that did not arise organically. This can be viewed in direct contrast with the case of Daniel Paul Schreber as described by Kittler, where the idiosyncratic, hyper-personalized reasoning of a compulsive glut of text became for psychoanalysis the man himself. Freud only had Schreber’s text at his disposal, and thus, by necessity, had to take the text for the man. Nevertheless, Kittler writes, “Im Fall des Informationssystems Seele aber heißt der psychotische Text, der es auf Vierhundert Seiten beschreibt, die unmetaphorische Wahrheit.”

In one way Wagner was therefore the absolute opposite of Schreber, because, it was his panic to adopt and deploy the rules of language and literature established by the canon that served as the source of personal distinction. Yet as Kittler notes of the era of scientific psychology inaugurated by Gaupp’s teacher, “Im ‘Zeitalter Flechsigs und Wernickes’ (kein geringerer als Benn nennt es so) werden aus Seelen Nerveninformationssysteme, aus psychischen Kuren Experimente.”

And it was precisely through Wernicke’s method that Wagner became readable and the “Buchstaben” by which Wagner assembled himself were submitted to an experimental, cinematic logic.

Gaupp and his psychiatric team “versuchten, auf Umwegen darüber Klarheit zu gewinnen, indem [sie], ‘experimentell-psychologische Versuche’ mit Wagner anstellten, deren Sinn war: festzustellen, ob bestimmte, von außen angeregte Vorstellungen bestimmte Reaktionen erzeugten, in denen eine starke gemütliche Erregung zum

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464 Aufschreibesysteme, 352
465 Ibid., 355. The quotation is from Gottfried Benn’s 1930 Der Aufbau der Persönlichkeit.
To this end, Gaupp described the experimental design of a test of Wagner’s linguistic associations intended to reveal his level of psychological coherence:

Es wurden Wagner zahlreiche Worte zugerufen; er hatte die Aufgabe, auf sie mit dem, was ihm zunächst einfalle, sprachlich zu reagieren. Die Reaktionsworte wurden schriftlich fixiert und die Reaktionszeiten gemessen. Auch wurden Versuche mit dem Galvanometer angestellt, einem Apparat, dessen Einzelheiten hier nicht erörtert werden können, dessen Wesen aber darin besteht, daß er auch solche gemütlichen Erregungen zum optisch-sichtbaren Ausdruck bringen kann, die sich der einfachen Beobachtung sonst entziehen. Die Versuche verliefen in Bezug auf die hier lösende Aufgabe (Unzucht mit welchem Tiere?) negativ, ergaben aber im übrigen einen nicht uninteressanten Einblick in seine geistige Struktur: Seine gute Auffassungsfähigkeit, seine Neigung zu logischen, hochwertigen Assoziationen, seine Vorliebe für literarische Dinge, seine egozentrische Reaktionsweise, die bei ihm alles auf seine Person Bezugliche abnorm stark betont erscheinen läßt, das starke Im-Vordergrund-Stehen seiner sittlichen Verfehlung, das tiefe Gefühl seines Leids, sein Erfüllsein von Mord- und Rachevorstellungen kamen bei diesen Experimenten zum Ausdruck.⁴⁶⁷

Ignoring the line of inquiry regarding his past sexual experiences, the observational setting Gaupp describes as well as its ostensible “results” provide some insight into the manner in which early engagements with the psychology of film were informed by a specific experimental understanding of the ability to reconstitute or model the psyche according to the logic of testing methods and the media-influenced character of thought and inner life.⁴⁶⁸ In the case of Wagner, the difficulty of determining his sanity was predicated on the perceived soundness of his “geistige Struktur,” which was not merely filled with literary reference and indicative of a readerly education, but fundamentally constituted by and cultivated according to the act of reading. What Gaupp identifies in Wagner, which troubles the diagnostic move to a statement about his insanity is that his “gute Auffassungsfähigkeit,” his “Neigung zu logischen, hochwertigen Assoziationen,”

⁴⁶⁶ Der Fall Wagner, 132.
⁴⁶⁷ Ibid., 132-33. All emphasis is mine.
⁴⁶⁸ Throughout Gaupp’s analysis there is frequent attention paid to Wagner’s sexual perversities, including his masturbation habits, relations with prostitutes prior to his marriage, and most notably, as this passage indicates, a period in Mühlhausen in which he engaged in zoophilia.
and his “Vorliebe für literarische Dinge,” were at odds with clinical notions of psychological rupture. That is to say, a psychological autonomy built according to the logic of reading and narrative coherence conflicted with expectations about mental illness as described in his writing on film. In those critical writings, the presumable object of his suspicions about the mode of constructing stories was the pictorial logic relying on operations of diachronic sequence, visual resonances, and editing that produced the illusion of continuity through the elision or masking of discontinuities. The fact that filmic continuity was generated from and required the breaks and disjunctions of frames, shutter closures, and cuts, to arrive at the appearance of a continuity and a complete diegetic space even mapped onto contemporary ideas about pathological strategies for repairing dysfunctional internal logic—visual hallucinations were believed to occur as a way of reestablishing psychic boundaries between the interior and exterior that had been fractured. This reasoning harmonizes with other famous psychotherapeutic case studies of schizophrenic breaks in the coherence of the psyche as described by Freud, Tausk, and Haslam, in which the pathological inability to generate a properly circumscribed inner-world was marked by an internal logic of images rather than language.469

Paired with the use of a chronoscope for the purpose of using electrical impulses to measure the intervals between the presentation of the word and subsequent association, the psychometric analysis of Wagner’s responses divided and assessed his answers according to a temporal measure that was problematic for the distinction frequently drawn between the virtues of reading versus the hazards of film. As already noted, Gaupp

469 Sigmund Freud, “Psychoanalytische Bemerkungen über einen autobiographisch beschiebenen Fall von Paranoia (Dementia Paranoide).” Gesammelte Werke, Band 8 (Frankfurt am Main: S. Fischer Verlag, 1967), 240-316;
and others decried film’s interference with “Nachdenken” as one of the primary attributes of the readerly psyche, imagining that the quick replacement and alternation of images found in films was both physiologically harmful and allowed an unconscious order of messaging, structurally different from that of texts. In line with this thinking, the galvanometric tests on Wagner were praised for their ability to bring to “optisch-sichtbaren Ausdruck” that which remained invisible to traditional observation by eliminating contemplative reflections outside of the immediate, automated response—allowing a “Bild” of the subject’s “Bildung.” It was not just the presentation of visual content in films versus the internalized act of reading, requiring the movement from sign to mental representation, which premised Gaupp and other critics’ worries about the nascent narrative medium of film, though it was no doubt important to their criticism. It was also embedded in a worry tied to psychophysics’ claim that mental processes could be modeled and simulated by compiling the result of discreet measurements, which parcelled the semantic and narrative psychological terrain into mechanically definable units.

The nature of the experimental observation of Wagner, which externalized and incrementalized his textual and verbal associations as a function of the on/off mechanism of the galvanometer and chronoscope, broke up a whole field of associations into individual responses that were then compiled to offer a diagnostic picture of his psychic life. The series of words to which he responded were intentionally presented without a meaningful syntactical sequence, and were then evaluated according to the response and period of delay with the precise intention of evading “Nachdenken.” Thus the logic by which the responses to a series of syntactically unrelated and meaningless words were
reassembled as a diagnostic view of Wagner’s psyche generated an essential conflict between the methodology of observation and the belief expressed about the healthy, educated, readerly mind. To arrive at the underlying psychic structures at play in Wagner’s narrative about his own actions, the psychiatrists in Tübingen tested his reactions to individual words, then had to reconstitute them using the logic of their instruments—a logic of the metered alternation between on/off, shutter closed/shutter open, frame 1/frame 2—that is to say, while not visual, the logic of filmic editing. Although the test involved responses to words and his associations were drawn from a deep familiarity with literature, the logic by which his responses were solicited then arranged as a representation of his psyche mirrors the logic of film Gaupp lamented in his criticism of cinema addressed in chapter 1. And this is perhaps where the conflicted results of the analysis reside, as it allows one to see how the concerns about the filmic transformation of psychic structures was a matter of operation rather than story or content.

The association tests produced a vision of Wagner as a literate, rational agent were at odds with the larger narrative about his murderous action, revealing a profound incompatibility in the psychophysical methods of observation with the expectations about the structure and composition of a healthy psyche. Gaupp’s citation of the Versuchsleiter, Dr. Busch for the test confirms this when he is quoted as saying “Wagner besitzt außerordentlich stark—zweifellos in pathologischem Grade—gefühlsbetonte Vorstellungskomplexe,” though the pathology was located in the ordering not the content of these representational complexes.\textsuperscript{470} Emphasizing the “außerordentlich” nature of the dissonance between his apparent benchmarks of a moral-literary “Bildung” and his

\textsuperscript{470} Zur Psychologie des Massenmords, 133.
criminal behavior as a problem of “representational complexes” revealed through psychophysical examination, points to an intuition about the importance of how such complexes are arranged, rather than what they contain. About this incompatibility Friedrich Kittler similarly observed of Freud’s famous reading of the case of Judge Schreber, “Elementarsätze des klassischen Aufschreibesystems verkommen also zu Defensivwaffen eines Internierten. Im Kreuzfeuer der Psychophysik bleibt dem letzten Beamten nur seine sedimentierte Bildung, die ihre Normen aber Schritt um Schritt abbauen muß.” The appeal to the fundaments of a literary Bildung are marshaled for the purpose of creating the impression of repairing a classical conception of interiority, even while the basic semantic ligatures (in the syntactically sensible arrangement of words) of such internalized narrative forms are mechanically dismantled.

It appears as if the concern is that through the psychophysical methodology, similar to the editing and projection logics of film, the discretely broken-down and measurable units can be reassembled to give the illusion of an autonomous, coherent unity. This was a model of continuity pursued through discontinuity that would have been impossible to achieve through Wagner’s own canonical, literary-historical self-conception. The words were extracted from a diegetic whole that included a personal narrative about his life as a child and the literary training that conditioned his powers of self-conception. But the associations were not ordered according to conventions of written narrative, and were instead taken as snapshots of a deeper psychic structure which were then arranged as if on the editing table (according to their duration and “optical” properties). Psychological unity thus became a function of the unity of the dataset, which replicated the “Entziehung des Wortes und mit ihm des Gedächtnisses,” found in film. In

471 Friedrich Kittler, Aufschreibesysteme 1800/1900 (Munich: Wilhelm Fink Verlag, 1985), 307
describing film’s divergence from the logic of reading and drama, Lukács, accounts for the empirical operations of film in way that could double as an experimental protocol in the case of Wagner:


Lukács’ identifies the fact that diegetic world-building in film is misleading in its “reality effects” in that, despite its apparent relationship to a real from which images are taken, the sense produced from the succession of images, and therefore the mental state they induce, is not the result of a traditional causality, nor the content of the images. In this understanding the continuity of the “einheitliche” world is created irrespective of the visual content of the images and the objects with which they correspond. In place of a spatio-temporal coherence or the syntactical unities of writing, Lukács contends that filmic narrative is founded in a modal logic similar to Vaihinger’s positivistic vision of fictionality referenced by Guttmann. Except in this case, the mechanics of the “als ob” in which “Wirklichkeit” and “Möglichkeit” become interchangeable is the result of the cinematograph—the viewer’s diegetic interpolation into the narrative space of the film was an external, mechanical procedure that relied on the ability to break up individual moments and assemble them in way that masked their discontinuities.

472 Lukács, “Gedanken zu einer Aesthetik des <>Kino<>>, 236.
The internal opposition in the diagnosis of Wagner—one of a well “gebildet,” reader and the other of a mass murderer—inadvertently tested for two disparate logics of continuity, one of which was distinctly cinematic and the grounds for the outcry of the Kinoreformbewegung, the other the tradition of literary education critics saw as jeopardized. The psychiatric observers’ inability to offer a decisive statement about Wagner’s soundness of mind when viewed against Gaupp’s position on the dangers of film for the education as well as physiological and intellectual conditioning of its viewers, indicates a conflict about the nature of mental continuity as represented in psychological models; between the permutational logic of empirical measure, where there is never a complete dataset, and the holistic model of the mind as a conceptual unity in literature. Kittler attributes this transformation around 1900, after Hermann Ebbinghaus, to the psychophysical separation of medial techniques that were thought part of the development of a unitary literary subject into independent, measurable, automated faculties:


The fear among early critics of film drawing on literature from experimental psychology about the formation of the psyche implicitly recognized in the

psychophysical techniques of measurement and representation using isolated, media
specific measures of perception, a threatening potential that instruments like the
tachistoscope intervened in the construction of meaning between perceptions of the world
and the invention of an inner-life. Even Lukács’ more sympathetic theorization of film
reflects the turn described by Kittler from a representational economy in which the sense
of psychic completeness was generated by operations of reading that produced a
conceptual, linguistic universe approximating the unity of the Nature to which it
corresponded, to one of “Möglichkeit.” In this way, the sense of “Wirklichkeit” was just
a function of endless possible permutations of orderings that created mental continuities
from discontinuous frames presented in succession. This new methodology could
simultaneously affirm a patient like Wagner’s pathological break and seeming coherence,
as discontinuity had become the cornerstone of psychological continuity.
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