

Hands-On Cinema

Film und Lichtbild (1912–1914) and the Promise of Amateur Science

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Studying early film journals can teach us much about the institutionalization of cinema and its attendant cultural claims, as well as the early history of institutions such as film criticism, film theory, arthouse cinema, and genres. But journal history can also help us understand when, how, and why more specialized communities of interest—educational, professional, political, and so on—came to see film and cinema as a matter of concern. That does not mean that we should take such groups’ pronouncements at face value, since every constituency had vested interests in normative definitions of cinema (as art, as political “weapon,” as national industry, etc.). But we can gain insight into questions such as why different communities turned to cinema when they did, what presuppositions they brought to bear upon it, what questions they looked for it to answer, and what potentials of cinema they helped to make intelligible.

In the German context, much has been written about the pioneering trade journals such as *Der Kinematograph* (founded in 1907 and usually considered the first German-language film journal) and *Die Lichtbild-Bühne* (1908),¹ as well as the role of film journals in the development of film criticism.² But we can also learn a lot from the more specialized publications—on educational film, amateur film, film technology, film and politics—that dotted the early film publishing scene. In this chapter, I examine the short-lived journal *Film und Lichtbild* (1912–14) as part of a broad-based “discovery” of film and cinema by amateur science communities in the early 1910s. Why, the chapter asks, did such groups come to see film as a sector important enough to merit an independent journal? What questions, preconceptions, and desires did they bring to it? What kind of “company”—to borrow a term from Greg Waller—did film keep in their publications?³ That is, what other kinds of technologies, practices, and social imaginaries was cinema associated with in



FIGURE 8.1. *Film und Lichtbild*, front cover, January 1913.

the journal's pages? And what does this tell us about the conception of cinema and its potentials being worked out here? Finally, what kind of readerly community did these journals imagine building around film as they understood it? As I will argue, to answer these questions, we need to approach a publication like *Film und Lichtbild* not only in the context of film publishing but also in the context of publishing in amateur science.

SCIENCE DISCOVERS CINEMA

Launched in July 1912 by the journalist Fritz (Friederich) Seitz from the popular science publishing house Franck'sche Verlag, *Film und Lichtbild* described its mission in its inaugural editorial as that of "fostering the undeniable advantages of

cinematographic technology for various scientific fields.”⁴ This idea of cultivating film for science hardly arose in isolation, as the period just after 1910 was marked by a broad-based turn towards science and education in German film culture. Of course, “scientific” films had existed since the earliest days of the cinematograph, with precursors in lantern slides and chronophotography. But such films, often screened as part of a larger entertainment program, were not yet supported by a separate distribution infrastructure.⁵ This began to change around 1910 with the rise of a wave of new journals dedicated to scientific and educational uses of cinema, including not only *Film und Lichtbild*, but also the Viennese *Kastalia* (founded in 1911), the Mönchen-Gladbach-based *Bild und Film* (founded in 1912), and several others. The launch of these publications coincided with the rise of other related (and often directly affiliated) initiatives, including the opening of special screening venues for educational cinema such as the Altonaer Lichtbildtheater in Hamburg, the Fata Morgana cinema in Dresden, and the Universum and Kosmos cinemas in Vienna;⁶ the creation of specialized distribution networks for educational film, such as the Lichtbilderei GmbH in Mönchen-Gladbach (founded in 1912); and the first film societies dedicated to educational cinema, such as the Kastalia Gesellschaft in Vienna and the Kinematographische Studiengesellschaft in Berlin.⁷

To understand this upsurge in the promotion of scientific and educational film after 1910, we might begin by asking why the idea gained so much traction when it did. An obvious starting point is that these initiatives were inseparable from the well-known “cinema reform” movement, in which medical and juridical authorities such as Albert Hellwig characterized entertainment cinema (often with the derogatory term *Schundfilm* or “trash film”) as a public health crisis and sought to curb its effects through state intervention. Cinema reform, in turn, can be understood only against the backdrop of the boom in entertainment movie houses around 1910, as cinema became increasingly viable as a middle-class leisure activity. As the most oft-repeated formulation of the time had it, cinemas were “popping up from the ground like mushrooms,” and the reform movement was almost certainly driven in part by fears about their expansion from the lower-class peripheries into affluent urban districts.⁸

Since the rapid growth of movie theaters posed a direct form of competition for audiences, institutions of popular science felt cinema’s newfound prominence in a particular way. For instance, the Berlin Urania Institute, Germany’s most prominent public venue, founded in 1888 for popular science lectures, courses, and exhibitions, noted in its annual financial report for 1911: “The unprecedented increase in . . . movie houses in Berlin has exerted an adverse influence on our society’s financial operations this year.”⁹ It is hardly a coincidence that the Urania first introduced films into their own scientific lecture series the following year (1912, the same year that *Film und Lichtbild* was founded).¹⁰

In some ways, as Frank Kessler and Sabine Lenk have argued, cinema reform and educational cinema were simply two sides of the same coin, since both sought

to counter the increasing clout of entertainment cinema with more “edifying” uses.¹¹ Yet amateur science publications like *Film und Lichtbild* were also at pains to distinguish their mission from the alarmist stance associated with reformers. Thus, the journal’s opening editorial from 1912 told readers in no uncertain terms that it would go beyond the tired reformist complaints about cinema’s “harmful excesses” (*schädliche Auswüchse*) to focus on the beneficial potentials of cinematography, especially for science.¹² Hence, while a journal like *Film und Lichtbild* might have shared some of the reformers’ misgivings about entertainment cinema, it wanted its approach understood differently: as an effort to establish and cultivate a genuine passion for “quality” film, understood here in scientific terms.

But perhaps we should turn the question about historical timing around and ask what exactly these groups were discovering in the cinema. As the title *Film und Lichtbild* (*Film and Photo/Slide Projection*) suggests, their understanding focused less on feature films for the big screen than on the broader world of optical projection media—an idea also borne out in the publication’s opening editorial, which characterizes film as “a new branch of optical technology.”¹³ Accordingly, the journal ran not only articles on cinematography but also regular reports on amateur slide production, stereoscopic images, and related areas of still photographic media.¹⁴ The majority of articles that did treat cinematography tended to explore its widest technological potentials, ranging from amateur cinema apparatuses to panoramic cinema for geography lessons, from cinematic shooting galleries for military training to so-called diaphragmatic projections for teaching planar geometry.¹⁵ *Film und Lichtbild* was not alone here, as other journal titles (such as *Bild und Film*) suggest. The specialty cinemas, film clubs, and distribution networks mentioned above were also a case in point, as they never limited themselves to moving images but understood their remit to cover a broad range of optical media, focused in particular on the idea of the visual “lecture.” The Lichtbilderei GmbH, for example, provided not only films but also complete audiovisual lectures, as well as projection apparatuses for slides and moving images.¹⁶ Specialty cinemas were also being conceived in this hybrid manner, as Otto Theodor Stein wrote in another article for *Film und Lichtbild*: “My ideal cinema [Musterkino] would not be a pure movie theatre, but rather a kind of lecture space with a main stage and separate rooms for cinematographic lectures.”¹⁷

One could interpret this “hybrid” understanding of cinema as a typical manifestation of early film culture, where slides and film still regularly shared the stage.¹⁸ But more than other groups, scientific communities had good reason to cling to still images alongside film, since they offered a key means (alongside the speech of lecturers) for ensuring that moving images would serve the ends of knowledge transmission. Reports like the following, from *Film und Lichtbild* on a screening of deep-sea films by the Cologne Society of Natural Scientists, were numerous: “Since rapid moving images often leave no time for the recognition of details, the screening was preceded by slides, in which the lecturer could show

audiences what to look for.”¹⁹ Similarly, in an article on film and statistics, Friedrich Felix explained that “all rules of mnemotechnics fail when confronted with the speed of this type of visualization” and insisted on the “aid of still slides.”²⁰ Something analogous was almost certainly at stake in the first Urania show to integrate film in late 1912, “Geheimnisse der belebten Natur” (Secrets of Living Nature), in which Dr. Wilhelm Berndt of the Berlin Zoological Institute showed a mix of films he himself had made and films borrowed from Jean Comandon and the Neue Photographische Gesellschaft. As Berndt recalled in an article for *Film und Lichtbild*, it was arduous work learning to present the films in such a way that “from this jumble of nearly indecipherable actions there could emerge a little drama . . . , in which biological comedy and tragedy could achieve clear expression.”²¹ This was achieved partly through the use of still images, as a separate report on Berndt’s show for the journal explained: “[Dr. Berndt] explained the content of the films in advance, in a humorous and easily comprehensible manner, by means of spoken word and still images.”²² This emphasis on combining still and moving images also explains the keen interest these groups took in projectors that could be paused (a technology that was only just starting to become viable).²³

Clearly, then, any understanding of this approach to cinema as a “new branch of optical technology” requires that we look back to the world of popular science from which it emerged. That field had been undergoing a pictorial turn for decades through illustrated publications, exhibitions, and slide lectures.²⁴ As the case of the Urania shows, cinema likely appeared as the next step in this process, albeit one that had to be approached with some care. This is, indeed, the way in which film was conceived in a journal like *Film und Lichtbild*: as an optical medium that was quickly becoming indispensable to both the practice and popularization of science.

SCIENTIFIC PUBLISHING

At the same time, the particular take on cinema espoused in *Film und Lichtbild* also speaks to more specific questions of science *publishing* and the way it conceived of its readerly communities. As print historians such as Ina Pfizer and Klaus Taschwer have shown, popular science literature experienced a boom in Germany starting around the turn of the twentieth century, when several major publishers shifted their focus from fiction to science and technology and numerous new popular science journals came on the scene.²⁵ This was, in part, a story of economics, as publishing houses discovered that the new demand for popular science offered a lucrative market niche and a new generation of science journalists emerged to meet the need. But that increased demand for popular science was itself driven by cultural factors, above all by the culture of “self-betterment” that arose in the late nineteenth century to fill the growing leisure time of the middle

classes—particularly in the form of clubs and associations (*Vereine* in German), which provided a key terrain for traveling lecturers and to which so many of these journals sought to appeal.

The idea of popular science as a form of self-betterment also had deeper roots, stretching back at least to Alexander von Humboldt's sweeping *Kosmos. Entwurf einer physischen Weltbeschreibung* (*Cosmos: A Sketch of a Physical Description of the Universe*), which began as a series of public lectures at the University of Berlin (1827–28) before becoming one of the best-selling books of the nineteenth century and a staple of bourgeois self-instruction. The appeal of Humboldt's model resided largely in its promise to compensate for the increasing abstraction and specialization of scientific knowledge by offering an accessible overview, grounded in the first-person experience of the polymath author.²⁶ This promise helped to outline the horizon of expectation in which subsequent popular scientific groups would operate. Institutions such as the Urania (founded in 1888) sought explicitly to build on the Humboldtian model of making abstract scientific knowledge comprehensible and experiential for lay people. In this context, there was a strong emphasis on “visual education,” but perhaps more broadly on *experiential* participation: the culture of amateur science thrived on the promise to allow audiences to experience science and research for themselves.

This is the context in which amateur scientific publishing took off, and the story of Franck'sche Verlag offers an insightful case study. Founded in 1822 as a landing place for fiction (including names like Wilhelm Hauff, E. T. A. Hoffmann, and Walter Scott), the press changed its remit shortly before 1900 to become one of the most successful publishers of popular science, home to many of the key authors in the field, such as Ernst Haeckel disciple Wilhelm Bölsche, Urania founder Max Wilhelm Meyer, and Raoul Heinrich Francé, a proponent of amateur microscopy.²⁷ Particularly influential, as Pfitzer has shown, was the publisher's flagship journal *Kosmos: Handweiser für Naturfreunde* (founded in 1904), which would remain in circulation until the end of the twentieth century. In their inaugural editorial, the editors of *Kosmos* (citing Humboldt as their model) characterized the journal as a space where readers could gain an accessible overview of scientific knowledge, despite the “unavoidable specialization” of current research. Just as importantly, they emphasized the importance of experiential learning and promised to help readers bridge expert knowledge and everyday experience through “participation in scientific research”: either vicarious participation through the study of the journal's richly illustrated articles (which carefully translated expert knowledge into lay terms)²⁸ or more active participation by following the journal's lead to “undertake one's own observations.” All of this, moreover, was framed as a means of self-betterment: “Research in natural sciences and the participation in such research through study . . . influence one's outlook on life and one's character, elevating thought to a higher level. Absorbing oneself in the natural sciences strengthens the intellect, the temperament and the will.”²⁹

Such work on the self would occur not only by reading the journal, but also through its supplemental publications, such as the series *Kosmos Bändchen* (*Kosmos Booklets*), in which prominent authors from the field covered topics ranging from planets to plants to microscopy to evolution in easily digestible, illustrated form. The Franck'sche publishing house also pioneered more experiential forms of hands-on knowledge acquisition, such as the *Kosmos Baukasten*, a kind of amateur laboratory allowing for experimentation with chemistry, electricity, microscopy, astronomy, wireless technology, and so on.

Moreover, like other journals published by Franck'sche Verlag (e.g., *Mikro-kosmos*, launched in 1907 as a publication for the Mikrologische Gesellschaft, a club for amateur microscopy enthusiasts founded by Francé), *Kosmos* was directly linked to an amateur science society, the *Kosmos Gesellschaft der Naturfreunde* (*Kosmos Society for Friends of Nature*). The society not only provided a forum for the exchange of ideas and questions, but also organized various excursions and holiday courses for members and offered them means of acquiring affordable scientific equipment.³⁰ Here, amateur science publishing wasn't simply selling text but also the promise to make scientific knowledge experiential and thereby compensate for the increasing gulf between everyday experience and the abstractions of scientific knowledge.

FILM UND LICHTBILD: THE BIRTH OF AMATEUR FILM FROM AMATEUR SCIENCE

This is the context in which *Film und Lichtbild* was founded (just as *Kosmos* was reaching a circulation of one hundred thousand) to offer lay readers an insight into film and science.³¹ Seitz, who had already served as an editor of *Kosmos* before launching the new film magazine, adopted many of the familiar strategies.³² Like *Kosmos*, *Film und Lichtbild* was meant to be affordable, with subscription coupons from the first year offering readers "at least 10 richly illustrated issues for only 2 Marks" (around fifty cents at the time).³³ And it had an analogous mission, albeit at a smaller scale: namely, to offer readers an overview of the exploding field of scientific film and related optical technologies. Articles were organized most often by fields of application (biology, medicine, military science, ballistics, mathematics, geography, meteorology, visual statistics, traffic regulation, career aptitude, etc.) or by technologies and techniques (home cinema, stereoscopy, color cinematography, aerial cinematography, etc.). In addition to the articles themselves, there were numerous rubrics designed to help readers determine what was worth knowing or watching. Most prominent here was the monthly "List of Scientifically and Technologically Quality Films," which readers could consult when planning their own educational screenings.³⁴ Issues also contained more specific film reviews, reports on significant events, notes on new developments in the world of scientific or educational film,³⁵ descriptions of key figures,³⁶ and discussions of significant

KOSMOS

Handweiser für Naturfreunde

und Zentralblatt für das
naturwissenschaftliche Bil-
dungs- und Sammelwesen

herausgegeben vom

Kosmos, Gesellschaft der Naturfreunde, Stuttgart

9. Jahrgang 1912

Franckh'sche Verlagshandlung in Stuttgart

Notiz für den Buchbinder: Es sind nur die fortlaufend (arabisch) paginierten Seiten auf weissem Papier einzubinden.
Die lateinisch paginierten Seiten, Bekanntmachungen, Anzeigen usw. auf weißem und gelbem

FIGURE 8.2. *Kosmos Handweiser für Naturfreunde*, title page, 1912.

books and journals (including overviews of literature in other languages).³⁷ Like the writers for *Kosmos*, moreover, the authors for *Film und Lichtbild* consistently emphasized their ability to translate specialized research into easily comprehensible terms, with such phrases as “In accordance with the goals of the Franckh’sche publishing house, I have chosen a few texts here that make it easier for readers to work their way into this exciting material.”³⁸ Many (if not most) articles were, in fact, summaries of longer key studies, presented in lay terms.³⁹

The journal also encouraged readers to understand themselves as part of a self-conscious community with an interest in using optical technologies for scientific self-betterment. The opening editorial explicitly asked readers to “make contact with us and share their wishes.”⁴⁰ The journal continued to solicit readers’ participation, in particular through the letters column (“Briefkasten”), where readers could find answers to various queries (e.g., where to acquire high-quality educational film material, how to program educational film screenings, how to avoid flicker).⁴¹ There were also regular invitations to readers to signal good films or suggest topics for coverage in the journal.⁴²

Moreover, although *Film und Lichtbild* did not begin as the journal of a film club, it quickly attached itself to one when the Viennese Kinematographie Klub, founded in 1912 by schoolteacher and filmmaker Alto Arche, adopted the journal as its house publication in August 1913 and changed its name in the process to the Kosmos Klub für wissenschaftliche und künstlerische Kinematographie (Kosmos Club for Scientific and Artistic Cinematography). While the film club almost certainly chose its new name in emulation of the Kosmos Gesellschaft der Naturfreunde (with which it claimed to be affiliated),⁴³ the publishing house was also presumably happy to attach *Film und Lichtbild* to a prominent film club as a means of gaining dedicated readers. As the Kosmos film club explained in its inaugural statement printed in *Film und Lichtbild*, it sought to appeal not only to a small circle of filmmakers or cinemagoers, but “to every educated person who wishes to increase his knowledge in a vivid way [*in anschaulicher Weise*]” via optical technologies.⁴⁴ This remit was borne out by the group’s member list, which included men and women from various areas of middle-class professional life: teachers and university lecturers (especially among the scientific governing committee), but also accountants and bank clerks; electricians, engineers, and architects; public officials and attorneys; hairdressers, tailors, and salespeople; as well as printers, artists, and theater set designers.⁴⁵

What held this group together, I believe, was a familiarity with the ideals of popular science as a means of self-betterment—and the conviction that optical projection technologies had a role to play here. Indeed, the club’s first report in *Film und Lichtbild* from 1913 sounds a note reminiscent of nothing so much as the opening editorial of the *Kosmos* science journal a decade earlier: “The development and spread of technology and natural sciences has provoked massive upheavals in every area of our cultural life in recent years. Dirigibles, airplanes,

modern steamships, the feats of explorers in the North and South Pole, color photography, stereoscopic photography, and other arts are just a few examples from most recent memory. The goal of our club is to use the projected image [*Lichtbild*] to help audiences understand these scientific accomplishments, as well as the life and culture of our Earth.”⁴⁶ To this end, the film club offered predrafted scientific lectures to its members and also teamed up with the publishing house to offer film equipment such as the “Kosmos Projektions-Apparat,” which could be rented from the publisher for film and slide presentations in local associations. It even opened its own specialty theater in Vienna, the Kosmos Theater, which remained a specialty theater for film clubs into the late twentieth century.⁴⁷

All of this suggests that *Film und Lichtbild* approached film as a medium of *experience*. On the one hand, film itself would help make science experiential, allowing viewers to participate vicariously in scientific research. Time and again, one encounters sentiments such as those of one writer who claimed that educational screenings can teach audiences “more than dozens of lectures and more than all books. They experience the nature of the ocean, of the Sahara Desert, of the primal forest, as if it were the result of their own research.”⁴⁸ This promise of experiential “participation” in scientific research was one of the central tenets of the passion for cinema being developed in the pages of *Film und Lichtbild*, and one that it shared with other institutions of popular science film.

On the other hand, the journal’s readers were encouraged, to the extent possible, to experience film technology for themselves: to get their hands on it and to see it as part of the remit of their various clubs and associations, whether this meant simply learning to run a projector or learning to produce films.⁴⁹ This objective was announced from the journal’s inaugural editorial, which vowed to help enterprising readers gain access to “first-class cinematograph apparatuses, as well as valuable scientific and impeccable artistic films and slides”—a vow later realized when Franck’sche Verlag announced the founding of an “Office for First-Class Films and Slides,” which also offered a projector for 147 Marks.⁵⁰ The remit was taken up again in the opening editorial for the second year, which explained: “*Film und Lichtbild* seeks to . . . spur readers on to their own experiments, to disseminate the foundational knowledge of cinematographic technology through the description of the most important apparatuses and how to operate them, and above all to offer practical tips for putting together popular scientific programs. . . . Our journal places great value on independent activity.”⁵¹ It was also the main point of a journal supplement launched in the second year entitled “Elektrotechnisches Beiheft” (Electro-Technical Supplement) with the tagline “Reports on the electro-technical features of cinema apparatuses and how to work them in easily understandable essays.”⁵² In this sense, the journal sought to do for cinema what amateur science had done for other scientific equipment, making it appear to be within everyone’s grasp—even if most cinematic technology was unaffordable for the average reader. Here, cinema stood in the company not only of slides

and related technologies, but also of scientific objects like telescopes and microscopes, as suggested vividly by the frequent appearance of the two side by side in the advertising pages of *Film und Lichtbild*.

This affinity with the instruments of amateur science also suggests that the editors of *Film und Lichtbild* understood the film culture they sought to promote as a culture of the *amateur* in a sense analogous to amateur science and its promise of participation. The journal ran numerous articles on “amateur cinema,” a category that was only beginning to gain legibility as the obverse of cinema professionals,⁵³ in addition to reports on devices for home use, such as the Cinéphote apparatus for creating short animated family portraits,⁵⁴ the Salonkinematograph of Georges Bettini (which used glass slides not unlike Charles Urban’s Spirograph to project moving images safely in the home),⁵⁵ and the Pathé KOK projector for home and schools, also known as “Kino in der Westentasche.”⁵⁶ But more than a separate category of films or filmic apparatuses, the word *amateur* describes the broader horizon of expectation that writers for a journal like *Film und Lichtbild* brought to bear on cinema as such. Cinema appears, in the pages of the journal, as a sector full of promise for hands-on participation, one that, even as it was professionalizing, still held out the possibility for amateur involvement and even agency in the future of film.⁵⁷ In this way, these scientific film journals, like the early film clubs and specialty distributors with whom they collaborated, stood for a promise analogous to that of amateur science: that of humanizing a (technological) sector increasingly out of reach for ordinary people.⁵⁸

This was, indeed, a promise that the writers for *Film und Lichtbild* knew well, as so many of them wrote amateur science publications with a similar thrust. Wilhelm Berndt, for example, in addition to lecturing at the Urania and contributing to journals such as *Film und Lichtbild*, also published books on the emerging practice of home aquariums.⁵⁹ Other writers, including Hanns Günther and Albert Neuburger, specialized in the genre of the Experimentierbuch (experiment book), with which young readers could emulate the work of professional laboratories in the amateur mode, with everything from electrical experiments to optical illusions to psychological tests to the fabrication of their own homemade color organs and spirit photographs.⁶⁰

This world of amateur scientific participation shows us the kind of “company” that a journal like *Film und Lichtbild* kept beyond the world of film publishing, but it might also suggest one of the factors behind the early demise of these journals in the mid-1910s. The most immediate cause was, of course, the outbreak of World War I; although journals like *Film und Lichtbild* and *Bild und Film* tried to stay relevant by focusing articles on film’s role in military mobilization, most of them folded by the end of 1914 due to financial difficulties. The fact that none of them was picked up again after 1918 might have something to do with the increasing professionalization of scientific film itself, its development into a distinct branch of a complexifying film industry. In the context of the Kulturfilm movement of the



Der elektrische Mensch.

FIGURE 8.3. "The Electric Human," illustration from Hanns Günther, *Experimentierbuch für die Jugend*, 1912.

1920s, science film production came increasingly to be understood as the purview of experts working in professional production units such as the UFA company's Kulturfilm department (inaugurated in 1918), in any of the new Kulturfilm studios that dotted the Weimar film scene (e.g., Deulig, founded in 1921), in companies specializing in production for schools and universities such as the Unterrichtsfilmgesellschaft GmbH (founded in 1921), or in well-funded institutes such as the Medizinisch-Kinematographisches Institut at the Berlin Charité hospital (founded in 1923).

Within this context, the few attempts to found new popular journals on film and science—such as *Film und Wissen* (1919–20)—were short lived.⁶¹ And although Frank'sche Verlag would continue to offer films and slides through its aptly named Photokosmos department (founded in the early 1920s), it never launched another journal like *Film und Lichtbild*. Instead, “scientific film” and “amateur film” underwent a kind of functional differentiation in the publishing scene of the 1920s. For its part, scientific film migrated largely into the realm of specialized educational journals, such as the Berlin-based *Der Lehrfilm* (1921–26) or the Viennese journal *Das Bild im Dienst der Schule und Volksbildung* (1924–30, published by the Film and Image Syndicate of Viennese Teachers), as well as a few discipline-specific undertakings such as the *Programme der medizinischen Woche/Medizin und Film* (1924–30, published by the above-mentioned Unterrichtsfilmgesellschaft GmbH). The concept of “amateur film,” on the other hand, also lived on, but took on a much narrower meaning in the pages of journals such as *Film für Alle* (1927–62). Here, as we know, amateur film was increasingly understood—in opposition to the professional work of the film industry—in the sense of home movies and small-gauge travel pictures, rather than a promise of cinema as such.

NOTES

1. For example, both titles have Wikipedia entries, and both merited entries in Richard Abel's *Encyclopedia of Early Cinema* (London: Routledge, 2010), 515, 553.

2. See, for example, Helmut Diederichs, *Anfänge deutscher Filmkritik* (Stuttgart, Germany: Verlag Robert Fischer und Uwe Wiedleroth, 1986); Matthias Frey, *Permanent Crisis of Film Criticism: The Anxiety of Authority* (Amsterdam: Amsterdam University Press, 2015), 81–101.

3. I borrow the idea of cinema's “company” from Greg Waller, “Beyond Fan Magazines and Trade Journals: Motion Picture Discourse in Periodicals of the 1910s,” unpublished presentation at the Society of Cinema and Media Studies, April 1, 2016.

4. Opening editorial, *Film und Lichtbild* 1, no. 1 (1912), 1.

5. See, for example, Oliver Gaycken, *Devices of Curiosity: Early Cinema and Popular Science* (Oxford: Oxford University Press, 2015), 37–53, 125–28. This was precisely the situation these groups sought to change. For example, Wilhelm Berndt (a pioneer of film lectures at the Urania Institute, to whom I return below) stated in one article for *Film und Lichtbild*: “There can be no doubt that the method of weaving scientific film between marriage comedies and circus tricks . . . is the wrong one.” Berndt, “Aus der Praxis der biologischen Kinematographie,” *Film und Lichtbild* 2, no. 1 (2013), 4.

6. Such specialty cinemas—sometimes known as “Gemeindekinos” (municipal cinemas) since they were sometimes funded by local councils—were central to Kinoreform debates more broadly. For

a book-length treatment of the problem, see Willi Warstat, *Kino und Gemeinde* (Mönchen-Gladbach, Germany: Volksverein Verlag, Lichtbühne-Bibliothek, 1913). See also Otto Theodor Stein, "Musterlichtbühnen. Ein Beitrag zur praktischen Kinoreform," *Film und Lichtbild* 2, no. 2 (1913), 19–22.

7. For a good discussion of the film societies of this period, see Otto Theodor Stein, *Kinematographische Studiengesellschaften*, *Film und Lichtbild* 2, no. 9–10 (1913), 139–42. This was also the period that saw the first major exhibitions on cinema such as Berlin Kino-Ausstellung of 1912. Guests of honor at this exhibition included the astronomer Friedrich Simon Archenhold (who would soon found the Cinematographic Study Society of Berlin), Franz Goerke (director of the Berlin Urania), and many others. The exhibition included displays of *Film und Lichtbild*, as well as the educational journals *Bild und Film* and *Lichtbildkunst*. For an English-language report, see "Berlin Cinematographic Congress and Exhibition," *Motography*, February 1, 1913, 81–82.

8. As leading cinema reformer Adolf Sellmann put it in an article for *Bild und Film*, "Probably no recent invention has stimulated so much discussion in the daily press and in daily conversation as the cinema. Everywhere new cinemas shoot up overnight like mushrooms. One can no longer even picture our big cities at night without the gleaming portals of the movie houses." Sellmann, "The Secret of the Cinema" (1912), cited in *The Promise of Cinema: German Film Theory 1907–1933*, ed. Anton Kaes et al. (Oakland: University of California Press, 2016), 31.

9. *Bericht des Vorstandes der Gesellschaft Urania für das Geschäftsjahr vom 1. April 1910 zum 31. März 1911* (Berlin: Urania, 1911), 5–6.

10. For records of the lectures, see *Gesellschaft Urania. Bericht des Vorstands für das Geschäftsjahr vom 1. April 1911 bis 31. März 1912* (Berlin: Urania, 1912), 5, 7.

11. Frank Kessler and Sabine Lenk, "The Kinoreformbewegung Revisited: Performing the Cinematograph as a Pedagogical Tool," in *Performing New Media, 1890–1915*, ed. Kaveh Askari et al. (Bloomington: Indiana University Press, 2014), 163–73.

12. Opening editorial, *Film und Lichtbild* 1, no. 1 (1912): 1. Other writers for the journal went further, with one stating: "It has become boring, really boring. For years, we have been hearing the same alarmist phrases about 'cinema as a public danger' repeated ad infinitum. Jurists and pedagogues vie to see who can produce the most damning judgments of cinema. State and local councils compete for the most punitive taxes and restrictive operating rules, designed to make life difficult all of the cinemas shooting out of the ground like mushrooms. . . . But the cinematograph is here. Despite all the efforts of its detractors and philistines, it will not disappear again, and every effort to eradicate it is wasted effort. . . . A genuine improvement of is achievable by working with competent experts of cinematography and not by excluding them, let alone going to battle against them." "Der Worte sind genug gewechselt . . .," *Film und Lichtbild* 2, no. 4 (1913), 65–66.

13. Opening editorial, *Film und Lichtbild* 1, no. 1 (2012), 1.

14. See, for example, Walter Böttger, "Stereoskopbilder," *Film und Lichtbild* 1, no. 5 (1912), 56–61; P. Langbein, "Ein Stereoskopbild des Mondes," *Film und Lichtbild* 2, no. 7 (1913), 106.

15. On panorama cinematography, see Hans Goetz, "Kinematographische Rundpanoramen," *Film und Lichtbild* 2, no. 3 (1913), 37–41. On the shooting galleries, see Richard Schuster, "Förderung der Schießausbildung durch die Kinematographie," *Film und Lichtbild* 1, no. 6 (1912), 79–83; Friedrich Felix, "Lebende Zielscheiben," *Film und Lichtbild* 3, no. 8 (1914), 121–22. On diaphragmatic projectors, see Erwin Papperitz, "Kinodiaphragmatische Projektionsapparate," *Bild und Film* 2, no. 2 (1913), 22–25; Otto Theodor Stein, "Kinodiaphragmatische Projektion von Prof. Dr. Papperitz," *Bild und Film* 1, no. 4 (2012), 94–95.

16. For slideshow categories, see Josef Weigl, "Die Lichtbilderei GmbH in M.Gladbach," *Bild und Film*, 1, no. 1 (1912), 9. For film categories, see "Die Filmverleih-Zentrale der Lichtbilderei GmbH in M.Gladbach," *Bild und Film* 1, no. 1 (1912), 28.

17. Otto Theodor Stein, "Musterlichtbühnen: ein Beitrag zur praktischen Kinoreform," *Film und Lichtbild* 2, no. 2 (1913), 21.

18. See, for example, Janelle Blankenship, "To Alternate/To Attract: The Skladanowsky Experiment," *Cinema & Cie: International Film Studies Journal*, no. 9 (2007): 61–79.

19. Otto Janson, "Bilder aus dem Leben des Meeres im bewegten Lichtbild," *Film und Lichtbild* 2, no. 6 (1913), 99.
20. Friedrich Felix, "Statistische Lichtbilder," *Film und Lichtbild* 1, no. 6 (2012), 83–84.
21. Wilhelm Berndt, "Höhere Tiere als Filmobjekte," *Film und Lichtbild* 2, no. 2 (1913), 30.
22. "Vermischtes," *Film und Lichtbild* 2, no. 1 (1913), 16.
23. Discussions of pausing mechanisms abound in *Film und Lichtbild*, as well as in other educational journals of this period. It is unclear how successful pausing mechanisms for school projectors were at this point, though one can find claims about pausable apparatuses. After encountering the Pathé KOK projector at the 1913 Kino-Kongress in Berlin, Friedrich Lambrecht reported on the apparatus as follows: "If one turns the motor off, everything continues working as before, but the filmstrip stands still, and the individual image can be used like a slide." Friedrich Lambrecht, "Vom Kinokongress und von der Kino-Ausstellung Berlin," *Film und Lichtbild* 2, no. 2 (1913), 26.
24. For an overview of the visual turn in popular nineteenth century science, see Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2009). For the importance of slide lectures and scientific photography in Germany, see especially Christian Joschke, *Les yeux de la nation. Photographie amateur et société dans l'Allemagne de Guillaume II (1888–1914)* (Dijon, France: Les Presses du réel, 2014), 201–27.
25. See Klaus Taschwer, "Vom Kosmos zur Wunderwelt: Über popularwissenschaftliche Magazine einst und jetzt," in *Öffentliche Wissenschaft: Neue Perspektiven der Vermittlung in der wissenschaftlichen Weiterbildung*, ed. Peter Faulstich, 80–81 (Bielefeld, Germany: Transcript, 2006); Ina Pfitzer, "Das 'Verlangen nach einer Bereicherung und Vertiefung wissenschaftlicher Kenntnisse'. Die Zeitschrift Kosmos. Handweiser für Naturfreunde—ein Beispiel erfolgreicher Leserbindung," in *Das bewegte Buch: Buchwesen und soziale, nationale und kulturelle Bewegungen um 1900*, ed. Mark Lehmstedt and Andreas Herzog, 349–68 (Wiesbaden, Germany: O. Harrassowitz, 1999).
26. In the introduction to the book, Humboldt returns repeatedly to the problem of scientific specialization and the promise to overcome the fragmentation of advanced knowledge through the identification of forces uniting the whole of the observable universe. At one point, for instance, we read: "[My object is to] prove how, without detriment to the stability of special studies, we may . . . arrive at a point of view from which all the organisms and forces of nature may be seen as one living active whole, animated by one sole impulse." Alexander von Humboldt, *Cosmos: A Sketch of the Physical Description of the Universe*, vol. 1, trans. E. C. Otté (London: Henry G. Bohn, 1864), 36.
27. See Pfitzer, "Die Zeitschrift Kosmos," 350–352.
28. See Pfitzer, "Die Zeitschrift Kosmos," 360.
29. "Moderne Bildung," *Kosmos: Naturwissenschaftliche Literaturblatt* 1, no. 1 (1904), 1.
30. Pfitzer, "Die Zeitschrift Kosmos," 366.
31. On the circulation of *Kosmos*, see Pfitzer, "Die Zeitschrift Kosmos," 349.
32. On Seitz, see also "Nachlass Friederich Seitz (1890–1966)," Landesarchiv Baden-Württemberg, n.d., <https://www2.landesharchiv-bw.de/ofs21/olf/einfueh.php?bestand=6798>.
33. Insert, *Film und Lichtbild* 1, no. 6 (1912), 84. As the quote suggests, images were also a key selling point, and most article headings included a note signaling the number of illustrations.
34. For the first such list, see *Film und Lichtbild* 1, no. 2 (2012), 16.
35. This occurred in particular in the section "Vermischtes" (Various). See, for example, *Film und Lichtbild* 2, no. 1 (2013), 14–15.
36. See, for example, Paul Liesegang, "Marey, der Begründer der modernen Kinematographie," *Film und Lichtbild* 1, no. 6 (1912), 70–72.
37. See, for example, "Buchbesprechungen," *Film und Lichtbild* 1, no. 4 (1912), 48.
38. Walter Böttger, "Stereoskop-Bilder," 56. The quote also speaks to a pattern of articles referring to other publications of the Franck'sche Verlag, as when one writer began an article on stereoscopic images of planets with a reference to "the September 1912 issue of the *Kosmos Handweiser*." P. Langbein, "Das Saturn und seine Wiedergabe im Stereoskop und anderen optischen Instrumenten," *Film und Lichtbild* 2, no. 1 (1913), 8.

39. For example, Bruno Glatzel's article on ballistics cinematography, published in 1913 in *Film und Lichtbild*, offered a more accessible summary of the explanations from his and Arthur Korn's *Handbuch der Phototelegraphie und Teleautographie* (1911) concerning the use of ultra-rapid spark flashes for ballistics photography and recycled the same illustrations. Glatzel thematizes the simplifying work of his article in several places, for example: "Ohne im Einzelnen auf die technische Anordnung einzugehen, mag hier nur so viel bemerkt werden, daß das Verfahren in sehr einfacher Weise gestattet, die Funkenfrequenz innerhalb der Grenzen von 200 und 100.000 zu verändern" [Without going into detail regarding the technological design, we can simply note here that the procedure makes it simple to change the frequency of sparks within a range of 200 to 100,000]. Bruno Glatzel, "Über Geschöß-Kinematographie," *Film und Lichtbild* 2, no. 4 (1913), 57.

40. Opening editorial, *Film und Lichtbild* 1, no. 1 (1912), 1.

41. See, for example, "Briefkasten," *Film und Lichtbild* 2, no. 2 (1913), 34.

42. See, for example, "Zum Geleit," *Film und Lichtbild* 2, no. 1 (1913), n.p.; "An unsere Leser," *Film und Lichtbild* 2, no. 9/10 (1913), 137.

43. In a letter to the Lower Austrian Imperial Governor's Office (Staatthalterei), which oversaw permits for voluntary associations in the region, Alto Arche stated that the Kosmos film club "maintains a business relationship with the Kosmos Gesellschaft der Naturfreunde." Alto Arche, letter to the KKNÖ Statthalterei, March 18, 1914, Vereinsakt for Kosmos Klub für wissenschaftliche und Künstlerische Kinematographie (Vienna: Vereinsarchiv: 1938), 473.

44. "Mitteilungen des 'Kosmos' Klub für wissenschaftliche und künstlerische Kinematographie," *Film und Lichtbild* 2, no. 8 (1913), 121.

45. Member lists were regularly published in the group's newsletter (along with members' professions) in *Film und Lichtbild*. See, for example, "Mitteilungen des 'Kosmos' Klub für wissenschaftliche und künstlerische Kinematographie," *Film und Lichtbild* 2, no. 9 (1913), 138.

46. "Mitteilungen des 'Kosmos' Klub für wissenschaftliche und künstlerische Kinematographie," *Film und Lichtbild* 2, no. 8 (1913), 121.

47. For the Kosmos-Apparat, see insert, *Film und Lichtbild*, 1, no. 6 (1912), 84. For a history of the Kosmos Theater, see Peter Payer, *Das Kosmos-Kino: Lichtspiel zwischen Kunst und Kommerz* (Vienna: Verlag für Gesellschaftskritik, 1995).

48. Ernst Lorenzen, "Kinematographie und Schule," *Film und Lichtbild* 1, no. 3 (1912), 23. Elsewhere, another writer compared cinema to the Fröbel gifts used in education for hands-on knowledge acquisition. See Friedrich Lambrecht, "Handarbeiten im Lichtbilde," *Film und Lichtbild* 1, no. 5 (1912), 54.

49. Here, too, there was a direct affinity with slides. The journal ran an ongoing series on how to produce scientific slides starting in the second year. See Alfred Streißler, "Die Herstellung von Diapositiven," *Film und Lichtbild* 2 (1913), 41–43, 63–65, 98–100.

50. Opening editorial, *Film und Lichtbild* 1, no. 1 (1912), 1; *Film und Lichtbild* 2, no. 3 (1913), 50.

51. Opening editorial, *Film und Lichtbild* 2, no. 1 (1913), 1.

52. The first supplement can be found in *Film und Lichtbild* 2, no. 1 (2013), 17–18. Hans Bourquin reported on devices for converting alternating current to direct current for the operation of projectors.

53. See Otto Theodor Stein, "Amateurkinematographie," *Film und Lichtbild* 2, no. 3 (1913), 36.

54. See Yvonne Montmollin, "Der Cinéphoto," *Film und Lichtbild* 1, no. 3 (1912), 28.

55. See Friedrich Felix, "Der Platten-Kinematograph Bettini," *Film und Lichtbild* 1, no. 5 (1912), 52–54; Stein, "Amateurkinematographie," 36.

56. See "Die Kino-Ausstellung in Wien," *Kastalia* 1, no. 4 (1912), 7.

57. That agency was conceptualized in particular in the idea that amateur filmmakers would help to create a stock of quality films to counter the "trash" of the film industry. See, for example, Otto Theodor Stein, "Der Lehrer als Photokinoamateur," *Film und Lichtbild* 2, no. 6 (2013), 93–94.

58. This was precisely the task that Stein assigned to the new wave of educationally inflected film societies. See Stein, "Kinematographische Studiengesellschaften," 140–41.

59. See Wilhelm Berndt. *Das Süß- und Seewasser-Aquarium: Seine Einrichtung und Seine Lebenswelt* (Leipzig, Germany: Theodor Thomas Verlag, 1911).

60. See Hanns Günther, *Experimentierbuch für die Jugend* (Nürnberg, Germany: Nister, 1912) and *Experimentierbuch für die Jungen* (Stuttgart, Germany: Franck'sche, 1922); Alfred Neuburger, *Ergötzliches Experimentierbuch* (Berlin: Ullstein, 1911), and *Ergötzliches Experimentierbuch 2* (Berlin: Ullstein, 1925).

61. An arguable exception here was *Der Lehrfilm* (1920–26), published by the Lichtbild-Bühne Verlag as a supplement to the *Kinematographische Monatshefte*.

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