8 Taxonomy of Techniques

Visions of Industrial Cinema in Post-war Japan

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Abstract
This chapter, a case study of the *Sakuma Dam* series, presents three interlocking points: its geopolitical imbrication with state-endorsed modernization and democratization; a genealogy of science film as motion photography of life; and a seemingly incongruous connection between industrial film and the legacy of post-war leftist filmmaking. The central argument revolves around investigating industrial film as a point of convergence between the increasingly technical conditions of existence and a material understanding of cinema. The dual functions of technologies as infrastructural innovations and cinematic mediation techniques point toward epistemological inquiries about cinema as technological phenomenon. A taxonomy of techniques, an epistemic and reflexive process that transformed this dual function into an object of analysis, was entwined with the post-war resurgence of science film production in Japan.

Keywords: Japan; Japanese cinema; documentary; industrial film; tacit knowledge; useful cinema

"[A]s it is also a film about men of our time – contemporaries whom a short plane ride would enable us to meet face-to-face – Kurosawa is entitled to draw upon world cinematic language," writes André Bazin in his review of Akira Kurosawa's *Ikiru* (1952) that appeared in *Cahiers du cinéma* in March 1957, immediately following the Kurosawa retrospective at the Cinémathèque.[1] Bazin's literal reference to an aerial voyage typifies the

1 Bazin, André. "Petit journal du cinéma: *Vivre*." *Cahiers du cinéma*, vol. 69, March 1957, p. 2; idem, *The Cinema of Cruelty: From Buñuel to Hitchcock*, edited by François Truffaut, translated

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critic's enthusiasm for experiencing and discovering the world through cinema, perhaps with a little bit of "jetlag." Japanese films indeed reached Europe "like that of light from distant stars,"[2] when Kurosawa's *Rashomon* (1950) took the stage at the 1951 Venice International Film Festival, followed by Kenji Mizoguchi's *The Life of Oharu* (*Saikaku ichidai onna*, 1952), *Ugetsu* (*Ugetsu monogatari*, 1953), and *Sansho the Bailiff* (*Sanshō dayū*, 1954), which split the top prize with Kurosawa's *Seven Samurai* (*Shichinin no samurai*, 1954) again at Venice.

The year 1954 was also when Ishirō Honda's *Godzilla* (*Gojira*), a science fiction giant monster spectacle, was produced and released by Tōhō Studios – the same studio where Kurosawa built his career. The "nuclear dinosaur" soon gained iconic status internationally when the re-edited Hollywood version, *Godzilla, King of the Monsters* (1956), hit the American and global markets in the mid-1950s. While the future Japanese canon started to comprise an atlas of world cinema, domestic audiences in Japan were infatuated with cinematic "remapping" of the nation and its geographical transformation. *Sakuma Dam* (*Sakuma damu*, 1954–1958), an unprecedentedly massive-scale industrial film series that documented the construction of Japan's largest dam on the Tenryū River Valley in Aichi Prefecture, was a record-breaking hit as a feature theatrical documentary and drew nearly six million viewers across the country. The series was the first Japanese feature documentary shot with the Eastmancolor and it laid the foundation for what can be described as the non-fiction construction spectacle, a commercially viable industrial feature aimed at theatrical release.

Takeji Takamura, a young neophyte documentarian with in-depth knowledge of jurisprudence, was talent-spotted to direct the series, which was fully commissioned by the Electric Power Development Company (Dengen kaihatsu, or Denpatsu in short), the nation's largest public utility established in 1952 as Japan was about to resume its sovereignty at the end of the Allied occupation.[3] The crew members of the film also included Noriaki Tsuchimoto and Kazuo Kuroki, who would become the central figures of the post-war new cinema movement in Japan. Crucially, the documentary was produced by Iwanami Productions (Iwanami Eiga Seisakusho, est. 1950), which evolved from a major provider of sponsored educational and

by Jane Pease and Rose Kaplan. Seaver Books, 1982, pp. 200–204. Quote from p. 202.

2 Bazin, *The Cinema of Cruelty*, pp. 184–85.

3 The foundation of Denpatsu was the pre-war government monopoly Japan Electric Generation and Transmission Company (Nippon Hassōden), which had been dissolved under the order of GHQ as part of democratic reform of infrastructure.

PR films into a key player in the new cinemas of the 1960s in Japan. To put it differently, *Sakuma Dam* points toward pivotal socio-historical nodes between cinema and its local/global markets, moving image medium and its role in stirring the popular imagination, and the politics of industrial enterprise and the new cinemas' political radicalism.

This chapter examines several nexuses of concern about industrial film related to the ongoing transformation occurring across a broad spectrum of media technologies as well as social and infrastructural developments in post-war Japan. Taking up *Sakuma Dam* as a case study that both typifies and diverges from traits and functions of sponsored films in Japan, the chapter presents four interlocking points as a way to position industrial film in relation to its popularity with contemporaneous audience, geopolitical imbrication with state-endorsed modernization and democratization, a genealogy of science film as motion photography of life, and seemingly incongruous connection between industrial film and the legacy of post-war leftist filmmaking. Against an overly schematized concept of sponsored films as regulatory and manipulative media works for top-down governance and advertisement, I highlight larger questions concerning cinema, (filmic) technique and systems of knowledge formation. The central argument revolves around an investigation of industrial film serving as a point of convergence between increasingly technical conditions of existence in post-occupation Japan and a material understanding of cinema, which called into being (or "engineered") techniques that enabled viewers to interface with cinema as a technical image medium. Films on infrastructural developments, often reinforced by various film techniques, rendered and showcased the nation in the process of technologizing itself. The dual function of technologies as both infrastructural innovations in content and techniques of cinematic mediation points toward epistemological inquiries about cinema as technological phenomenon. What I describe as a taxonomy of techniques, an epistemic and reflexive process that transformed this dual function into an object of analysis, was entwined with the post-war resurgence of science film production in Japan.

"The 'Post-war' Is Already Over"

In 1956, the introductory chapter of the Japanese government's official *Economic White Paper* (*Keizai Hakusho*) famously included the statement: "The 'post-war' is already over" ("*mohaya 'sengo' de wa nai*"). It had been widely circulated as a trendy phrase that marked the symbolic end of the

post-surrender economic recovery in Japan. Indeed, 1955 was the year the annual gross national product (GNP) surpassed the pre-war peak for the first time.[4] The strong economic ties between the US and Japan around this period led to the establishment of the Japan Productivity Center (Nihon seisansei honbu), a crucial long-range industrial planning organization that soon became the major sponsor of global-scale technical missions. The year 1955 also saw Japan's admittance to the General Agreement on Tariffs and Trade (GATT). Japan was no longer recovering from the war's devastation, but growing towards the future.

The era's upbeat spirit, which was commonly shared by the populace in Japan, was also defined by industrial investment in costly new technologies – literally becoming the engine of growth. The term *kaihatsu*, or "[technical, industrial and infrastructural] development," symbolized the improvement of people's lives, and was closely tied to the advent of post-war consumer culture. Accordingly, the mid-1950s saw popular home appliances dominating the markets; electric washing machines, refrigerators and televisions were especially revered as the "three divine appliances" (*sanshu no jingi*) by every middle-class family who dreamed of owning them.[5] The accelerated technical innovations of the nation's high-growth period prompted the formation of mass consumption culture. Referred to as the "age of household electrification" (*katei denka no jidai*), the period was nourished by the rapid development of hydroelectric and nuclear power stations. The industrial efforts by Japanese governmental bodies and corporations were thus directed toward dam and nuclear power plant construction, further fuelling the consumer revolution of the time. From a macro perspective, the public-private partnership that endorsed electrification of the nation motivated Japan's post-war (technological) modernization. From a micro standpoint, the increasingly technologically *wired* household was becoming an individually configured infrastructure whose connecting network was ensured by electricity.

The rapid electrification of urban life in Japan instigated the emerging boom of industrial films. In 1953 the National PR Film Festival (Zen Nihon PR Eiga Konkūru) was inaugurated. This newly established venue accepted submissions not from production companies but from the sponsoring institutions and corporations. The juries mostly comprised financially powerful names in and around the industries, including governmental officials, ad

4 For insightful historical accounts on Japan's post-war economic recovery, please see essays compiled in Gordon, Andrew, editor. *Postwar Japan as History.* University of California Press, 1993.
5 Dower, John W. "Peace and Democracy in Two Systems." Gordon, *Postwar Japan as History*, edited by Andrew Gordon. University of California Press, 1993, p. 16.

agency or film studio executives, and university professors of economics.[6] While the adjectival use of "PR" here was inclusive, counting in industrial documentaries as well as educational/training/instructional films, the concept of "public relations" in post-war Japan was introduced and evolved in tandem with the occupation policies administered by the US-led Allied Forces (1945–1952) in order to nurture Japan as a Cold War ally. The English acronym "PR" was thus imbued with a newly instituted notion of the "public" that formed the basis of democratization, the security industry, educational reform and information management both at local and national levels. The number of industrial and educational films produced in post-occupation Japan continuously rose toward a peak with an annual total of 970 titles in 1960.[7] And the unprecedented popularity of industrial documentaries was further intensified by the concurrent dam developments, which had been one of the favoured subject matters of PR films produced by various documentary studios of the era.[8] Most of these films were disseminated widely through commercial and non-commercial channels of distribution, including theatres, trade fairs and school auditoriums. The "age of household electrification" was also the "age of massive dam construction" (*"daidamu kensetsu no jidai"*),[9] whose images and narratives – photographs, postal stamps, brochures and other cultural productions and practices – constituted crucial mediascapes occurring in the period.

Making Democracy Visible

Located in the central region of Japan's main island, Sakuma Dam was then the largest post-war public works project in Japan and was a symbolic

6 Yoshihara, Junpei. *Nihon tanpen eizōshi: Bunka eiga, kyōiku eiga, sangyō eiga* [History of short film in Japan: Culture film, educational film, industrial film]. Iwanami Shoten, 2011, p. 195.

7 Kusakabe, Kyūshirō. *Eizō o tsukuru hito to kigyō: Iwanami Eiga no sanjūnen* [The man and the studio that produced the image: Thirty Years of Iwanami Productions]. Mizuumi Shobo, 1980, p. 110.

8 Kiroku Productions (Kiroku Eigasha) made *Ikari Dam* (*Ikari damu*) in 1952 and the film was re-edited in 1956. In 1954, Tokyo Cinema (Tokyo Shinema) also produced *Awano Village* (*Awanomura*), a colour short that documented the electrification of a village in Fukushima. The film was sponsored by Tohoku Electric Power (Tōhoku Denryoku), a newly founded electric utility owned by the government. Hanabusa Productions (Hanabusa Eiga) put together *Ikawa Goro Dam* (*Ikawa Gorō damu*) in 1957.

9 Machimura, Takashi. "'Kaihatsu' o egakanai kaihatsu eiga" ["The construction film that does not represent construction"]. *Iwanami eiga no 1-oku furēmu* [Images of post-war Japan: The documentary films of Iwanami Productions], edited by Yoshiyuki Niwa and Shun'ya Yoshimi. Tokyo, 2012, pp. 123–43.

hydroelectric power development whose potential had been explored since the beginning of the twentieth century. What had previously been an impossible blueprint began to move forward when the aforementioned Electric Power Development Company (or Denpatsu) was established as a governmental agency in 1952 under the supervision of GHQ (General Headquarters, lead by Douglas MacArthur), and through foreign aid loans from the United Nations.[10] The five-year construction involved the relocation of nearly three hundred households located along the river valley. The ceremony that celebrated the completion of the dam in October 1957 was attended by a number of government officials and members of the imperial family, including Emperor Hirohito himself. The Sakuma Dam project has been often compared to the Tennessee Valley Authority (TVA) in the 1930s United States, a federally owned corporation (est. 1933) known as America's effort to facilitate the idea of public ownership of utilities and to boost economic development during the Great Depression.[11]

The unparalleled commercial success of the documentary *Sakuma Dam* in part derived from the unprecedented scale of the sponsored film project, whose shooting schedule alone had spanned nearly five years. *Sakuma Dam* consists of a series of feature length films, each of which was theatrically released separately "along with" the progress of construction itself: *Chapter One* (*Dai ichibu*) in 1954, *Chapter Two* (*Dai nibu*) in 1955 and *Chapter Three* (*Dai sanbu*) in 1957. A ninety-six-minute re-edited version was released as *Sakuma Dam: Highlights* (*Sakuma damu: sōshū-hen*) in the following year and was also distributed internationally with English narration.[12] The serialized releases situated contemporaneous audiences as witnesses, about which I will return later in this chapter, of the gradual and ongoing building process of the monumental dam rather than the retroactive – and thus narrativized – recounting of an existing architecture. For this reason, the *Sakuma Dam* saga, especially *Chapter One* and *Chapter Two*, in which the construction had not yet been completed, was structurally distinctive from the great majority of other industrial documentaries, in which a building record would conclude typically with the completion of a project.

10 The foundation of Denpatsu was the pre-war government monopoly Japan Electric Generation and Transmission Company (Nippon Hassōden), which had been dissolved under the order of GHQ as part of democratic reform of infrastructure.

11 Toba, Koji. "Damu kaihatsu to kiroku eiga" ["Dam development and documentary"]. *Iwanami eiga no l-oku furēmu* [Images of post-war Japan: The documentary films of Iwanami Productions], edited by Yoshimi Shun'ya. Niwa Yoshiyuki pp. 145–62.

12 The shot analyses in the following sections are from the 1958 version, unless otherwise noted.

The absence of narrative enclosure also characterizes the cinematic rendition of human actants, especially the image of the relocated villagers. As was indicated earlier, the dam affected three hundred households located in the vicinity of the construction site.[13] And *Sakuma Dam* points toward their existence; it does so, however, by soberly filming and "studying" the villages and their customs, keeping the villagers within their disappearing ecological networks of livelihood. As if conducting data visualization for an environmental survey, the camera records the "indigenous" culture of Tomiyama village, which is about to be submerged permanently. Such a paucity of human elements in *Sakuma Dam* can be deciphered as an indication that the documentary epic was an embodiment of capitalism that concealed the condition of the suffering. However, sociologist Takashi Machimura points out that the face of the victimized was, paradoxically, one of the common tropes typically used in numerous industrial films of the period in Japan. Especially for dam constructions, the sacrifice made by dislocated villagers was often an integral part of narrativizing the industrial procedure. The votive decision of the weak – for the greater good and to electrify Japan – was glorified as the "icon of industrial development," through which the importance of exploitation would be further dramatized and reinforced.[14]

To make the victimized visible was in fact inherent to the many sponsoring organizations legitimizing industrialization. The image of the dislocated also easily fit into the newly introduced post-war notion of the "public" as well as democratic ethos, wherein the citizen's consensus would preside over private interests.[15] In other words, visualizing the villagers rendered democracy visible. As noted above, the term PR entailed geopolitical implications of post-war Japan, in which an emerging notion of the public was highly imbricated with (America-led) governmental techniques in administering and managing civic and corporate bodies.[16] And various images of the sacrificial were often ingrained in the organizational logic

13 For the detailed account of the Denpatsu's negotiation with Toyone Village, Tenryū Village, and Tomiyama Village (as well as governmental interventions), please see Machimura, Takashi, editor. *Kaihatsu no jikan, kaihatsu no kūkan – Sakuma damu to chiiki shakai no hanseiki* [Time of industrial growth, space of industrial growth – Fifty years of Sakuma Dam and its region]. Tokyo Daigaku Shuppankai, 2006.

14 Machimura. "'Kaihatsu' o egakanai kaihatsu eiga," p. 129.

15 Please see Upham, Frank K. "Unplaced Persons and Movements for Place." *Postwar Japan as History*, edited by Andrew Gordon. University of California Press, 1993, pp. 325–46.

16 Please see Ha, Kyung Jin. *Paburikku rirēshonzu no rekishi shakaigaku* [Historical sociology of public relations]. Iwanami Shoten, 2017.

of industrial films. In a broader context, the logic and rhetoric of a victimhood that reaffirmed the position of post-surrender Japan as war victim also prevailed in cultural and political fields. So-called post-war "victim consciousness" (*higaisha ishiki*) foregrounded the suffering to obscure or erase the question of responsibility for the wartime imperialist aggression toward other Asian nations. Such collective amnesia was characteristic not only of the political discourse endorsed by the conservative leadership but of various cultural works and activities by progressives, including a group of leftist filmmakers in the 1950s as the Japanese Communist Party was itself going through factional struggles.

The post-war Japanese mainstream film industry in the 1950s was not immune to a red purge carried out under McCarthyism, which led to an independent production boom formed and sustained by the personnel expelled from the major studios.[17] Exemplified by socialist realist aesthetics and a teleological narrative, these independently produced fiction films, many of which garnered critical acclaim from various media, often centred around exposing the perceived "reality" and its contradictions in post-war society, such as social injustice and the plight of the impoverished. Underlined was, however, the legitimacy of self-victimization fuelled with the dramatic rendition of anti-authoritarian sentiment, which was then rigorously critiqued by an emerging generation of the Japanese New Wave players, such as Nagisa Ōshima. The gradual dissolution of post-war socialist realism in part corresponded to a global shift from the old left to the new left. Curiously, a rhetorical pattern that displayed social-public benefits in industrial film grew in tandem with the political ambitions of the immediate post-war left in Japan. And it should be stressed that *Sakuma Dam*, which bore neither the self-enclosing narrative nor the iconic image of the self-sacrificial heroism of the dislocated, deviated from both the dominant tradition of the industrial film and the old left, and instead possessed a peculiar rapport with the uncompromising politics of the radicalized new left.

Destruction, Excavation, Cartography and Deixis

Rather than the victimized, *Sakuma Dam* is characteristically dominated by the recurring images of technologies and their arrangements/utilization: a variety of monstrous machines –dump trucks, excavators, power shovels

17 For a concise history of Japanese cinema, please see Yomota, Inuhiko. *What Is Japanese Cinema? A History*. Translated by Philip Kaffen. Columbia University Press, 2019.

Figs. 8.1 and 8.2. From *Sakuma Dam*. Picture courtesy Documentary Film Preservation Center, Japan.

as well as various control apparatuses mostly imported from the United States – and tunnel blasting (figs. 8.1 and 8.2). One of the climactic spectacles of the documentary series revolves around the blocking of the Tenryū River

and a series of explosions due to blasting to create drain tunnels to divert its flow, that is to say, destruction and excavation. The watercourse, which once had the nickname "Unruly Tenryū" (*abare Tenryū*), meandered through deep forests in the Japanese Central Alps, and blocking it off required exhausting and repetitive reclamation work. The documentary underscores the assiduous and destructive procedure of blasting and scraping nearby fields and transporting sediment. The film does not erase the repetitive nature of a series of steps that demanded mechanical precision and technical sophistication.

The governing organization principle of the sequences that highlight the destruction sites is temporal, a characteristic Tom Gunning and Salomé Aguilera Skvirsky point out as a major representational strategy in "process films," which typically detail "the successive stages of industrial or handicraft manufacturing."[18] The gradual progress, which alone consumed nearly two years, comes to a climax with the very moment of the sealing off of the river. This instant of geographic transformation is also underlined with narration – "March 28, 1954, the Tenryū River halted its flow" – that (re)addresses its permanent change to the "witnessing" of viewers with a bird's-eye perspective, which also enframes the diegetic workers as onlookers (fig. 8.3). Throughout the film, the voice-over narrates the passing of time in a manner reminiscent of dating a legal document; accordingly, the spectatorial engagement with the film as both witness and record endows this cathartic moment of the shutting down of the river with a juridical effect. To put it differently, the indexical reference to the geographical transformation "in motion" is open to both the past and the present. The two temporalities inscribed in the moving image are further indexed with the film's expository narration that frequently uses singular proximal demonstratives – such as "this" and "that" – to direct the viewer to the image. The indexical status of the cinematic image (in the semiotics of Charles Sanders Peirce) operates both as trace and deixis, which signal both the corroboration of an existence from the past (i.e. trace) and a deictic pointer to its referent (whose meaning is contingent upon each contextual situation).[19] *Sakuma Dam*'s juridical form of address enables the viewer to witness the moment "here and now."

18 Gunning, Tom. "Before Documentary: Early Nonfiction Films and the 'View' Aesthetic." Uncharted Territory: Essays on Early Nonfiction Film, edited by Daan Hertogs and Nico de Klerk. Stichting Nederlands Filmmuseum, 1997, pp. 9–24. Quote from p. 13. Please also see Aguilera Skvirsky, Salomé. "The Latin American Process Film." This volume.

19 Doane, Mary Ann. "The Indexical and the Concept of Medium Specificity." *Differences*, vol. 18, no. 1, 2007, pp. 128–52, esp. pp. 136–41.

Fig. 8.3. Blocking and diverting the Tenryū River in *Sakuma Dam*. Picture courtesy Documentary Film Preservation Center, Japan.

Similarly, the cathartic closure of the river does not reveal itself as a narrative closure, which would be anchored firmly by an absorptive experience of cinema; it rather shares its affinity with what Jane Gaines calls as "the pathos of fact" surrounding an inherently indexical documentary image, whose evidential power of material condition animates the spectator's affective circuit of the film viewing experience.[20] Developing after Eisenstein's notion of "political pathos," Gaines explicates how "[s]ites of suffering" can be "rendered as *sights* of suffering" in indexed image, which in return *moves* and galvanizes the spectator's political consciousness and commitment "to transform the world."[21] Unlike the formulaic political yearning of the socialist realist views, for Gaines this oscillation between *evidence* and *aspiration* serves as a pivotal point of contact between melodrama(tization of documentary) and (photographic) realism, or a pathos-triggered affective

20 Gaines, Jane. "Documentary Radicality." *Revue canadienne d'études cinématographiques/ Canadian Journal of Film Studies*, vol. 16, no. 1, 2007, pp. 5–24.

21 Ibid., pp. 6, 9. Also, please see Zhen, Zhang. "Toward a Digital Political Mimesis: Aesthetics of Affect and Activist Video." *DV-Made China: Digital Subjects and Social Transformations after Independent Film*, edited by Zhang Zhen and Angela Zito. University of Hawai'i Press, 2015, pp. 316–46.

dimension of viewing bodies often sidelined or obscured under the banner of the "critique of realism."[22]

Gaines' analysis further foregrounds a politically charged experiential connection between the viewer and the moving image, in which any given "moment" is constantly turned "into its progression" and which allows one to trace "that moment as it is made to move."[23] Her primary intent here is to reposition the rhetoric of radical politics within the long-standing leftist documentary filmmaking practice and discourse, and the moving image would "come back out again" as *movement* on the bodies of energized spectators, *mobilizing* actions in and on the real world.[24] *Sakuma Dam*, a government-sponsored PR feature for theatrical release, does not fall into the category of radical documentary, deliberately avoiding presenting the site as "suffering" and taking little notice of the dislocated. Yet, it is crucial that the film that promotes hydroelectric power generation makes the viewer engage with waves of semiosis, signifying the material conditions of the infrastructure in the making. Despite its ostensive political and institutional goal to show off the grandeur of power and technology, the viewer's participation in the documentary image – and its cathartic "enhancements" – operates as sense testimony.

The non-human scale of the infrastructural manoeuvres also makes the documentary close to Ishirō Honda's *Godzilla* (*Gojira*, 1954), the aforementioned monster spectacle released the same year. Importantly, *Sakuma Dam* was scored by Akira Ifukube, an acclaimed composer whose best-known works include none other than the soundtrack of *Godzilla.* Chon A. Noriega, in his psychoanalytic study of the Godzilla franchise, illustrates how the Japanese has tend to sympathize with the destructive dinosaur "as a tragic hero" beyond a "comical icon" widely circulated and reappropriated in popular culture in a global scale.[25] Stuck in the Cold War geopolitical staging of military-economic governance, Japan in the 1950s was well under the United States' nuclear presence, epitomized by the *Lucky Dragon* incident, in which a Japanese tuna boat (named *Daigo Fukuryū Maru* [Lucky Dragon 5]) was hit by the fallout of US H-bomb testing at Bikini Atoll in March 1954. Godzilla's emergence, which corresponded to this shocking "return of the repressed" in post-occupation Japan, can be psychoanalytically situated as a "therapeutic" re-enactment of

22 Gaines. "Documentary Radicality," p. 6.

23 Ibid., p. 12.

24 Ibid., p. 12.

25 Noriega, Chon A. "Godzilla and the Japanese Nightmare: When *Them!* Is US." *Hibakusha Cinema: Hiroshima, Nagasaki and the Nuclear Image in Japanese Film*, edited by Mick Broderick. Kegan Paul International, 1996, pp. 54–74.

trauma. The radioactive dinosaur is not merely the unfathomable Other to be annihilated but a symbolic object that exhibits the very process of dealing with the repressed anxieties. Noriega contends that Japan in 1954 is itself "a transitional monster caught between the imperial past and the post-war industrial future, aroused by United States H-bomb tests."[26]

If *Godzilla* integrates its genre trope – the monster spectacle of mass destruction – into the therapeutic re-enactment of the problematic in an attempt to cope with trauma, the cathartic witness of the river closing in *Sakuma Dam* is also participation of different sort, which allows one to engage with the duality of infrastructures, that is to say, magnificent infrastructural materials that comprise the substrata of the phenomenal world and a larger infrastructural system in the making. Brian Larkin describes this duality as the "peculiar ontology" of infrastructures, which are fundamentally "things and also the relation between things."[27] The film about electrification of the nation makes the materials and foundations of the infrastructure and its facility (iron, soils, cable wires and so on) visible and sensible, simultaneously situating the viewer in the midst of ongoing infrastructural constructions. The revealed process of "system building" here was also entangled with one's spatio-temporal experience of cinema, another institutionalized structure or *dispositif* that encompasses a heterogeneous constellation of film, built space, social, political and discursive practices whose configuration is historically specific. Japan in 1954, as a transitional monster, was inseparable from this disposition, in which cinema as an aggregation of various cluster of mechanisms, infrastructural making in transition and the viewers (as actants) were themselves comprising elements.

The Method of Science Film, Taxonomy of Techniques and the Politics of Scale

Noriaki Tsuchimoto, one of the most prominent documentary filmmakers in post-war Japan, laid stress on *Sakuma Dam* in his 1988 essay on documentary history, characterizing the film as a magnum opus, whose "method" would align itself with that of "science film" (*kagaku eigateki shuhō*).[28] Tsuchimoto,

26 Ibid., p. 62.

27 Larkin, Brian. "The Politics and Poetics of Infrastructure." *Annual Review of Anthropology*, vol. 42. 2013, pp. 327–43. Quote from p. 329.

28 Tsuchimoto, Noriaki. "Shiron dokyumentarī eiga no sanjūnen" ["My perspective: Thirty years of documentary film"]. *Koza Nihon eiga 7: Nihon eiga no genzai* [Japanese film lecture

now mostly known for his documentaries in the 1970s on the mercury poisoning incident in Minamata, remained deeply involved in the Japanese Communist Party and its activism throughout the early 1950s and joined Iwanami Productions in 1956 at the start of his filmmaking career. Despite his persistent empathy toward the radical left, Tsuchimoto paradoxically recognized the governmental infrastructure film as an admirable variation of scientific inquiry detached from directorial intervention to the rapport between the camera and the subjects. For him, the film documented each stage of the "work schedule" (*kōtei*) not as a "follow-up" (*atooi*) story but as a record of progress, and what was "enhanced" was sober yet minute precision of the operation flow, itself grounded upon a rigorously calculated schedule.[29]

Tsuchimoto's observation of operational precision highlighted several key film techniques devised in *Sakuma Dam*. As was indicated above, *Sakuma Dam* sequentially presents the temporarily determined stages of the infrastructure project, sharing its stylistic traits with process films, which typically demonstrates "a series of chronological, sequentially ordered steps."[30] Aguilera Skvirsky stresses that such traits can be located extensively as a "genre-determining feature," from early sponsored film to art fiction cinema from the 2000s.[31] As the film rhythmically and almost mathematically renders blasting for drain tunnels, sequences are, for instance, typically cued with various shots of dynamite installations, followed by a close-up of a detonator. An operator – rather than a labourer – pulls the lever. There is a pause and then a blast. The explosion itself occasionally functions as formal punctuation, a release from a prolonged suspense. Historian Jinshi Fujii also points out that the white rising smoke that covers up the frame is stylistically repurposed as a fade-out, an optical effect to create a transition between scenes.[32]

Dust and debris indeed fly off toward the camera in several shots, which directly assault the spectatorial gaze as immediate and disruptive spectacles; explosions break both the mountain surfaces and the fourth wall. Shizuo Komura, the chief cinematographer of the documentary, recalls

series 7: Japanese cinema now], edited by Tadao Satō et al. Iwanami Shoten, 1988, pp. 248–69. Quote from p. 251.

29 Ibid., p. 250.

30 Aguilera Skvirsky, Salomé. "Realism, Documentary, and the Process Genre in Early New Latin American Cinema." *The Routledge Companion to Latin American Cinema*, edited by Marvin D'Lugo et al., Routledge, 2017, pp. 119–32. Quote from p. 126.

31 Ibid., pp. 126–29.

32 Fujii, Jinshi. "'Damu o tsukuru' noka 'damu ga dekiru' noka" ["'Dam is constructed' or 'dam comes into being'"]. *Iwanami eiga no l-oku furēmu* [Images of post-war Japan: The documentary films of Iwanami Productions], edited by Yoshiyuki Niwa and Shun'ya Yoshimi. Tokyo, 2012, p. 111.

Fig. 8.4. Blasting in *Sakuma Dam*. Picture courtesy Documentary Film Preservation Center, Japan.

that the filming of blasting involved "deadly" endeavours, attempting to get as close to explosions as possible and wiring up the lighting equipment (combinations of 3K and 5K in dark tunnels) to secure enough lighting exposure for Kodachrome film.[33] However, the moments of explosions, or the mise en scène that potentially jeopardized the lives of those filming, are efficiently and intelligibly edited. Violent interference with nature is tamed, turning them into tuneful spectacle under control. In Tsuchimoto's essay, the construction "work schedule" (*kōtei*) is rhetorically correlated with the formal "structure" (*kōsei*) of the documentary, and this implicit parallel is more than a paronomastic play. The "processual" filmic syntax is here doubled with the arithmetical construction work flow. To put it differently, the organizational logic of editing, which parallels the flow of construction process, serves as an epistemic template that itself configures film techniques.[34] The viewer learns both the infrastructural project made visible in content and film techniques made recognizable in the film.

33 Komura, Shizuo. "Sakuma damu to watashi" ["Sakuma dam and me"]. *Iwanami eiga no 1-oku furēmu* [Images of post-war Japan: The documentary films of Iwanami Productions], edited by Yoshiyuki Niwa and Shun'ya Yoshimi. Tokyo, 2012, pp. 95–97.

34 Tsuchimoto. "Shiron dokyumentarī eiga no sanjūnen," pp. 250–51.


Figs. 8.5–8.6. Workers' faces in *Sakuma Dam*. Pictures courtesy Documentary Film Preservation Center, Japan.

Tsuchimoto's reference to the formal structure of *Sakuma Dam* also pointed to a use of the close-up, another film technique that he drew attention to in his observation of a worker covered with (toxic) white pulverized dusts in the documentary.

American cutting-edge methods, gigantic cranes, and powerful bulldozers were under full operation, reminding us of the change from the era of pickaxes and rope basket [*tsuruhashi to mokko no jidai*]. Yet, the film [*Sakuma Dam*] also shows white dust covering a head and face of a worker drilling holes in a rocky tunnel, including the close-up of his eyelashes that have now turned gray.[35]

Tsuchimoto added that the close-up images would now be the overt "*photographic evidence* of silicosis" (*keihaibyō*), a lung disease common to construction workers caused by the inhalation of toxic dust containing silica (figs. 8.5–8.6). The remark, on the one hand, connotes the filmmaker's political-empathic reading of the representations of labourers as ambivalent images of critique, and pinpoints the government-led massive enterprise behind the dam project. On the other hand, the contrast he draws between American technologies and Japanese on-site labourers (covered with industrial dust) is also intertwined with the binary oppositions in terms of "scale," namely, between the perceived totality of the grandeur and the anatomical details of the image. The close-up on the eyelashes does not abstract itself merely as a metonymical figure that indicates America-Japan geopolitical tension or a capital-labour exploitive relation; it also holds the revelatory quality that enabled Tsuchimoto to *trace* the evidential power inherent to the specific film technique: the

35 Ibid., p. 251.

close-up. To rephrase, the face of the Japanese worker is not rendered as a miniature diminished in awe of largeness but is discerned as an enlarged microcosm that solicits minute and analytical observation. What his remark suggests is a taxonomical approach to the moving-image medium and its technique, reflexively contrasting aerial view/long shot and close-up. The close-up here does more than signifying *what* is shown; it is also pedagogical and processual, teaching one a technique of *how* to close in to the microscopic attributes of what is shown. This discovery of the technique – as an epistemic mediator – is what Tsuchimoto sees as the implicit connection between the industrial PR documentary and science film, whose "arithmetical" perfection in *tracing* the microscopic "living cell organism in motion" (*seimei no kotai no undō no kurōzu appu*) had once made him want to become a cinematographer rather than a director.[36] The film that records the infrastructure in the making here is also "engineering" the arithmetical approach to film techniques.

The former reading of the close-up as an image of critique is premised upon a semiosis of significance, which strives for the symbolic inscribed on the worker's face. The latter presents the possibility of cinematic mediation operating in tandem with categorical study of film techniques, through which the viewer explores the terrain between the technical images of infrastructural making (i.e. dam construction) and the techniques of revealing (film form). If the former largely centres around a politics of representation, the latter points toward a politics of cinematic scale, drawing from a work on the close-up by Mary Ann Doane. The close-up, which has claimed a unique status throughout the histories and theories of cinema, tends to elaborate a politics of the "face," a fragment of the body that simultaneously serves as an undecipherable/unreadable material surface as well as a window into interiority. However, it is also the term that designates "enlargement," foregrounding its pivotal roles in relation to the spatial configurations, scale and (dis)proportion. Doane's study reveals that a politics of the close-up is entwined with these seemingly quantitative and apolitical operations of scales, which in fact encompass deeply political questions of perspective/point of view, spatiotemporal rationalization, narrative construction and capitalist desire for commodification and possession.[37] Doane argues that the politics of scale, as "potential semiotic threat," undermines a schematized logic of continuity and identification and instead "empower[s] the spectator

36 Ibid., p. 250.

37 Doane, Mary Ann. "The Close-Up: Scale and Detail in the Cinema." *Differences*, vol. 14, no. 5, 2005, pp. 89–111.

as analyst of, rather than vessel for, meaning."[38] I stress that such empowerment effectively destabilizes assumed autonomies of various spaces among the diegetic, representational and spectatorial, once again evoking the question of *dispositif*. Beyond the politics of representation and its textual specificity, the politics of scale illustrates reflexive interrelations among the infrastructure in the making, technological condition of film production, and the film's own techniques of mediation.

Crucially, it is also here that Tsuchimoto makes brief yet critical comments on post-war Japan and the film, in which the magnificent infrastructural construction, for him, is "mirroring" (*eijiru*) the "resurrection of a defeated Japan."[39] If one persists in labelling the filmmaker as belonging to the radical left, his seemingly celebratory remark on the politico-economical centralization occurring in immediate post-occupation Japan has to be questioned as problematic or dismissed as frivolous. However, the cinematic inquiry of science once again operates as the linchpin of the relation Tsuchimoto suggests between war and Japan. The ambivalent ethical, existential and military implications of aerial cartographic views in the post-World War II period were addressed by various figures outside the Japanese context. It is Paul Virilio, for instance, who mapped out how scientific and mechanized modes of modern warfare converged on the aerial vision from military aircraft.[40] Virilio's homology between the operation of human eyes and that of aerial reconnaissance as a military ocular machine is often associated with the murderous vision of modern warfare. Erwin A. Gutkind, a German-born architect and urban planner, also spelled out in his 1956 essay that aerial vision, which had once made humans completely invisible, would simultaneously make collective human responsibility for the fragile planet visible. As a visual critique of humanity's destructive exploitation of nature, aerial vision ultimately reflects "the moral conscience of mankind."[41] I argue that the camera's miniaturizing, macroscopic and distanced vision of the wartime "killing machine" (in Virilio's term) came to be rearticulated into a form of visual

38 Ibid., p. 107.

39 Tsuchimoto. "Shiron dokyumentarī eiga no sanjūnen," p. 251.

40 Virilio, Paul. *War and Cinema: The Logistics of Perception.* Translated by Patrick Camiller, Verso, 1989, esp. ch. 2: "Cinema Isn't I See, It's I Fly."

41 Gutkind, Erwin A. "Our World from the Air: Conflict and Adaptation." *Man's Role in Changing the Face of the Earth*, edited by William L. Thomas. University of Chicago Press, 1956, pp. 1–44. See p. 11. *Also quoted by Amad, Paula. "From God's-Eye to Camera-Eye: Aerial Photography's Post-humanist and Neo-humanist Visions of the World." *History of Photography*, vol. 36, no. 1, 2012, pp. 66–86. See p. 75.

and perceptual expansion with microscopic views of the living organism in motion in post-war science documentaries in Japan.

In the specific case of post-war Japanese documentary, the series of cartographic bird's-eye shots, exemplified by the above-mentioned river closing in *Sakuma Dam*, was prefigured by the aerial vision in *The Effects of the Atomic Bomb on Hiroshima and Nagasaki*, the 1946 documentary made by a group of filmmakers at the Japan Film Company (Nippon Eigasha, or Nichiei for short), a former government-run monopoly where large-scale war documentaries and newsreels had been mass produced. The production of the film, which recorded the epicentres of the nuclear bomb attacks and their impacts on inhabitants in Hiroshima and Nagasaki in the months immediately following the events, was itself haunted, deeply intertwined with the Japanese government and US occupational tension and confusion. Furthermore, the production process was stopped, subsumed and resumed repeatedly. The finished film – 165 minutes in length – was also confiscated and suppressed by multiple ruling bodies for decades.[42] This doomed film, as Abé Mark Nornes argues, literally had a *maboroshi* or "phantom-like" status surrounding its existence.[43]

The production context and textual presence, at the same time, demystifies the spectral status of this documentary on atomic warfare.[44] The film was, as its blunt title implies, conceived as a scientific investigation of the *effects* of the atomic bombs on different sites and *hibakusha*, or A-bomb victims, conducting a meticulous (and often inhuman) survey about various impacts on nature and living tissues caused by radioactive particles. Along with extremely horrific representation of "pain" inflicted by the bomb, the film contained ample cartographic images of the evaporated cities recorded from an aerial perspective, which, as Nornes suggests, would correspond to the A-bomb's "point of view."[45] If macroscopic shots of the

42 One of the earliest fruitful attempts to release the film publicly was pursued by a group of civilian activists, and in April of 1968, NHK and NET broadcasted the shorter version of the film. Please see Yoshihara. *Nihon tanpen eizōshi*, p. 101.

43 Nornes conducts insightful study on *The Effects of the Atomic Bomb on Hiroshima and Nagasaki*, pairing it with Fumio Kamei's another monumental post-war documentary *A Japanese Tragedy* (1946). Please see Nornes, Abé Mark. *Japanese Documentary Film: The Meiji Era through Hiroshima*. University of Minnesota Press, 2003, pp. 183–219.

44 The filming crew was largely comprised of Nichiei directors and cinematographers, including Sueo Itō, Dairokurō Okuyama, Shigeru Miki, and Kiyoji Suzuki. Please see Yoshihara. *Nihon tanpen eizōshi*, pp. 98–101.

45 Nornes. *Japanese Documentary Film*, p. 211. Nornes also used this expression at a lecture held in conjunction with the conference "Legacies of Leftism in Film and Media Theory: East Asia and Beyond" at Columbia University on February 29, 2019.

scientifically motivated documentary rendered the ultimate apocalyptic vision of death, annihilation and destruction, the way Tsuchimoto relates the science film method to *Sakuma Dam* and his reference to the "resurrection" of post-war Japan also take on a new meaning. Kiyoji Suzuki, one of the camera crewmembers for *The Effects of the Atomic Bomb on Hiroshima and Nagasaki*, noted in 1949 that the wartime air raids had literally burnt out all the photo-microscopic equipment.[46] The sense of heavy losses and industrial unrest in the early post-war years certainly underscored the break from the preceding wartime works and practices.

History of microcinematography goes back to the early twentieth century, when Julius Ries, a Swiss biologist, produced one of the first time-lapse micro-cinematographic records of the cellular development of the sea urchin in 1907.[47] Capturing organic cells "in motion" was also a major agenda for physiologists such as Louise Chevreton and Frederic Vlès, who made a short film of the sea urchin's cellular transformation from egg to larva, rigorously adopting Étienne-Jules Marey's chromophotographic method.[48] Such European precedents were soon imported to Japan by M. Pathé and other ruling organizations in both public and private sectors.[49] Domestic studios investing in production and distribution of science film, such as the Jūjiya Culture Film Division (Jūjiya Bunka Eigabu) and Riken Science Film (Riken Kagaku Eiga), also started to appear in the late 1920s and the 1930s partly in response to an influx of UFA *kulturfilms* from Germany.[50] Just as UFA underwent Nazification in the 1930s under the government's protectionist measures, the budding science film culture in Japan became largely integrated into the wartime mobilization of the entire film industry, especially after the 1939 implementation of the Film Law (Eigahō), which required all theatres nationwide to include short documentaries in every programme.[51]

46 Suzuki, Kiyoji. "Bisokudo satsuei no keiken to hansei" ["Experience and reflection upon time-lapse photography"]. *Eiga gijutsu* [Film technique], vol. 5, August 1949. Also quoted in Yoshihara, *Nihon tanpen eizōshi*, p. 324.

47 For an insightful analysis of a live-cell imaging technology and its development, see Landecker, Hannah. "The Life of Movement: From Microcinematography to Live-Cell Imaging." *Journal of Visual Culture*, vol. 11, no. 3, 2012, pp. 378–99.

48 Ibid., pp. 381–82. Also see Kelty, Christopher, and Hannah Landecker. "A Theory of Animation: Cells, L-Systems, and Film." *Grey Room*, no. 17, 2004, pp. 30–63.

49 For M. Pathé, please see High, Peter B. "Umeya Shokichi: The Revolutionist as Impresario." Nagoya University, n.d., pp. 124–25.

50 Tanigawa, Yoshio. *Nihon no kagaku eigashi* [History of science film in Japan]. Yuni Tsūshinsha, 1978, pp. 26–33.

51 For brief overview of the Film Law and its impact on the documentary industry, please see Nornes, Abé Mark. *Japanese Documentary Film: The Meiji Era through Hiroshima*. University

Tsuchimoto, however, prompts us to recognize that the very attempt to make the living cells – or "life" – visible in motion fully blossomed in Japan after surrender, corresponding to the technological rigor of the early post-war (life) science films that marked progress and the "resurrection" from the devastation of the war. The early major post-war science shorts, Dairokurō Okuyama's *Living Bread* (*Ikiteiru pan*, 1948),[52] *Ecosystem of Tuberculosis* (*Kekkaku no seitai*, 1952) and Nikichi Ōta's *The Life of Rice* (*Ine no isshō*, 1950) all employed the phase-contrast imaging technology and time-lapse techniques that enabled the camera to record a living microorganism in motion instead of a stained (therefore dead) specimen fixed to prepared slides.[53] The aforementioned Nichiei was corporatized in 1946 and came to stand at the forefront of the field of science film production along with a few other studios, most notably Tokyo Cinema (est. 1954) and Iwanami Productions (est. 1950), which, as I noted, produced *Sakuma Dam.* Tsuchimoto's account on *Sakuma Dam* should be intertwined with this redemptive perspective of life and birth in the close-up of the microscopic details. To put it differently, the filmmaker's admiration for *Sakuma Dam* does not derive entirely from its subversive quality that captured the perceived evidence of hard labour; rather the documentary is for him a moving-image catalogue of the post-war infrastructural innovations, in which the evidence of material conditions is simultaneously presented as the indexical connection of motion photography to life.

Conclusion

Sakuma Dam Chapter One alone attracted more than three million viewers when theatrically released in 1954. This commercial success as a feature documentary became the cornerstone of a non-fiction infrastructure construction genre for theatrical release. For instance, the development of the Kurobe Dam (Kurobe damu), the tallest arch dam in Japan to date, was also made into a series of films by Nichiei. Sponsored by the third-sector Kansai Electric Power Company (Kansai Denryoku or KEPCO, for short), the films recororded eight years of construction process between 1956 and

of Minnesota Press, 2003, especially pp. 61–69. Also, Kasza, Gregory J. *The State and the Mass Media in Japan, 1918–1945*. University of California Press, 1993.

52 As noted above, Okuyama was one of the crew members of *The Effects of the Atomic Bomb on Hiroshima and Nagasaki.*

53 Yoshihara. *Nihon tanpen eizōshi*, pp. 324–27.

1963 and were released in sequential instalments in 1957, 1958, 1961 and 1963. Kurobe Dam was also known as "Kuroyon Dam" (Kuroyon damu) for housing the then largest hydropower plant, Kurobe No. 4 (dai-yon). Accordingly, Nichiei's documentary saga has often been referred to as the *Kuroyon* series and was widely popularized in Kinema Junpo and other major film journals in Japan.[54]

One crucial point to be made is the way in which a rhetoric of infrastructural innovation in content also brought formal, technical and experiential features to light that reflected a transforming condition of highly mediated societies. In 1961 the third chapter of the *Kuroyon* series was shot and released in CinemaScope, followed by an enormous commercial success of *The Sands of Kurobe* (*Kurobe no taiyō*), a fictional dramatization of the Kurobe Dam project as a serial novel in 1964 and its film adaptation in 1968. Casting the then peerless stars Toshirō Mifune and Yūjirō Ishihara, the film, with a 196-minute running time, dominated the box office and became the top-grossing film of the year.[55] In 1969, Nippon Television – Japan's first commercial TV station – also put together a televised drama of the same title, recasting Ishihara as well as other major names from the film version. A newly available widescreen format, or a technological innovation in part as a countermeasure against the emergence of television, was implemented in the documentary series to display infrastructural innovation in content, which then migrated to mainstream media enterprises, including television. This type of transmedia strategy is not entirely new, given that histories of cinema have always been inseparable from those of other media. However, post-war industrial films in Japan, beyond the localized boundaries and spaces of cinema, became deeply entangled with a range of epistemic transformations and changing mediascapes occurring in the period. To put it differently, the question at stake is not necessarily about corporate structures (determined by a market-driven economy) or ideology inter-textually woven into representations. Rather, the industrial films comprised the industrial, infrastructural, organizational and technological relationalities, from which various forms or systems of knowledge emerge. Such systems had often been configured with and preconditioned by film (and other

54 For a brief account of the *Kuroyon* series, please see Yoshihara. *Nihon tanpen eizōshi*, pp. 214–16.

55 A popular writer, Shōji Kimoto, penned the novel, which was first serialized in the *Mainichi* newspaper in 1964. Both Ishihara and Mifune founded their own film production studios in the 1960s: Ishinara Promotions in 1963 and Mifune Productions in 1963. The two studios co-produced *The Sands of Kurobe.*

media) as technologies and techniques of mediation as well as of medial participation, which constituted particular *dispositif* in post-war Japan. This historically and geopolitically specific *dispositif* points toward open-ended media environment or media-infused world building, where social actants remains analytical, processual and reflexive.

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