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Historical Context

On the seventeenth of September 1930, Sergei Eisenstein attended an invitation only meeting with the *Technicians Branch of the Academy of Motion Picture Arts and Science*, held at the *Cafe de Paris* in *Fox Hill Studios*. This was to be a meeting of significance for the motion picture industry and its importance was not lost on filmmakers of the time, with more than a hundred requests for attendance being refused by the organizers.[1] The select group of filmmakers and technical experts who were able to attend, deliberated upon a proposal by the Academy to create a standardized horizontal frame for cinema display based on aesthetic, commercial and physiological justifications. Prior to the meeting, invitees were sent three cards representing the ratios that were to be considered. Eisenstein noted that only frames with a width that exceeded the height were proposed as invitees were asked to consider either 4:3, 4:5 or 4:6 ratios (Eisenstein 1930). It was suggested that there were three reasons why a width biased frame would suit a standardized cinema format: The first was that there is a prevalence of "narrative" paintings being displayed in a horizontal format from the 19th century. Secondly it was suggested that a horizontal projection suited the successful traditions of Western proscenium arch theaters and the seating arrangements associated with them. Thirdly it was argued that a horizontal frame more closely matched the natural human physiology in terms our field of vision, since both eyes are positioned laterally next to each other and our peripheral view is wider than it is high.[2]

The key speakers at the event were Lee Deforest and Karl Sturss whose presentations focused on the advantages and disadvantages of different screen image proportions and how this also may affect production techniques and technologies associated with the industry (AMPAS Bulletin 1930: Cited in Friedberg 2006).[3] Eisenstein spoke from the floor and shared his opinions on the proposals, which were further echoed in a long letter to the Academy, later published under the title "The Dynamic Square" (1930).

Rafe Clayton is a filmmaker and academic currently researching at the University of York. His interest in vertical filmmaking began in 2018.

He recognized that this important meeting would be a key developmental moment in the history of movies and it raised questions for him about the nature of spatial compositions which he felt were not necessarily being discussed. He lamented that only wide ratios were being considered and spoke of potential inflexibilities caused by the wide frame in terms of the negative impacts that this has upon the minds of both the filmmakers and audiences (Eisenstien 1930). His argument was that by embracing a horizontal frame, the consequence is to exclude the myriad of possibilities for creative and entertaining moving images favoring a more vertical composition. He spoke of biological, cultural, intellectual and industrial human tendencies toward vertical efforts and manifestations (Eisenstein 1930) and how these physical and psychological aspirations are represented throughout human evolution and in the history of civilizations. He makes the point that vertical aspects, every bit as much as horizontal aspects, have fundamental meaning and importance in human experiences. Eisenstein recognized the "pantheistic horizontal tendencies" (Eisenstein 1930 p. 208) of mother earth and arrives at a conclusion that neither vertical nor horizontal frames sufficiently represent the world around us alone. His argument was that if there were to be a standardized dimension for film exposures and projections, then it should be in the shape of a square and in so being, a 'dynamic square' becomes suitable for all framing possibilities.

This view was not supported by the consensus of the meeting which chose to adopt an aspect ratio almost identical to the original 4:3 silent film frame of 1.375:1, and so by 1932 the new 35 mm full screen sound image format was officially adopted as the 'Academy Ratio'. From this historical moment forwards, discussion connected with the possible adoption of new aspect ratios for commercial cinema focused only on widening screen formats further and whenever worldwide standards have varied [such as during the introduction of CinemaScope and Panavision in the 1950s], they have stretched lengthwise[4] exaggerating and reemphasising the dominance of horizontalism as Eisenstein had warned. As the commercial motion picture industry continued to grow [overcoming the economic challenge of television audiences abandoning cinemas for domestic viewing], the industry chose to exaggerate the width of the cinema screen to provide a spectacle of immersion and 'realism' which the television set could not replicate.[5] The wide screen became the aesthetic draw of the motion picture industry and filmmakers developed their compositional grammar and language in accordance. Widescreen cinematography became the assumed medium for any full-length feature films with ambitions of scale and success.[6]

Vertical filmmaking and vertical projections were not completely lost, they had continued in artistic contexts throughout the 20th century, not as long-form and professionally shot narrative productions on the scale of

movies released by the commercial film industry, but instead as creative interventions in the art cinema scene.[7] Filmmakers with an interest in formats like vertical, square and circular frames were supressed from cinemas and as such, vertical aesthetic experiments had to take place elsewhere.[8] Some notable vertical filmmakers of the twentieth century include Robert Whitman (*The Shower 1964*), Jaroslav Flic (*Vertical Cinemascope 1970*) and Brian Eno *(Thursday Afternoon 1984*). Film literature followed the example of the commercial film industry and formalist texts concerned with preparing students for understanding, interpreting and creating movies were focused on the horizontal aspect ratio. It was not until the 21st century that academic discussion began to once again include vertical framing in debates. David Bordwell's[9] essay "Paulo Gioli's Vertical Cinema" reignited academic interest regarding vertically framed filmmaking. Bordwell acknowledged that the film image is currently biased toward the horizontal and that this phenomenon should perhaps be challenged.[10] Bordwell was inspired by the vertical films created by Paolo Gioli and felt that these explorations into cinema provide "new images of space, time and corporeality".[11] In particular, Gioli's 1972 work '*Anonimatograph*' utilizes not only a vertical frame, but also split imagery, superimpositions and jump cuts resulting in an experience which Bordwell describes as kaleidoscopic, dysfunctional and fractured. Bordwell acknowledges that Gioli's work reminds us of a time in the history of filmmaking when technical standards in regards to frame size were not specified.

In his earlier seminal text with Kristin Thompson 'Film Art' (1979), Bordwell and Thompson explain that frames in painting and photography are of different sizes and shapes, so why should it not be the same for film too?[12] They comment on the historical uses of verticality in cinema, noting that vertical framing has a precedent in main stream cinema [along with other frame shapes] with an early example identified in D.W Griffiths 1916 film '*Intolerance*'. This film was shot in the 4:3 original silent film aspect ratio, but through the utilization of vertical masks on either side of the screen, a vertical frame shape was created in the center and used for dramatic effect several times in the movie. Bordwell and Thompson (2016) further identify that framing is not simply defined by the aspect ratio of the film negative. Smaller frames and various frame shapes can be created within the wider frame through a sub-framing process known as 'frame within a frame'.[13] As such, framing is a selective process of choosing how images are composed within the border frame [aspect ratio] of the image and the construction of frames within the frame can have their own intrinsic interest (Bordwell and Thompson 2016).

Ward[14] describes the frame within a frame as a 'second frame' and explains its creative use in breaking up the repetition of the horizontal

rectangular aspect. Vertical second frames can be used to segment a film image into shapes that may already have vertical tendencies in terms of physical structure or narrative importance, since they allow the audience to focus on the portion of the screen which is most relevant to the drama.[15] For example, in Stanley Kubrick's '*The Shining*' (1980) when Jack Nicholson's character attacks the bathroom door with an ax and looks through the vertical hole he has made [the famous "here's Johnny" moment], the horizontality of the aspect ratio is arguably ignored whilst the intensity of the action and audience focus is concentrated within a vertical subframe. The extent to which conventional cinema has used vertical second frames within widescreen compositions appears to be largely unexplored by literature, however, it is certain that through the use of masks and selective compositions [even in the widest aspect ratios], that verticality is a relatively common feature of conventional cinematic imagery. Despite this, reference to vertical framing within current literature still very much portrays it as an anomaly and perhaps an abnormality.

A New Aesthetic

Verticality as an overarching concept of film esthetics provides the filmmaker with different possibilities for storytelling than horizontality (Eisenstein 1930) and it has been noted that in recent decades, vertical narrative themes within horizontally framed movies have become more evident. This in part has been influenced by the broader range of cultural sources which have begun to permeate cinematic narratives but more importantly perhaps, vertical themes have been enabled by advances in CGI (Computer Generated Images) technology.[16] Kristen Whissel first argued in 2006 that the influences of comic books, video games and fantasy novels upon the movie industry has resulted in the exploitation of CGI to create film bodies which are able to defy gravity and to facilitate camera movements which can move beyond real life perceptions and expectation. These dynamic vertical movements of both camera and action often represent a hyperkinetic expression of power which has the power to exhilarate and astound.[17] Whissel observes that cinematic movements through extreme heights and plunging depths place the vertical axis as the reference for many narrative conflicts, with the force of gravity and the ability to overcome it becoming a defining point of power and control. This leads to ensuing themes associated with defiance, transcendence and subordination which are further reflected in characterization and dramatic conflicts through vertical expressions of power, vulnerability and dominance.[18]

Whissel notes that film history is replete with vertically dominated storylines and film moments. The earliest representation of which [at least in

the history of long-form 'blockbuster' movies] being Flora Cameron's dramatic cliff fall in D.W. Griffith's '*Birth of a Nation*' (1915). In recent times digital technologies have helped liberate many productions from the restrictions placed upon them by real world practicalities and the limitations of physics, thus allowing for new potential to explore and exploit the screen's vertical axis. This not only ranges from dramatic moments of interplay between the power dynamics of different characters, but it can also affect entire storylines. Whissel identifies films such as '*The Poseidon Adventure*' (1972), '*The Towering Inferno*' (1974), '*Superman*' (1978), '*Close Encounters of the Third Kind*' (1979) and '*Abyss*' (1989) as a handful of films amongst many more which carry dominant vertically themed narratives punctuated by dramatic notions and dynamic expressions of soaring hope, joy, unbridled desire, aspiration, lightness, vitality, freedom, transcendence, defiance, falling, sinking, dread, doom, heavy burdens, inertia, subordination, loss, and the void.[19] Whissel concludes that the commercial film industry is facing significant aesthetic and technological changes in terms of verticality.

> Just as widescreen processes created the functional grounds for a new film aesthetic based upon composition in width and depth in the 1950s, digital processes are currently giving rise to a new film aesthetic based on height and depth. As a result, verticality is no longer confined to hair-raising stunts and dramatic camera angles, but has become a cinematic mode that structures and coordinates setting, action, dialogue, and characterization along radical lines of ascent and descent.[20]

As technology has advanced, not only has the capacity for manipulating moving images become easier, allowing creators to push the limits of their creative imagination, but also the environments through which moving images can be viewed have become more flexible and varied. Advances in projection equipment and small screen technologies now means that moving images can be viewed on scales that were previously impossible, ranging from the very large to the very small.[21] Moving images can be viewed on hand held devices or be displayed via multiple projectors onto the sides of iconic buildings, both in sharp focus and with high resolution. Projections have been able to move beyond conventional discussions concerning aspect ratios, with advances in mapping technology allowing for projections to be shaped to any structure or design. The aspect ratios of the smaller digital screens and those found on hand held devices are still regulated by the physical structures of the manufactured device, however, modern software and GUIs (Graphical User Interfaces), provide a variety of viewing and framing options which are often designed to complement the screens through which they are operated.[22] Fluid and overlapping windows and apps which are optimized for specific platforms have helped to create a digital environment in which frame formats are now variable and changing.

Menotti[23] has criticized Whissel's[24] text for not making reference to the emerged verticalization of screens in her discussion of verticality in film. Menotti has identified that the impact of digital screens and mobile media devices have led to a broader reconfiguration of audio-visual media, allowing for vertical moving images recorded and displayed in a vertical aspect ratio to become more commonplace. Smartphones in particular are said to have changed the world in terms of film and video consumption and now mobile users are viewing more vertical moving imagery than ever before.[25] Menotti argues that vertical aspect ratios are now dominating contemporary audio-visual environments and that the format has become an everyday norm through people's interactions with smartphones, electronic display posters and announcement screens.

Writing from a Marxist perspective of film history, Menotti articulates the view that non-horizontal formats such as those with vertical, square and circular aspect ratios have been supressed from commercial cinema by those who controlled its commercial development throughout the twentieth century; and that furthermore, the preexisting bias against vertical moving images has been shaped by those who established the historic Academy Ratio for economic rather than aesthetic or creative benefit.[26] Menotti argues that vertical moving imagery is historic and that the verticality of imagery has an essential role and value in reflecting human experience. The optical toys of the 19th century such as the phenakistoscope and the zoetrope often used narrow framing and the early incarnation of the television invented by John Logie Baird in 1925 also employed an image with a vertical aspect ratio, since it better suited the human form.[27] However, despite there being historical precedents for vertically framed moving imagery,[28] the dominance of the horizontal form has been overwhelming. So much so that traditional cinema scholarship has ignored vertical moving images and disregarded screen orientation as a subject of inquiry.[29]

Menotti observes that the implication of this literary absence of verticality, is that horizontality has formed a fixed bed rock of compositional moving image discussion. However, the idea that horizontality is inherent to audio-visual media and technologies is immediately disproved by looking at the current online moving image landscape. Vertical videos are challenging the formal standards of moving imagery and horizontal video already seems out of place in certain contexts, such as social media stories.[30] As a result of the historical precedents of vertical moving images, growing numbers of vertical videos, the existence of vertical film festivals and increasing movements toward modern vertically shot feature length films, Menotti calls for verticality to be recognized as a film style within the field of cinema studies and for discussion over the format's legitimacy to be further expanded upon.

The aesthetic value of vertical moving images is explored by Kathleen Ryan[31] through the lens of applied media aesthetics and in particular Ryan interrogates the perceptions of new audio-visual forms which are shot on a vertical plane and viewed on smartphone screens. Ryan's compelling argument is that vertically framed moving images represent a new aesthetic when viewed within the technology through which it largely emerged, namely that of the smartphone display, and by considering 'keitai aesthetics', traditional paradigms of viewing are challenged ['keitai' is the Japanese word for 'mobile' and keitai aesthetics refers to the experience of observing imagery on mobile devices]. Viewing small images in intimate settings and potentially during intimate moments separates the handheld audio-visual consumer from the widescreen cinema goer in terms of both their expectation and experience of viewing. Moving images watched on a smartphone can be personally interrogated, be paused, interrupted and even rewound in a way that would be impossible during the cinema experience.[32] This intertwining of art and life, as Zettl[33] describes, are hallmarks of applied media aesthetics and in so positioning, vertical moving images watched on a mobile device can potentially provide significant immersive experiences of intimacy and allow a unique personal connection between media product and audience.[34]

Emerging Possibilities

Farhad Manjoo[35] of the New York Times wrote in 2015 that write that filmmakers and videographers who are shooting vertically were at the vanguard of a new artistic trend[36] and furthermore, the vertical frame as a new aesthetic need not solely be linked with hand held mobile devices. Vertical frames have been largely ignored by commercial cinema and so their introduction, could potentially open up new possibilities for visual narrative engagements between audiences and vertically themed stories. In some respects, a vertical frame may be advantageous to filmmakers, for example, the horizontal image does not cope well with framing vertical structures and bodies, including people.[37] As Zettl identifies, there can be a lot of space to fill on either side of the main subject in a long shot and so verticality, clumsily becomes horizontalized if the camera is forced to tilt diagonally in order to take in the entire height and structure of a building or a person. Furthermore, the use of vertical subframes within horizontal aspect ratios throughout the history of cinema, demonstrates a certain intrinsic value in this frame orientation.

The dichotomic experiences between a viewer watching a widescreen movie in the cinema compared with a viewer watching a vertical video on a hand-held device provide a fascinating environment for debate on

comparative immersive aesthetics. Can a widescreen film be watched on a handheld device? Can a vertical film can be watched on a large cinema screen? Ryan argues that the orientation of the aspect ratio should not be the foremost concern for filmmakers when seeking to concentrate the audience's eye. Movement, color and the presence of a human face will always gain the attention of the viewer and eye tracking studies suggest that center of the screen may be the area which attracts most focus of attention anyway (Josephenson and Holmes 2002: Cited in Ryan 2018).[38] Aspect ratios are therefore not the most important consideration for composition. What matters most, is that the pictures are able to capture the realties and the true essence of the subjects (Henle 1974: Cited in Ryan 2018).[39] An argument which is not so distinct from that proposed by Eisenstein in the 1930s.

The vertical format [9:16] is argued to now be the default aspect ratio for most video creation and consumption in the world,[40] predominantly because 96% of video production and consumption is performed informally and amateurly on mobile devices[41] and smartphone users hold their phones vertically about 94% of the time.[42] As such, verticality and smartphone video consumption has not been ignored by the film and TV industry. Cinema trailers are now often edited to aspect ratios optimized for watching on handheld screens and the BBC began sharing its first vertical video articles on social media in 2015.[43] Over recent years, many broadcasters have begun to generate moving image content purposefully created for mobile viewing, however their biggest budgets and main focus remain with horizontal productions for television and cinema distribution. Within the world of social media, vertical and square videos have become popular and now have emerging commercial roles to play in the world of advertisements, influencer broadcasts and in short social media stories.[44]

As Neal and Ross[45] explain, the landscape of mobile media technologies has allowed vertical framing to flourish in terms of the number of videos created and viewed online; mainly as a result of amateurs recording and sharing their experiences with friends whilst holding their smartphones in one hand. In response, there is still pushback against vertically framed moving images by those who are committed to believing in the 'righteousness' of horizontality.[46] Since the commercial film industry still shoots and displays its films horizontally, vertical videos are largely associated with self-shooting amateurs, social media stories and adverts which are to be consumed on a mobile phone.[47]

Vertical moving images are still supressed from the larger commercial enterprises of the film industry[48] and so the question emerges: Why have no commercially successful long-form films been made in a vertical format? Vertical viewing is most convenient for mobile consumers and in today's

world, convenience is the only metric that matters,[49] so why not tap into this convenience market with the weight and power of Hollywood? Perhaps, the possibility of further academic interrogation of this field of study will help challenge horizontalist preconceptions and inspire new attitudes, narratives and aesthetic investigations into the possibilities of long-form vertical film production.

Conclusion

Due to the popularity of smartphone devices and digital technologies enabling easy and quick video production, vertical moving imagery has now become commonplace and is likely to be here to stay. As such, we are forced to reassess the dominant biased perceptions of horizontality in filmmaking theory and practice concerning the grammar and language of moving image compositions.

Verticality was rejected in 1930 for economic rather than aesthetic justifications when the Academy Ratio was set as a global standard.[50] As such, vertical aspect ratios became inaccessible to commercial audiences and were consigned to the realms of experimental moving image productions for display to limited audiences and produced with small or none existent budgets.[51] The language and grammar of professional filmmaking which developed throughout the twentieth century was biased toward the horizontal aspect ratio[52] to the point at which vertical framing is now described as inelegant, amateur and to be avoided by professional filmmakers, academics and consumers alike.[53]

The rationality for creating a horizontal standard aspect ratio was built upon three premises (aesthetic, commercial and physiological) which were challenged at the time by Sergei Eisenstein (1930), and can now be challenged again in light of technological and socio-commercial advances. The argument that horizontal moving images are 'physiological' is challenged by Ryan,[54] who has identified that visual form in fine art and photography has always been dynamic and does not necessarily favor a horizontal aspect, so why should moving images be so determined?[55] Furthermore, the biological conditions of the eye and its spherical focal nature, and single eye dominance is as aligned with circular, square and vertical imagery as much as it is with the horizontal.[56]

In terms of aesthetics, notions of keitai imagery and of portraiture suggest new intimate ways in which the human soul may interact with vertical moving images which may have been supressed during the 20th century. Furthermore, Whissel has demonstrated how verticality as a concept for narrative construction and dramatism has a long-standing relationship with professional and commercial filmmaking and that vertical themes in long-

form narratives are as much a feature of storytelling as the horizontal. Indeed, in some cases, it could be argued that vertical themes have more dramatic potential and as such, the limitations of the horizontal frame in representing vertically themed drama are noted.

Finally, the commercial arguments used in 1930 for justifying the width of the Academy Ratio are perhaps no longer relevant either, since frame sizes, displays and the physical environments for consumption are now fluid and variable. Technological advances have led to a moving image revolution in which films and videos are no longer dominated by the wealthy commercial and corporate entities of Hollywood.[57] Whilst some filmmakers defend the widescreen as an industry standard and professional expectation, emerging consumer habits have challenged traditional perceptions of the moving image aesthetic.[58] The majority of moving images in the world are now created by everyone who has access to a smartphone, and they have for the moment, chosen as their frame of convenience and choice, the vertical.

Notes

1. Friedberg, The Virtual Window.
2. Menotti, "Discourses around Vertical Videos," 147–165.
3. See note 1 above.
4. Bordwell, "Palo Gioli's Vertical Cinema"; Zettl, Sight Sound Motion.
5. McKittrick, "Film Aspect Ratio: The History of Widescreen Movies."
6. Young and Petzold, The Work of the Motion Picture Cameraman.
7. See note 2 above.
8. Ibid.
9. See note 4 above.
10. Ibid.; Zettl, Sight Sound Motion.
11. See note 4 above.
12. Sebire, "9:16 Tips & Tricks — Vertical Film Festival."
13. Ward, Picture Composition for Film and Television.
14. Ibid.
15. Brown, Cinematography: Theory and Practice.
16. Whissel, Spectacular Digital Effects.
17. Whissel, "Tales of Upward Mobility the New Verticality," 23–34.
18. Clayton, "Filmmaking Theory for Vertical Video Production."
19. See note 17 above, 24
20. Ibid., 26
21. Ross, "Vertical framing."
22. See note 2 above.
23. Ibid.
24. See note 16 above.
25. Richards, "9:16 Vertical Video - The New Data on Mobile Video."
26. Ryan, "Vertical Video," 245–261.
27. See note 2 above.
28. Ross, "Reconfigurations of Screen Borders," 105.

29. See note 2 above.
30. Ibid.
31. See note 26 above.
32. Ibid.
33. Zettl, Sight Sound Motion.
34. Sternberg, "Vertically Unchallenged."
35. Manjoo, "Vertical Video on the Small Screen?".
36. Neal and Ross, "Mobile Framing,", 151–160.
37. See note 33 above.
38. See note 26 above.
39. Ibid.
40. Peters, "Does Vertical Video Make a Difference?"
41. Social Chain, "You Can't Ignore Vertical Video Any Longer."
42. MOVR, "Mobile Overview Report October."
43. See note 36 above.
44. Canella, "Video Goes Vertical."; See note 41 above.
45. See note 36 above.
46. Canella, "Video Goes Vertical."
47. See note 21 above.
48. See note 2 above.
49. See note 41 above.
50. See note 26 above.
51. See note 2 above.
52. See note 4 above.
53. See note 21 above.
54. See note 26 above.
55. See note 4 above; See note 12 above.
56. Dragoi, "Visual Processing: Eye and Retina."
57. See note 2 above.
58. See note 46 above.

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