

Labour, Media and Technology: Editors' Introduction

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Technology is ‘far from neutral’ in its manufacture, use and availability.¹ It is embedded in social and economic structures, and is inexorably intertwined with power and gender hierarchies. As Cynthia Cockburn writes, ‘technology enters into gender identity, and...technology itself cannot be fully understood without reference to gender’.² Writers in the feminist technology tradition characterise the relationship between gender and technology as not only mutually shaping, but co-produced, so that ‘each are seen as performed and processed in character, rather than given and unchanging’.³ This issue considers how the gendered dimensions of technology intersect with labour and media, in both historical and contemporary settings.

Scholarly research on gendered labour and technology has often sought to examine the development of feminised occupations, or to reclaim the previously hidden or under-researched contribution of women in technical fields, including music production, aviation, electronics manufacturing, and the telephone industry.⁴ Others have illuminated the ways that gender inequalities have profoundly shaped widespread technological change and development. Mar Hicks’s history of women in computing, for example, makes the compelling argument that Britain lost its position as a computing superpower in the 1970s through structural gender discrimination.⁵

Scholars have also explored gendered labour across the full range of media industries, from broadcasting, print newspapers, film, to the digital online domain. Feminist researchers have highlighted the experiences of women working in less visible or ‘below-the-line’ roles in the media, including engineers, sound workers, colourists and colour consultants, archivists, continuity girls, and costume designers.⁶ Gendered creative labour, especially the ‘hidden, marginalised or forgotten histories’ of women media workers was the focus of recent special issues of *Women’s History Review*, *Media International Australia* and *Feminist Media Histories*.⁷ The relationship between gendered labour and technology in the media, however, remains under-researched, even though the equation of technology with masculine labour remains a persistent barrier to women’s full employment in the media. Recent reports on the UK, Australian, and US screen industries demonstrate that the percentage of women employed in technical positions, such as cinematography and lighting, remains stubbornly low and shows little sign of improvement.⁸ The position of women of colour is even worse; one UK study found that between 2003 and 2015 just 33 editors were identified as Black, Asian, and Minority Ethnic (BAME) women (less than 1% of all editors), and only 10 BAME women were employed as cinematographers over the same period (0.3% of all cinematographers).⁹

From a critical perspective, there has been an increase in scholarly research, from both historical and contemporary perspectives, interested in exploring the relationship between gender, labour, and technology. Rather than assuming technologies are free from bias, interdisciplinary scholars from history, media studies, gender studies, critical technology studies, and more, are evidencing systemic inequalities in and around the production, use, and labour of these technologies. In the early 1980s, Cynthia Cockburn explored the links between ‘technical effectivity’, male power and the sexual division of labour in media industries. More recently, Jesse Adams Stein has revealed the interconnectedness of masculine labour, material culture and technology, in a study which brought together consideration of ‘spaces, objects and

embodied experience' with historical analysis of working culture in the Australian printing industry, and scholars such as Sofia Noble, Kylie Jarrett, and Lisa Nakamura have extended such examinations to emerging digital platforms.¹⁰ In order to understand the contemporary exclusion of women from 'hyper-masculine' occupations, it is imperative to comprehend the role of gender and technology historically.¹¹ The junctures where women have gained more access to technology, such as during the Second World War, show that a crisis that disrupts gendered labour patterns can open up spaces of possibility. As this collection demonstrates however, women must still contend with deeply held notions about the relationship between technological skills and masculinity that cross time and space.

There is also increased interest in applying an intersectional lens to gendered labour in the media industries.¹² This lens will not simply evidence women's role within technological production, but make it 'quite clear that the burden of digital media's device production is borne disproportionately' by women of colour whose labour is so often hidden or ignored.¹³ Donna Haraway's classic 'A Cyborg Manifesto' draws our attention to the unseen labour from women of colour, whose 'nimble fingers' and 'enforced attention' were seen to make them particularly suited to manufacturing digital products and devices.¹⁴ In this issue, Carolyn Birdsall and Elinor Carmi build on this work to highlight the multiplicities and fluidity of labour in the film industry, and the gendered and racialised context of collective and collaborative work.

A feminist perspective on these issues invites analysis not just of the labour itself, but the gendering of labour, and how labour is understood, (re)evaluated or devalued when performed by women. This perspective also analyses questions of gender, labour and technology in relation to power, and demands that we not only probe how women use technology but understand how technology shapes gender.¹⁵ As Sue Curry Jansen writes, gender shapes much of our life experience and should be a major consideration, not a variable,

if we are to understand ‘the multiple and multifaceted ways that gendered patterns of communication and gendered distribution of power are variously constructed and replicated by different social institutions and structures of knowledge’.¹⁶ Technology in the workplace can also bring with it a toxic culture that is hostile to women, as Jeannine Baker and Nick Hall explore in this issue in their discussion of technical areas of television production. In relation to journalism, Nikki Usher argues that questions about the ‘future interplay between gender, technology and journalism’ are increasingly important as the industry becomes more technologically oriented.¹⁷ Feminist scholars have also considered the relationship between gender and power in the digital workplace. Judy Wajcman articulates anxieties around the new digital knowledge economy and whether it simply replicates ‘old patterns of exploitation and sex segregation’, and Kylie Jarrett makes visible immaterial forms of digital labour, which are often highly gendered, and require political economic analyses to be understood – something that Kaitlynn Mendes’s contribution to this issue also addresses.¹⁸

This special issue builds on this scholarly work, by foregrounding the connections between gendered labour and technology within the media industries, and by considering the impact of developments in digital technologies on these gendered practices. It begins the important project of encouraging conversation between these key theoretical, empirical and methodological advancements, while recognising there are still many omissions, including explorations of gendered labour, media and technology in the Global South, and intersectional aspects not covered by our authors.

This issue stems from an interdisciplinary workshop held at the Digital Humanities Lab, University of Sussex in January 2019. The editors are grateful to all participants, especially to sound supervisor Louise Willcox and grip Grace Donaldson for generously sharing their considerable industry knowledge and experience. Many of the questions and themes raised in the workshop are reflected in this collection, including unpaid labour in feminist work; the

barriers to technical work for women, including lack of access to appropriate education and training; and feminist methodologies, such as how researchers can both acknowledge and address archival gaps and absences in relation to women's media work.

Overview of Themes

The theme of unpaid labour in relation to feminist activism is explored by two authors in this themed issue. Marama Whyte provides a detailed historical account of the intense, yet voluntary labour that went into producing feminist newsletter, *Media Report to Women*, and suggests that it was Allen's unpaid labour and her use of affordable and sustainable technologies, that kept this newsletter in print for so long. Forty years after this formative publication, Kaitlynn Mendes charts a similar phenomenon, exploring the unpaid labour used to maintain a range of feminist blogs in Canada, the US, and UK. While both articles comment on the value of women's free labour, Mendes shows how, in light of attacks on the welfare state, activists are increasingly finding creative ways to make money from their activism. In doing so, both articles raise broader questions around the value of feminist activism, and who can (not) afford to engage in feminist media production.

The question of technology as a barrier to women's employment is also a key theme, with contributions showing how in female-dominated roles skill levels were routinely devalued. Sarah Arnold notes that although wartime women television workers were initially praised for their efforts, their competence in television scripting and production was questioned as the end of Second World War neared. Kate Terkanian similarly finds that while women's technical accomplishments were acknowledged and commended by British Broadcasting Corporation (BBC) Engineering managers, their capacity to understand complex engineering was continually doubted. Vanessa Jackson and Jeannine Baker and Nick Hall highlight similar trends that stretch into the current era. Baker and Hall

demonstrate that the voicing of stereotypical assumptions about women's inability to manage the weight or complexity of camera equipment often masked men's affective discomfort about the presence of women in the male-dominated workplace. In the years following the BBC's announcement that women were no longer barred from applying for camera operator positions, educational requirements became more rigid and acted as a de facto barrier, again devaluing women's deeper understanding of technical matters. Jackson notes that technological changes seen as de-skilling traditional television crafts also opened up new avenues of production careers for women. Finally, Jane Simon and Mio Bryce demonstrate this same undervaluing is at work in the photography profession in Japan.

The particular challenges associated with researching women's labour and production in the media industries is also highlighted by several authors. The ancillary roles typically filled by women media workers have often left 'little or no archival trace' in institutional or public repositories, forcing researchers to seek out new forms of evidence.¹⁹ Many feminist media scholars have turned to oral histories and interviews for sources as well as a methodological approach.²⁰ The creation of new primary resources to address gendered omissions in public collections is an important aspect of two major AHRC-funded research projects focusing on women's work in the media, 'Calling the Shots: Women and contemporary film culture in the UK, 2000–2015', and 'Women's Work in British Film and Television'.²¹ Two articles in this issue extend on these projects, drawing on oral evidence to illuminate the nature of women's work in television. Vanessa Jackson conducted surveys and interviews with 130 women working in UK television production to address the 'longitudinal gap' in knowledge about the changing nature of women's roles over the last forty years. Nick Hall and Jeannine Baker draw on oral history interviews with three women who worked in camera roles in the BBC in the 1970s and 1980s to explore how women's introduction into technical areas of television production posed a challenge to entrenched gendered production cultures and systems.

As Baker and Hall point out, oral history interviews provide valuable insights into aspects of television production that are not ordinarily revealed in written records or the historiography of broadcasting, such as the navigation of workplace dynamics; interviewees' understanding of their own professional identity, status and opportunities; and the impact of institutional policies and processes on individual workers. Kaitlynn Mendes's research also uses interviews to examine hidden forms of labour – in this case, the invisible labour underpinning a range of digital feminist blogs and campaigns. She brings these discussions to the 21st century, contextualising why they are increasingly important in neoliberal climates in which state support and funding is increasingly stripped away. Sarah Arnold also touches on the methodological challenges of researching 'women's work which tended to be undervalued, feminised, and which eventually disappeared from dominant institutional histories', in her study of the all-female technical and production crew at an experimental Chicago television station. The women's absence from traditional archives led Arnold to the innovative solution of tracing the women's careers using articles in the trade and popular press, which also reveal broader discourses about women's technical work.

Overview of Articles

In our lead article, 'Feminist Avenues For *Listening In*: Amplifying Silenced Histories of Media and Communication', **Carolyn Birdsall and Elinor Carmi** propose four alternative pathways for engaging with the histories of media and communication, and ultimately, theorising and researching them. The article proposes a new 'listening in' framework which makes use of feminist and sound-related approaches to reveal obscured processes and collective media work, which are frequently silent in scholarly research. The model provides ways to disrupt mainstream media histories, and offers new methodological tools to understand, analyse and amplify hidden layers of media and communication.

Sarah Arnold discusses the gendering of technical work in early US television, via the case of the all-female technical and production crew at Chicago's experimental television station WBKB, known as the Women's Auxiliary Television Staff (WATTS), in her article 'Experiments in Early US Television: Windows of Opportunities for Female Technical Workers in the 1940s'. The novelty of women in these roles quickly lost its lustre in the post-war years, however the decline in women's employment due less to women's lack of technical ability, than to wider social shifts and attitudes, including the return of men to management and technical positions, and the strengthening of a gendered hierarchy of labour, which aided the suppression of women's contribution to the development of television.

Kate Terkanian investigates the employment of women in the BBC Engineering Division during the same period in her article, 'From Women Operators to Technical Assistants: women in the BBC's Wartime Engineering Division'. Terkanian demonstrates that although advancement in critical engineering roles remained male-dominated, women received training and advancement opportunities that allowed them to make some permanent inroads in studio-based technical positions in radio. However, the BBC's recognition of women's achievements in operational roles was underlaid with a continual questioning of women's capacity to understand technical intricacies.

In 'Rigged Against Them: Women Camera Operators at the BBC During the 1970s and 1980s' **Jeannine Baker** and **Nick Hall** examine the BBC's decision in the 1970s to employ women as film and television camera operators. While anxieties around women's ability to master camera equipment proved unfounded, the presence of women – and their desire to be treated as equal members of the crew – sometimes posed a challenge to the male-dominated work culture of television studios. Baker and Hall find that changes in recruitment and training requirements, coupled with inflexible working arrangements, effectively curtailed women's wholesale advancement in these areas.

In 'The 'Old Girls' Network': Media Newsletters as Feminist Technologies in 1970s America', **Marama Whyte** focuses on the US feminist newsletter *Media Report to Women*, produced by founder and editor Donna Allen using cheap and sustainable media technologies, and which relied on unpaid labour. Whyte argues that the newsletter acted as an alternative to the 'old boys' network' by encouraging networking, sharing job opportunities, and fostering media women's activism throughout the 1970s.

In 'The Labour of Light: Gender, Technology and the Domestic in the Photography of Nagashima Yurie and Kawauchi Rinko', **Jane Simon** and **Mio Bryce** examine the production and reception of the work of two Japanese women photographers, in the context of the male-dominated photographic practice in twentieth-century Japan. Simon and Bryce argue that the critical response to their photographs is linked to the women's preference for 'amateur' camera technologies and their attention to domestic spaces, which are often perceived as insignificant. Simon and Bryce highlight the ways that Nagashima and Kawauchi reframe the domestic and the familial as sites worthy of close attention, arguing that they use the camera as a 'catalyst' to provide multiple and shifting perspectives on the labours of daily life.

In her article "'There is Still Some Work to be Done, But We've Come a Long Way": The Changing Position of Women in Technical Television Roles', **Vanessa Jackson** analyses how women's roles in television production have changed since the 1970s, when most women were channelled into low-paid, low-status feminised occupations, with few prospects for career advancement. She argues that technological change has deskilled some formerly male-dominated areas and created more opportunities for women in new quasi-technical occupations, and increasing mobility between technical and production areas. While women are now better represented across television production, gender inequalities persist in location-based craft roles such as camera, sound and lighting.

Lastly, Kaitlynn **Mendes** takes the issue into the digital age, exploring the ways feminists are harnessing digital technologies to forge careers in feminist activism as ‘fempreneurs,’ making use of digital technologies and skills to do so, in her article ‘Digital Feminist Labour: The Immaterial, Aspirational and Affective Labour of Feminist Activists and Fempreneurs’. The article sheds light not only on the hidden labour of their work, but on the political economy of contemporary feminist activism.

With increased attention towards issues of gender, power and technology, this special issue provides a timely and unique opportunity to bring various approaches, different historical periods, media forms, and types of labour into conversation. It also provides an opportunity to explore women’s affinity with technology, and their capacity to forge a successful career path in technological spheres.

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1. Cynthia Cockburn, ‘Caught in the Wheels: the High Cost of Being a Female Cog in the Male Machinery of Technology’ in Donald MacKenzie and Judy Wajcman, eds, *The Social Shaping of Technology* (Buckingham: Open University Press, 1999), 127.
 2. Cynthia Cockburn, ‘The Circuit of Technology: Gender, Identity, and Power’, in John Thornton Caldwell, ed, *Electronic Media and Technoculture* (New Brunswick: Rutgers University Press, 2000):197.
 3. Wendy Faulkner, ‘The Technology Question in Feminism: A View from Feminist Technology Studies’, *Women’s Studies International Forum* 24, no. 1(2001): 82.
 4. Helen Reddington, *She’s at the Controls: Sound Engineering, Production and Gender Ventriloquism in the 21st Century* (Bristol: Equinox Publishing Ltd, 2021); Carol J. Haddad, *Ungendering Technology: Women Retooling the Masculine Sphere* (London; New York: Routledge, 2019); Lisa Nakamura, ‘Indigenous Circuits: Navajo Women and the Racialization of Early Electronics Manufacture’, *American Quarterly* 66, no. 4 (2014): 919–941; Venus Green, *Race on the Line: Gender, Labor, and Technology in the Bell System, 1880-1980* (Durham: Duke University Press, 2001); Vicki Mayer, ‘To communicate is human; to chat is female: The Feminization of US Media Work’, in Cynthia Carter, Linda Steiner and Lisa McLaughlin (eds.), *Routledge Companion to Media and Gender* (Abingdon: Routledge, 2013), 51-60.
 5. Mar Hicks, *Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing* (Cambridge, MA: MIT Press, 2018)

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6. Melanie Bell, 'Learning to Listen: Histories of Women's Soundwork in the British Film Industry', *Screen* 58, no. 4 (2017) 437–457; Helen Warner, 'Below-the-(Hem)Line: Storytelling as Collective Resistance in Costume Design', *Feminist Media Histories* 4, no. 1 (2018): 37–57; Emma Sandon, 'Engineering Difference: Women's Accounts of Working as Technical Assistants in the BBC Television Service between 1946 and 1955', *Feminist Media Histories* 4, no. 4 (2018): 8–32; Carolyn Birdsall, 'Divisions of Labour: Radio Archiving as Gendered Work in Wartime Britain and Germany', in *Gender and Archiving: Past, Present, Future*, ed. Noortje Willems et al. (Hilversum: Verloren, 2017); Miranda J. Banks, 'Gender Below-the-Line: Defining Feminist Production Studies', in Vicki Mayer, Miranda J. Banks & John Thornton Caldwell (eds), *Production Studies: Cultural Studies of Media Industries* (New York, NY: Routledge, 2009), 87–98; Melanie Williams, 'The Continuity Girl: Ice in the Middle of Fire', *Journal of British Cinema and Television* 10, no. 3(2103): 603–17; Sarah Street, 'A Suitable Job for a Woman: Color and the Work of Natalie Kalmus', in Christine Gledhill and Julia Knight, eds, *Doing Women's Film History: Reframing Cinemas, Past and Future* (Urbana, IL: University of Illinois Press, 2015), 2016–17; Diane Wei Lewis, 'Shiage and Women's Flexible Labor in the Japanese animation industry', *Feminist Media Histories* 4, no. 1 (2018): 115-141.
 7. Vicky Ball, Pat Kirkham, and Laraine Porter, 'Structures of Feeling: Contemporary Research In Women's Film And Broadcasting History', *Women's History Review* 29, no. 5 (2020), 1. See also 'Gendered Patterns of Discrimination in the Creative Industries', special issue of *Feminist Media Histories* 4, no. 4 (2018); 'Gendered Labour and Media', special issue of *Media International Australia* 161, no. 1 (2016); 'Labor', special issue of *Feminist Media Histories* 4, no. 1 (2018).
 8. Cathy Henkel, 'Screen Australia Celebrates Its Work in Gender Equality but Things Are Far from Equal', *The Conversation* (29 October 2019); Shelley Cobb, Linda Ruth Williams, and Natalie Wreyford, 'Calling the Shots: Comparing the Numbers of Women Directors, Editors and Cinematographers on UK-Qualifying Films 2003–2015', <https://callingtheshots138740090.files.wordpress.com/2019/08/comparing-the-numbers-of-women-directors-editors-and-cinematographers-on-uk-qualifying-films-2003-2015.pdf>; Martha M. Lauzen, 'The Celluloid Ceiling: Behind-the-Scenes Employment of Women on the Top U.S. Films of 2020', Centre for the Study of Women in Television and Film, San Diego State University, available at <https://womenintvfilm.sdsu.edu/research/>
 9. Cobb, Williams, and Wreyford, 'Calling the Shots.'
 10. Jesse Adams Stein, *Hot Metal: Material Culture and Tangible Labour* (Manchester: Manchester University Press, 2017); Cynthia Cockburn, 'The Material of Male Power', *Feminist Review* 9, no. 1 (1981): 43; Safiya Umoja Noble, *Algorithms of Oppression How Search Engines Reinforce Racism* (New York: NYU Press, 2018); Kylie Jarrett, *Feminism, Labour and Digital Media: The Digital Housewife* (New York & Abingdon: Routledge, 2017); Lisa Nakamura, 'The Unwanted Labour of Social Media: Women of Color Call Out Culture as Venture Community Management', *New Formations: A Journal of Culture, Theory, Politics*, no. 86 (2015): 106–112.

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11. Meraiah Foley et al., 'I'll Never Be One of the Boys': Gender Harassment of Women Working as Pilots and Automotive Tradespeople', *Gender, Work & Organization* (2020), <https://doi.org/https://doi.org/10.1111/gwao.12443>.
 12. Ball et al. 'Structures of Feeling', 2020
 13. Nakamura, 'Indigenous Circuits', 920.
 14. Donna Jeanne Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (London: Routledge, 1991), 2.
 15. Cynthia Cockburn and Susan Ormrod, *Gender and Technology in the Making* (London: Sage, 1993); Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York: NYU Press, 2018).
 16. Sue Curry Jansen, *Critical Communication Theory: Power, Media, Gender, and Technology* (Lanham, Maryland and Oxford: Rowman & Littlefield, 2003), 37.
 17. Nikki Usher, 'Women and Technology in the Newsroom: Vision or Reality from Data Journalism to the News Startup Era', in *Journalism, Gender and Power*, ed. Cynthia Carter, Linda Steiner, and Stuart Allan (Abingdon: Routledge, 2019), 19.
 18. Judy Wajcman, *Technofeminism* (New York: John Wiley & Sons, 2004), 6; Jarrett, *Feminism, Labour and Digital Media*.
 19. Vicky Ball and Melanie Bell, 'Working Women, Women's Work: Production, History, Gender', *Journal of British Cinema & Television* 10, no. 3 (2013): 551; Christine Gledhill and Julia Knight, 'Introduction', in Gledhill and Knight, eds, *Doing Women's Film History*, 1-3.
 20. Emma Sandon, 'Engineering Difference'.
 21. 'Women's Work in British Film and Television', <https://learningonscreen.ac.uk/womenswork/womens-work-research-project/>; 'Calling the Shots: The Project', <https://womencallingtheshots.com/the-project/>