

Postgraduate Programme in
Science and Technology Studies
Option Course

GENDER, SCIENCE AND TECHNOLOGY

2007/08 COURSE MANUAL

Course convenor:

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Time and place:

Spring Term, Tuesdays 11 – 1 pm
Room 106, Old Surgeons Hall

OUTLINE

INTRODUCTION

Week 1 9 January Feminist science and technology studies

PART 1 – GENDER IN AND OF SCIENCE AND TECHNOLOGY

Week 2 16 January The exclusion of women from S&T

Week 3 23 January Masculinities in engineering

Week 4 30 January Gendered knowledge: historical cases

Week 5 6 February Feminist epistemologies of science

PART 2 – GENDERED/ING ENCOUNTERS WITH SCIENCE AND TECHNOLOGY

Week 6 13 February Gender, technology and work

Week 7 20 February The gender of everyday technologies

Week 8 27 February Gender change in the information society

Week 9 6 March Medical S&T in reproduction

CONCLUSION

Week 10 13 March Feminist strategies and visions for S&T

GENERAL INFORMATION

Aims and learning outcomes

The aim of the course is to examine the mutual shaping or 'co-production' of gender, science and technology (S&T). By this we mean (i) how gender gets 'scripted' into the creation, design and use of new scientific knowledge and new technologies; and (ii) how the creation, design and use of science and technology may equally 'produce' gender (relations, identities, etc).

In terms of outcomes, by the end of the course students should be able to comment intelligently on:

- (i) Gender as an integral part of the broad social and economic forces shaping S&T, including the relative dearth of women in S&T; and how gender can shape both the creation of new scientific knowledge and the design of new technologies
- (ii) Various ways in which our encounters with the 'products' of S&T are both gendered and gendering, in a range of settings (the home, education, paid work, reproduction); and what this tells us about the ways in which S&T can 'produce' gender.

Teaching and learning approach

The course encourages you to examine and think critically about this two-way relationship between gender and S&T, drawing on empirical case material and broad theoretical approaches from both science and technology studies and gender studies. The course is taught in 10 single weekly sessions of two hours each, combining short formal lectures, as appropriate, with student presentations and seminar discussion.

Seminar preparation

You are encouraged to read as widely as possible in preparation for each seminar. As a minimum, you must read the essential material marked in the reading list and reflect on the questions indicated under each seminar discussion, so that you can participate in and benefit from the course fully.

Student presentations

Each seminar discussion (there are normally two per session) will be led by a student presentation of no more than 10 minutes, each student doing at least two seminar presentations over the course. The aim of these presentations is to provide a springboard to group discussion of the seminar questions. This means that in preparing your talk you should offer your own critical reflection on the questions in light of your reading and, where appropriate, your own experience: do not just summarise what the author says. You should use this opportunity to practice presentation skills, so make every effort to present clearly your thinking and conclusions.

Assessment

Informal assessment

One of your seminar presentations must be written up as a short essay (roughly between 1,500 - 2,000 words) and handed in for informal feedback. This paper may be developed subsequently as the basis of a formally assessed long essay (see below). You are encouraged to submit this informal essay in the first half of the term so that you have time to learn from the feedback provided.

Formal assessment

MSc students write a term paper of 3-4,000 words on a topic or question discussed with the convenor. Two copies of which should be handed into the Graduate School office by 17 April 2007. All essays must be anonymous.

Course structure

Following an introduction to feminist science and technology studies, the course is taught in two main blocks. The first examines gender in and of S&T. It starts from the most obvious issue, namely that the creators of S&T are predominantly men. It explores the equation frequently drawn between masculinity and S&T, and the implications of this for the knowledge and practices of S&T. This includes a look at feminist critiques and epistemologies of science. The second block examines how women and men encounter S&T, in a range of social settings. This includes changing relationships between technology, gender and work; gendered and gendering aspects of everyday technologies in the home and beyond; the information and communication technologies as arenas where conventional gender-technology relations are changing; and ambivalent experiences of medical S&T in reproduction. We conclude by addressing feminist strategies and visions for S&T.

COURSE SYLLABUS AND READING

How to use the reading list

Essential reading is indicated (with a *) in relation to the two sets of seminar questions for each week. Some further reading is also listed for those who wish to pursue a subject in greater depth (eg, for assessed work). This reading list is selectively annotated to help you find your way around the literature. Ideally, you should read at least one additional item from the further reading list each week, especially if you are presenting. For your convenience, reference copies of some of the harder to find essential items, and some of the recommended further reading, are lodged in a folder marked 'GS&T' in the first floor office of the Science Studies Unit (SSU), open 9.30-12.30 am and 2.15 to 5.00 pm. You may use the Unit's copier (at a charge) to make copies of these for your own use.

Listed below are general texts and readers containing much of the recommended reading; you may wish to purchase some of them and/or scan relevant introductory sections in preparation for the course. Finally, there is a lot of feminist science fiction which you might like to explore during the course (come are indicated under the reading for Week 10): enjoy!

Main texts and readers (most available in paperback)

- Bleier, R (ed) (1986) *Feminist Approaches to Science*, New York: Pergamon Press [for Part I]
Cockburn, C & RF Dilic (eds) (1994) *Bringing Technology Home: Gender and Technology in a Changing Europe*, Buckingham and Philadelphia: Open University Press [for Part II; copy in SSU]
Faulkner, W and Arnold, E (eds) (1985) *Smothered by Invention: Technology in Women's Lives*, London: Pluto Press [now out of print and dated in places, but useful for Part II; many copies in the library]
Lohan, M & W Faulkner (2004), *Men and Masculinities*, Special Issue on Masculinities and Technologies, 6(4): 319-410
Kirkup, G and Smith Keller, L (eds) (1992) *Inventing Women: Science, Technology and Gender*, Cambridge: Polity Press [an interesting and varied collection; worth buying]
Lie, M and Sørensen, KH (eds) *Making Technology our Own? Domesticating Technology into Everyday Life*, Oslo: Scandanavian University Press [for Part II; reference copy in SSU]
MacKenzie, D and Wajcman, J (eds)(1999, 2nd ed) *The Social Shaping of Technology*, Milton Keynes: Open University Press [many copies of 1986 edition in the library with some overlap in content]
Rose, H (1994) *Love Power and Knowledge: Towards a Feminist Transformation of the Sciences*, Cambridge: Polity Press [for Part I and Conclusion]
Technology and Culture, Special Issue on Gender Analysis and the History of Technology. 38(1): 1-272.
Wajcman, J (1991) *Feminism Confronts Technology*, Cambridge: Polity Press [worth buying for Part II] also (2004) *Technofeminism*, [catches up on theoretical developments since the first book]

Useful journals on science & technology studies:

Social Studies of Science [PER.5 SOC + SSU]
Science, Technology & Human Values [PER. + SSU]
Technology and Culture [PER.6 TEC + SSU]

... and on gender studies:

Signs [PER .39 SIG]
Gender and Society [PER .39 GEN]
European J. of Women's Studies [PER .39]

Technology in Society [SSU]

Feminist Review [Per .39 FEM]

Week 2 THE EXCLUSION OF WOMEN FROM S&T

Lecture: *Women were explicitly excluded by the founding fathers of modern science, whilst industrialization meant that women were unlikely to be in positions to invent or commercialise new technologies. Both enterprises involved the creation of new forms of masculinity.*

Arnold, E & W Faulkner (1985) 'Smothered by Invention: The masculinity of technology' in *Smothered by Invention...*, 18-50; also Griffiths, D 'The exclusion of women from technology', 51-71
Cockburn, C (1985) 'Technology, production and power', *Machinery of Dominance: Women, Men and Technical Know-how*, London: Pluto Press, ch 1; also in *Inventing Women*, pp196-212 [excellent summary of the historical background to women's absence from invention][GST]
Oldenziel, R (1999) *Making Technology Masculine: Men, Women and Modern Machines in America, 1870 – 1945*, Amsterdam: Amsterdam University Press, esp chs 1 & 2 [history of the professionalisation of engineering in the USA]

Seminar 1: In what sense were modern science and technology a 'masculine' endeavour? Ecofeminists like Easlea and Merchant argue that the original visions for S&T set them on an environmentally destructive trajectory: what do you think about this?

* Easlea, B (1981) 'Male sexism and the seventeenth century scientific revolution', *Science and Sexual Oppression*, London: Weidenfeld and Nicolson, 65-89 [similar to Merchant with useful context] or * Merchant, C (1980; 1982 2nd ed) 'Dominion over nature', *The Death of Nature: Women, Ecology and the Scientific Revolution*, London: Wildwood House (2nd ed), 164-90 [masculine visions of the 'fathers' of modern science]

Merchant, C (1992) *Radical Ecology: The Search for a Liveable World*, New York: Routledge [a fuller elaboration of her ecofeminist position]

Noble, D (1991) *A World Without Women: The Evolution of the Masculine Culture of Science*, New York: Knopf [more on the history of modern science]

* Wajcman, J (1991) 'Technology as masculine culture', *Feminism Confronts...*, 137-49 [like Arnold & Faulkner, typical of socialist feminist positions prior to the challenges of the 1990s (week 6)][GST]

Seminar 2: Does the historical gender marking of S&T (man's mastery over nature) still apply today? To what extent to contemporary images of S&T reflect their historical origins? We explore these questions in relation to nuclear military technology – a major focus of ecofeminist protests.

Benston, ML (1992) 'Women's voices/men's voices: Technology as language', *Inventing Women...* pp 33-41 [gendered language of technology]

Caputi, J (1988) 'Seeing elephants: The myths of phallotechnology', *Feminist Studies* 14(3): 487-524 [analyses powerfully gendered images of S&T in the media]

(*) Cohn, (1987) 'Sex and death in the rational world of defense intellectuals' *Signs* 12(4): 687-718 [an insightful account of how defence strategists sanitise their work]

Easlea, B (1983) *Fathering the Unthinkable: Masculinity, Scientists and the Nuclear Arms Race*, London: Pluto [written around the time of the Greenham Common protest in England and drawn on heavily in the recommended Keller piece]

* Keller, EF (1990) 'From secrets of life to secrets of death' in M Jacobus, E F Keller, S Shuttleworth (eds) *Body/Politics: Women and the Discourses of Science*, New York: Routledge, 177-91 [GST]

Women in science today – selected further reading

Henwood, F (1996) 'WISE choices? Understanding occupational decision-making in a climate of equal opportunities for women in science and technology', *Gender and Education*, 8(2): 199-214 [challenges the tendency of practitioners to 'blame' women for not choosing S&T]

Keller, EF (1997) 'The anomaly of a women in physics' in S Ruddick and P Daniels (eds), *Working it out: Twenty-three Writers, Scientists and Scholars Talk About Their Lives*, New York: Pantheon [contradictions between gender identity as a woman and being a scientist]

Stolte-Heiskanen, V (ed) (1991) *Women in Science: Token Women or Gender Equality*, Providence, RI and Oxford: Berg Publishers [data on the situation in various countries]

Week 3: MASCUINITIES IN ENGINEERING

Lecture: *Engineering has seen less gender change than science, and equations between men/masculinity and technology seem especially durable. One possible reason is that engineering lies at the interface of three activities – business/management, science and hands-on technical work – associated with three distinct but ‘hegemonic’ versions of masculinity. These seminars investigate aspects of engineering cultures and practices which in subtle ways make it easier for men to ‘belong’ than women engineers.*

Seminar 1: Engineering cultures – pleasure in technology

- (*) Hacker, S (1989) *Pleasure, Power, and Technology*, esp 'The culture of engineering: Woman, workplace, and machine', 111-125 [engineers' pleasure in technology is an escape from the body and emotions]; and (1990) *Doing it the Hard Way: Investigations of Gender and Technology*, Boston: Unwin Hyman [other pioneering feminist ethnographic studies of engineers and engineering][GST]
- Kleif, T & W Faulkner (2003) “‘I’m no athlete [but] I can make this thing dance!’ Men’s pleasures in technology”, *Science, Technology, & Human Values*, 28(2): 296-325 [empirical investigation of men’s pleasure in technology, reflecting on Hacker’s thesis]
- McIlwee, JS & JG Robinson (1992) *Women in Engineering: Gender, Power, and Workplace Culture*, Albany, NY: State University of New York Press [the fuller study of the recommended reading]
- Mellström, U (1995) *Engineering Lives: Technology, Time and Space in a Male-centred World*, Department of Technology and Social Change: Linköping University, Linköping, Sweden [ethnographic study of car designers and ICT designers][I have a copy]
- (*) Mellström, U (2004) ‘Machines and masculine subjectivity: Technology as an integral part of men’s life experiences’, *Men and Masculinities* Special Issue on Masculinities and Technology, 6(4): 368-82 [a rare ethnographic insight into the embodied relationship of car mechanics to their technology]
- Murray, F (1993) 'A separate reality: Science, technology and masculinity', in *Gendered by Design? Information Technology and Office Systems*, E Green, J Owen & D Pain (eds), London: Taylor and Francis [useful discussion of masculinities found in software development, highlighting the siege-like feel of intense projects involving long working hours]
- * Robinson, GJ & JS McIlwee (1991) 'Men, women, and the culture of engineering', *The Sociological Quarterly*, 32(3): 403-421 [the tinkering obsession of men engineers serves to exclude women][GST]

Seminar 2: Engineering cultures – ‘belonging’ socially

- * Faulkner, W (2005) Engineering workplace cultures’, webcast lecture given at Open University [GST]
- Tonso, KL (1999) ‘Engineering Gender - Gendering Engineering: A Cultural Model for Belonging’, *Journal of Women and Minorities in Science and Engineering*, 5(4): 365-404; also (2006) ‘Teams that Work: Campus Culture, Engineer Identity, and Social Interactions’, *Journal of Engineering Education* 1(1): 1-13 [worrying evidence from US engineering college students][GST]

Seminar 3: Engineering practices – the technical/social dualism

Even in the actual practice of engineering work, gender dynamics are operating.

- Faulkner, W (2000) 'Dualisms, hierarchies and gender in engineering', *Social Studies of Science*, 30(5): 759-92, October [evidence on the contradictory gendering of common dualisms within engineering]
- * Faulkner, W (2007 forthcoming) “‘Nuts and Bolts and People’’: Gender-troubled engineering identities’, *Social Studies of Science* [detailed account of tensions between ‘technicist’ and heterogeneous engineering identities/practices and the gender implications of this]
- Massey, D (1995) ‘Masculinity, dualisms and high technology’, *Transactions of the Institute of British Geography*, 20: 486-99 [public-private dualism linked to long work hours]

Some related literature

- Carter, R and Kirkup, G (1990) *Women in Engineering: A Good Place to be?* London: MacMillan [interview-based study of issues experienced by women engineers]
- Faulkner, W (2000) 'The power and the pleasure? A research agenda for “making gender stick” to engineers', *Science, Technology, & Human Values*, 25(1): 88-120 [overview of Faulkner’s

subsequent research, highlighting contradictory gendering in/of engineering and the need to address masculinity]

Traweek, S (1988) *Beamtimes and Lifetimes: The World of High Energy Physics*, Cambridge MA: Harvard University Press [fascinating extended ethnographic study of high energy physics, revealing similar themes to those addressed here]

Week 4 GENDERED PRODUCTION OF KNOWLEDGE: HISTORICAL CASES

Feminists have long critiqued various areas of biological and medical science for serving to 'naturalise' prevailing gender ideologies and inequality. This week, we have the opportunity to explore two historical cases with specialists in the field.

Seminar 1: Constructing Gendered Bodies *Ivan Crozier*

* Thomas Laqueur, "'Amor Veneris, vel Dulcedo Appeletur": Fragments of a History of the Human Body', *Zone*, 5, 1989, 91-131 [SSU]

Thomas Laqueur, *Making Sex: The Body and Gender from the Greeks to Freud*, Harvard UP, 1990.

* Londa Schiebinger, 'Why Mammals are Called Mammals: Gender Politics in Eighteenth-Century Natural History', *American Historical Review* 98 (1993): 382-411. Reprinted in *Sexual Knowledge, Sexual Science: The History of Attitudes to Sexuality*, ed. Roy Porter and Mikulas Teich (Cambridge: Cambridge University Press, 1994), pp.184-209

* or Londa Schiebinger, *Nature's Body: Gender in the Making of Modern Science* (Boston: Beacon Press), 1993. Chapter on breasts.

Londa Schiebinger, 'The Gendered Brain: Some Historical Perspectives,' in *So Human a Brain: Knowledge and Values in the Neurosciences*, ed. Anne Harrington (Boston: Birkhäuser Press, 1992), pp. 110-21 [good for the history of the debates]

Seminar 2: Psychiatry

Emese Lafferton

* Elaine Showalter, *The Female Malady. Women, Madness and English Culture, 1830-1980*. London: Virago Press, 1985. Chapter 6: "Feminism and Hysteria: The Daughter's Disease" pp 145-166 [Many copies in Main Library]

* Paul Lerner, "Psychiatry and Casualties of War in Germany, 1914-18", *Journal of Contemporary History*, Vol. 35, No. 1, Special Issue: Shell-Shock. (Jan., 2000), pp. 13-28 [Available ONLINE]

* Sigmund Freud and Josef Breuer, *Studies on Hysteria* (1895) - Only read Case 1. (Anna O.) from among the Case Histories [Multiple copies of the *Studies on Hysteria*, mostly in collections of Freud's work, see Standard Edition, etc.]

Further reading:

Mark Micale, "Hysteria Male/Hysteria Female: Reflections on Comparative Gender Construction in Nineteenth-Century France and Britain", in Marina Benjamin ed., *Science and Sensibility: Gender and Scientific Enquiry, 1780-1945*. Oxford: Blackwell, 1991, pp200-239.

Week 5 FEMINIST EPISTEMOLOGIES OF SCIENCE

Lecture: *Since the 1970s, feminists have challenged biological theories which appear to 'naturalise' unequal gender relations. Many have adopted the SSK position that because scientific knowledge is socially constructed it can never be 'value free'. However, this creates a dilemma: if scientists inevitably 'see' the world through gendered eyes, can feminists claim their theories to be 'better'? Feminist epistemologies sought to resolve this dilemma and were hotly debated during the latter 1980s. The seminar reviews key themes in that debate.*

Feminist critiques of science

Brighton Women and Science Group (1980) *Alice Through the Microscope*, London: Virago [early critiques, uninformed by SSK or the later debates]

Birke, L (1986) *Women, Feminism and Biology: The Feminist Challenge*, Brighton: Harvester Wheatsheaf

Bleier, R (1986) 'Sex differences research: Science or belief?' in *Feminist Approaches...*, 147-64

Bleier, R (1984) *Science and Gender: A Critique of Biology and its Theories on Women*, Oxford: Pergamon

Fausto-Sterling, A (1986) *Myths of Gender: Biological Theories about Women and Men*, New York: Basic Books

Hubbard, R (1990) *The Politics of Women's Biology*, New Brunswick: Rutgers University Press

(*) Longino, H and Doell, R (1983) 'Body, bias, and behavior: A comparative analysis of reasoning in two areas of biological science', *Signs: Journal of Women in Culture and Society*, 9(2): 206-27 [two accessible examples of 'sexist science' with reflections on how it arises]

(*) Martin, E (1991) 'The egg and the sperm: How science has constructed a romance based on stereotypical male-female roles', *Signs: Journal of Women in Culture and Society* 16(3): 485-501 [classic example of gendered language and visions shaping science]

Seminar 1: Reflexivity There were three 'poles' in the debate: modernist, relativist and standpoint. Many feminist epistemologies seek to resolve the tensions between these positions by emphasising the need for greater reflexivity in science. Is this a good thing? Is it sufficient?

* Faulkner, W & A Kerr (1997) 'On seeing brockenspectres: Sex and gender in twentieth century science', in J Krige & D Vestre (eds) *Science in the Twentieth Century*, Reading: Gordon and Breach Science Publishers, 43-60 [useful overview of the issues and debates][GST]

* Haraway, D (1988), 'Situated knowledges: The science question in feminism and the privilege of partial perspective', *Feminist Studies*, 14(3): 575-99 [very influential contribution, reflecting the 'postmodernist' challenge to feminism but attempting to avoid its epistemological limitations][GST]

Feminist epistemologies of science – the debate

Bleier, R (ed) (1986) *Feminist Approaches to Science*, New York: Pergamon Press [various relevant pieces]

Haraway, D (1991) *Simians, Cyborgs and Women: The Reinvention of Nature*, London: Free Association Books

Harding, S (1986) *The Science Question in Feminism*, Ithaca, NY: Cornell University Press [this book really kick started the debate and provides a clear way in to it]

Harding, S (1991) *Whose Science? Whose Knowledge? Thinking From Women's Lives*, Ithaca, NY: Cornell University Press [an important 'standpoint' epistemology]

Harding, S and O'Barr, JF (eds) (1987) *Sex and Scientific Inquiry*, Chicago University Press

Jacobus, M, Keller, EF, and Shuttleworth, S (eds) (1990) *Body/Politics*, New York: Routledge

Keller, EF (1992) 'How gender matters, or, why it's so hard for us to count past two' in *Inventing Women...*, 42-56 [an earlier intervention highlighting the problem of essentialising gender]

McNeil, M (1987) 'Being reasonable feminists', in McNeil, M (ed) (1987) *Gender and Expertise*, London: Free Association Books, 13-61 [reviews how different feminists view rationality]

Rose, H (1994) *Love, Power and Knowledge*, Oxford: Polity Press, ch 4 [good summary of the debates around post-modernism]

Seminar 2: Will the greater participation of women change the way science is done? Keller's biography of geneticist Barbara McClintock, and the impact of early women entrants into primatology, may both be read as indicating a 'feminine' methodological approach in science. In your reading, do these cases mean that women bring different 'styles' to science *because* they are women? Are these examples of a more 'gender free' science, of a feminine bias 'correcting' a masculine bias, or what?

Pick one or other case:

Barbara McClintock

Fee, E (1986) 'Critiques of modern science: The relationship of feminism to other radical epistemologies' in Bleier (ed), *Feminist approaches to Science...*42-56 [feminist critique of Keller's essentialism]

Grobicki, A (1987) 'Barbara McClintock: What price objectivity?', in McNeil, M (ed) (1987) *Gender and Expertise*, London: Free Association Books, 211-217 [criticises Keller for being conservative about science and ignoring gender]

* Keller, EF (1985) 'A world of difference' in *Reflections on Gender and Science*, New Haven CT: Yale University Press, 158-76 [summarises her gender analysis of McClintock's work][GST]; the full biography is Keller, EF (1983) *A Feeling for the Organism*, San Francisco: Freeman

Kirkup, G and Smith Keller, L (1992) 'A feeling for the organism: Fox Keller's life of Barbara McClintock' in *Inventing Women*, 188-95 [short summary of McClintock's life and work]

* Richards, E & J Schuster (1989) 'The feminine method as myth and accounting resource: A challenge to gender studies and social studies of science', *Social Studies of Science* 19(4): 697-720 [critique of Keller's work from within the sociology of scientific knowledge]

Primatology

Primatology is a highly contest field because of its bearing on how we understand human evolution.

* Morell, V (1993) 'Called "trimates", three bold women shaped their field' and 'Seeing nature through the lens of gender', *Science* 260 (16 April): 420-25 and 428-9 [GST]

* Haraway, D (1986) 'Primatology is politics by other means', in *Feminist Approaches*, 77-118 [esp 77-81, 94-96, 102-105, 108-115][GST]; the full work is *Primate Visions: Gender, Race and Nature in the World of Modern Science*, New York: Routledge [this very significant work highlights the political complexity of the field]

Hrdy, SB (1986) 'Empathy, polyandry, and the myth of the coy female' in *Feminist Approaches...*, 119-46 [lovely scientific detail and an interesting take on women's contribution to the field][GST]

Further reading

Barinaga, M (1993) 'Is there a "female style" in science?', *Science* 260 (16 April):384-91 [an insider view]

Fausto-Sterling, A (1992) 'Building two-way streets: The case of feminism and science', *National Women's Studies Association Journal* 4(3): 336-49

Keller, EF (1987) 'Learning about women, gender, politics and power', *Daedalus, Journal of the American Academy of Arts and Sciences* 116(4): 77-91 [nature is to science as sex is to gender]

Rose, H (1983) 'Hand, brain, and heart' *Signs: Journal of Women in Culture and Society*, 9 (1): 73-96 [an early 'standpoint' position; based on women having a greater 'caring rationality']

Week 6 GENDER, TECHNOLOGY AND WORK

Lecture: *The industrial revolution transformed both work and the home, as whole areas of previously domestic production progressively moved into the formal (money-based) economy. Many women initially benefited from this, but by the mid-19th century married women were increasingly excluded from paid employment and the present day 'housewife' emerged. Women's position within the (very marked) gender division of paid labour reflected that domestic role. Men workers have generally been more successful at moving into the new occupations created by industrialisation and in terms of skilled status and pay.*

- Arnold, E & L Burr (1985) 'Housework and the appliance of science' in *Smothered...*, 144-61; also E Arnold & W Faulkner, "Smothered by invention: The masculinity of technology", 18-50 [the history]
- (* Cowan, RS (1986) 'The industrial revolution in the home' in *The Social Shaping...*, 181-201; also 'Gender and technological change', 53-54; the full work is Cowan, RS (1983) *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave*, New York: Basic Books [seminal historical study of kitchen technology, challenged the 'labour saving' thesis]
- Light, JS (1999) 'When computers were women', *Technology and Culture* 40(3): 455-83 [historical association of men with computer hardware and women with software, before men moved into the latter too]
- Oakley, A (1976) *Housewife*, Harmondsworth: Penguin; and (1974) *The Sociology of Housework*, London: Martin Robinson [ch 3 gives excellent background on the changes with industrialisation]
- Pinchbeck, I (1981) *Women Workers and the Industrial Revolution*, London: Virago [historical detail]
- Wajcman, J (1991) *Feminism Confronts Technology*, ch 2 [useful overview of 'labour process' research on gender, technology and production]

Seminar 1: In what sense are skills, and artifacts, gendered?

- * Cockburn, C (1986), 'The material of male power' in *The Social Shaping ..* 125-46 [GST]; full account in (1983) *Brothers*, London: Pluto [seminal study of gender and technology in printing][GST]
- Liff, S (1986) 'Technical change and occupational sex-typing' [and other items], in Knights, D and Willmott, H (eds), *Gender and the Labour Process*, Aldershot: Gower
- Phillips, A and Taylor, B (1980) 'Sex and skill: Notes towards a feminist economics', *Feminist Review*, 6:79-88

Seminar 2: Choose one or more of the following cases in which work has been automated through the introduction of information technology. To what extent, and what ways, does technical change shape gender inequality and gender divisions of labour in paid work? What other factors are likely to operate?

- Cockburn, C (1985) *Machinery of Dominance: Women, Men and Technical Know-how*, London: Pluto [ch 2 (clothing), 3 (warehousing); also other cases for further reading][GST]
- Elson, D and R Pearson (1981) 'Nimble fingers make cheap workers: An analysis of women's employment in third world manufacturing', *Feminist Review* 7: 87-107 [microelectronic assembly plants in SE Asia created opportunities for women but at a cost]
- Green, E, Owen, J and Pain, D (eds)(1993) *Gendered by Design? Information Technology and Office Systems*, London: Taylor and Francis [several very useful articles]
- * Sundin, E (1995) 'The social construction of gender and technology: A process with no definite answer', *The European Journal of Women's Studies* (1995) Special Issue on Technology, 2(3): 335-53 [analyses contrasting outcomes of introducing CAD in map making][GST]
- The European Journal of Women's Studies*, (1995) Special Issue on Technology, 2(3), including I Wagner, 'Hard times: The politics of women's work in computerised environments', 295-314 [IT in nursing; analysed in terms of modernity and post-modernism]
- Webster, J (1990) *Office Automation: The Labour Process and Women's Work in Britain*, Brighton: Harvester [shows variety in the consequences of introducing word processing]; also (1996) *Shaping Women's Work: Gender, Employment and Information Technology*, Harlow: Addison Wesley Longman [a more comprehensive review of how 'new technology' has affected women]

Week 7 THE GENDER OF EVERYDAY TECHNOLOGIES

Lecture: *By the 1990s feminism, including feminist technology studies (FTS), had to digest theoretical developments surrounding post-structuralism and post-modernism. Specifically, it had to take on board a more profound understanding of both gender and technology as socially constructed, eschewing all essentialisms. In time, the language of ‘mutual shaping’ has given way to that of ‘co-production’.*

Cockburn, C (1992) ‘The circuit of technology: Gender, identity and power’, in R Silverstone & E Hirsch (eds) *Consuming Technologies: Media and Information in Domestic Spaces* London: Routledge [critiques ANT (non)handling of gender]

* Faulkner, W (2001) ‘The technology question in feminism: A view from feminist technology studies’, *Women’s Studies International Forum*, 24(1): 79-95 [makes the case for a constructivist approach]

Lerman, NE, Mohun, AP & R Oldenziel (1997) ‘The shoulders we stand on and the view from here: Historiography and directions for research’, *Technology and Culture*, Special Issue on Gender Analysis and the History of Technology, 38(1): 9-30 [articulates the co-production framework]

(*)Gill, R & K Grint (1995) ‘The gender-technology relation: Contemporary theory and research’ in K Grint & R Gill (eds) *The Gender-Technology Relation: Contemporary Theory and Research*, London: Taylor & Francis, 1-28 [summary of various feminist positions, critiquing Cockburn, Wajcman, etc]

Ormrod, S (1995) ‘Feminist sociology and methodology: Leaky black boxes in gender/technology relations’ in *The Gender-Technology Relation* [above] 31-47 [ANT approach to gender studies]

Wajcman, J (1991) ‘Technology as masculine culture’, *Feminism Confronts...*, 137-49 [‘old’ FTS]

Wajcman, J (2000) ‘Reflections on gender and technology studies: In what state is the art?’ *social Studies of Science* 30(3): 447-64 [the currently settled paradigm in FTS]

Seminar: In what senses and in what ways are everyday technologies and gender *mutually* shaped or co-produced? Drawing on empirical cases, we will try to critically analyse both sides of this ‘equation’, viz:

- a) In what senses and in what ways are technologies gender shaped or gendered?
- b) In what senses and in what ways are technologies gendering, ie how do technologies produce or perform gender?

* Ormrod, S (1994) ‘“Let’s nuke the dinner”: Discursive practice of gender in the creation of a new cooking process’, Cockburn and Dilic (eds) [see below], 42-58 [the first classic case][GST]

Oudshoorn, N (2004) ‘“Astronauts in the sperm world”: The renegotiation of masculine identities in discourses on male contraceptives’, *Men/Masculinities*, Special Issue on Masculinities and Technology, 6(4): 349-67 [details attempts to enlist men in trials of the male pill]

Rommes, E (2005) *Gender Scripts and the Internet*, ch 8 [digital city case using Akrich’s ‘scripts’]

Sanger, Carol (1995) ‘Girls and the getaway: Cars, culture, and the predicament of gendered space’, *University of Pennsylvania Law Review* 144/2 [the relationship between technology and dominant gender orders: the automobile has been inscribed with gendered meaning to the detriment of women]

Schyfter, P (forthcoming) ‘Tackling the “body inescapable” in sport: Body-artifact kinesthetics, embodied skill, and the community of practice in lacross masculinity’ [GST]

* van Oost, Ellen (2003) ‘Materializing gender: How shavers configure the user’s femininity and masculinity’, in N Oudshoorn & T Pinch (eds) *How Users Matter: The Co-construction of Users and Technology*, Cambridge, MA: The MIT Press [another classic case]

Weber, R (1997) ‘Manufacturing gender in commercial and military cockpit design’, *Science, Technology, & Human Values* 22(2): 235-53

Further reading

Berg, A-J and Aune, M (eds) (1994) *Domestic Technology and Everyday Life - Mutual Shaping Processes*, Proceedings from COST A4 workshop in Trondheim, Norway, October 28-30, 1993, Brussels: EC [early work in this tradition – lead by Norwegians characteristically!][I have a copy]

Cawson, A, Haddon, L & I Miles (eds) (1995) *The Shape of Things to Consume: Delivering IT into the Home*, Aldershot: Avebury [both of these cover assorted household technologies]

Cockburn & Dilic (eds) (1994) *Bringing Technology Home...*, [another European collaboration, Cockburn’s last work in the field; available in paperback; all chapters relevant: see especially, Chabaud-Rychter, D, ‘Women

- users in the design process of a food robot', 77-93, or Berg, A-J on the smart home, 165-80; for related theory see Berg, A-J, 94-110]
- Cockburn, C & S Ormrod (1993) *Gender and Technology in the Making*, London: Sage [the full microwave study, with pictures]
- Hubak, M (1996) 'The car as cultural statement: Car advertising as gendered sociotechnical scripts' in *Making Technology Our Own?*, 171-200 [marketing cars to women and to men] [NB this book available in SSU, for reference; many other interesting cases]
- Lamvik, GM (1996) 'A fairy tale on wheels: The case as a vehicle for meaning within a Norwegian subculture' in *Making Technology our Own?*, 151-70 [American car culture] [book in SSU]
- Oudshoorn, N, Rommes, E & M Stienstra (2004) 'Configuring the user as everybody: Gender and design cultures in information and communication technologies', *Science, Technology & Human Values*, 29(1), 30-63 [three recent cases covered drawing on insider insights into the design process]

Week 8 GENDER INCLUSION IN THE INFORMATION SOCIETY

lecture: *The co-production of gender and ICTs appears contradictory. Early achievements wrt to women in information and communication technologies (ICT) have not been sustained, with the proportion of women in specialist roles only slightly higher than in engineering. By contrast, the gender gap in the use of ICT is rapidly shrinking and the information revolution appears to be undermining the traditional association of men and technology. Some feminists are enthusiastic about ICT; others remain ambivalent.*

Archibald, J, J Emms, F Grundy, J Payne & E Turner (eds)(2005) *The Gender Politics of ICT*, Middlesex University Press [wide range of articles on gender *and* as well as *in* ICTs]

Grundy, F (1996) *Women and Computers*, Exeter, England: Intellect [a very useful review of the arguments about why so few women in computing]

Kirkup, G (1992), 'The social construction of computers: Hammers or harpsichords?', in *Inventing Women...*, 267-81 [very digestible – and interestingly dated! – summary of wider issues]

Lander, R & A Adam (eds) (1997) *Women in Computing*, Exeter, England: Intellect [various pieces]

Turkle, S & S Papert (1991) 'Epistemological Pluralism: Styles and Voices Within the Computer Culture', *Signs: Journal of Women in Culture and Society*, 16(1): 128-58

Seminar 1: Computer science and engineering For many years it was argued that women were put off entering computing by the 'nerdy' image of computer hackers. Recent Norwegian research (*) challenges that thesis. What do you think? Have feminist scholars actually perpetuated the low uptake of computing by young women?

* Gansmo, HJ, Lagesen, VA & KH Sørensen (2003) 'Forget the hacker? A critical re-appraisal of Norwegian studies of gender and ICT' in M Lie (ed) *He, She and IT Revisited: New Perspectives on Gender in the Information Society*, Oslo: Glydendal Akademisk, 34-68 [argues that feminist scholars have contributed to the problem by perpetuating the 'hacker myth']][GST]

Haddon, L (1990) 'Researching gender and home computers' in Sørensen, KH and Berg, A-J (eds) (1990), *Technology and Everyday Life: Trajectories and Transformations, ...*, Oslo: Norwegian Research Council for Science and Humanities, 89-108; and (1992) 'Explaining ICT consumption: The case of the home computer' ch 5, 82-96 in Silverstone and Hirsch (eds)(1992) *Consuming Technologies...*

Håpnes, T (1996) 'Not in their machines', in M Lie and KH Sørensen (eds) *Making Technology our Own? Domesticating Technology into Everyday Life*, Oslo: Scandanavian University Press, 121-150 [evidence from Norway challenges Turkle's 'intimate machine' thesis]

Håpnes, T & KH Sørensen (1995) 'Competition and collaboration in a hacker community', in K Grint and R Gill (eds) *Gender-Technology Relations...*

* Lagesen, V (2007 forthcoming) 'The strength of numbers: Strategies to include women into computer science', *Social Studies of Science* [a university recruitment campaign which played with stereotypes, but this aspect was not what made it successful]]][GST]

Rasmussen, B (1997) 'Girls and computer science: "It's not me. I'm not interested in sitting behind a machine all day"', in F Grundy et al (eds) *Women, Work and Computerisation: Spinning a Web from the Past to the Future*. (Berlin: Springer) 379-86 [schools girls are put off computer science]]][GST]

Rasmussen, B & T Håpnes (1991), 'Excluding women from the technologies of the future? A case studies of the culture of computer science', *Futures*, December, 1107-1119 [women who do enter computer science degrees are put off by hackers, but hackers are not the 'best' students academically]]][GST]

Turkle, S (1988) 'Computational reticence: Why women fear the intimate machine', in Kramarae, C (ed), *Technology and Women's Voices*, London: Routledge, 41-61 [psychological thesis: women reject computers because hackers are intimate with the machine (see her 1984 book about hackers) not with humans, which is 'gender inauthentic' (my term) for women]

Seminar 2: Gender change around ICT use

NB Read at least one piece under each of the following areas; items in () provide the widest picture but should ideally be combined with one of the more focused studies.*

How significant do you think the changes around gender and ICT use are? What kinds of digital inclusion strategy (if any) are still needed? Will the growing *use* of ICTs amongst girls and women eventually bring more women into the *design* of ICTs?

a) use of ICTs (new masculinities)

Laegran, AS (2003) ‘Just another boy’s room?’ in *He, She and IT Revisited...*, 198-227 [GST]

(*) Lie, M (1996) ‘Gender in the image of technology’, in M Lie and KH Sørensen (eds) *Making Technology our Own? Domesticating Technology into Everyday Life*, Oslo: Scandanavian University Press, 201-223 [changes in masculinity with computerisation of work][GST]

Lie, M (1995) ‘Technology and masculinity: The case of the computer’, *The European Journal of Women’s Studies*, Special Issue on Technology, 2(3): 379-94 [how women and men view computers at work]

b) digital inclusion strategies

Faulkner, W & T Kleif (2005) ‘One size does not fit all! Digital in/exclusion in a rural community’, *Journal of Adult and Community Learning* 11(1): 43-61 [here the digitally excluded are men][GST]

W Faulkner & M Lie (2006) ‘Gender inclusion in the information society’ in EM Truath (ed) *Encyclopedia of Gender and Information Technology*, Hershey: Idea Group Reference, 636-42 [a summary of the main SIGIS conclusions about what kinds of strategies are likely to work; highlighting the need to avoid playing to stereotypes whilst remaining relevant to people’s lives]

Gansmo, HJ, Nordli, H & KH Sørensen (forthcoming 2007), ‘The gender game: A study of Norwegian computer game designers’, *Social Studies of Science* [there is gender diversity in game playing which some designers are beginning to address][GST – hoping to have copy on Monday morning!]

Spilker, H & KH Sørensen (2003) ‘Don’t girls want to have fun? Designing multimedia for women’ in *He, She and IT revisited...*, 228-50 [GST]

Further reading: ICTs and gender change more widely

Lie, M (2003) ‘The new Amazons: Gender symbolism on the net’ in *He, She and IT revisited*, 251-77 [GST]

Turkle, S (1995; 1997 edition) ‘Tinysex and gender trouble’, *Life on the Screen: Identity in the Age of the Internet*, London: Phoenix, ch 8, 210-32 [using the internet to play with different gender identifies]

Further reading: feminist responses to ICT

Adam, A (1995) ‘Embodying knowledge: A feminist critique of artificial intelligence’, *The European Journal of Women’s Studies*, Special Issue on Technology, 2(3): 355-77; also (1998) *Artificial Knowing: Gender and the Thinking Machine*, London: Routledge [perhaps the most sophisticated feminist engagement with the knowledge and practice of ICT, specifically AI, from within]

Adam, A (1997) ‘What should we do with cyberfeminism?’ in Lander, R & A Adam (eds) *Women in Computing*, Exeter England: Intellect

Week 9 MEDICAL SCIENCE AND TECHNOLOGY IN REPRODUCTION

Lecture: *The medicalisation of reproduction has been a secular trend for over a century, with its historical roots in the male takeover of healing from women. This has brought a mechanistic and reductionist approach to the body and ill health, which favours instrumental intervention and renders both the patient and non-medical health workers subject to the authority of doctors.*

Faulkner, W (1985) 'Technology and the right to heal', *Smothered by Invention...*, 87-108 [history of the demise of women healing and the male dominance of medicine]

* Stanworth, M (1987) 'Reproductive technologies and the deconstruction of motherhood' in M Stanworth (ed) *Reproductive Technologies...*, 10-35 [very useful overview of the social context of the NRTs in which, critically, she problematises the social construction of 'the natural']

Wajcman, J (1991) 'Reproductive technologies: Delivered into men's hands', *Feminism Confronts ...*, ch 3 [summarises the issues and debate]

Useful collections

Arditti, R, Duelli Klien, R and Minden, S (eds) (1984) *Test-tube Women: What Future for Motherhood?* London: Routledge & Kegan Paul [a 'FINRAGE' classic]

Saetnan, AR, Oudshoorn, N & M Kirejczyk (2000), *Bodies of Technology: Women's Involvement with Reproductive Medicine*, Columbus: Ohio State University Press [ch 1 for STS/constructivist position; individual chapters for relevant cases on contraception, conception and childbirth technologies]

Stanworth, M (1987) (ed) *Reproductive Technologies: Gender, Motherhood and Medicine*, Oxford: Polity

Seminar 1: What's shaping the new reproductive technologies (NRTs)?

Most feminists agree that new reproductive technologies are not simply a response to a demand (eg, to overcome fertility problems), but different feminist analyses of the forces shaping these developments highlight different themes: eugenics, a male takeover of reproduction, the medicalisation of reproduction, 'science push', commercial interests. What do you think? *NB split the (*) reading between the group.*

* Oakley, A (1987) 'From walking wombs to test-tube babies' in Stanworth, *Reproductive Technologies...*, 36-56 [useful overview of the medicalisation of reproduction; how doctors mediate women's knowledge and choices]

(*) Pfeffer, N (1987), 'Artificial insemination, in-vitro fertilisation and the stigma of infertility' in Stanworth, *Reproductive Technologies...*, 81-97 [highlights the scientific interest in embryology]

(*) Rose, H (1987) 'Victorian values in the test-tube: The politics of reproductive science and technology' in Stanworth, *Reproductive Technologies...*, 151-73 OR (1994) 'Feminism and the genetic turn', *Love Power and Knowledge...*, ch 8 [the influence of eugenics on NRTs and the Human Genome Project]

(*) Rowland, R (1984), 'Reproductive technologies: The final solution to the woman question?' in Arditti et al *Test-tube Women...*, 356-70 [a 'radical' feminist view that S&T will be used to bypass women]

Further reading: new reproductive S&T

Corea, G et al (1985), *Man-made Women: How New Reproductive Technologies Affect Women*, London: Hutchinson; also Corea, G (1985), *The Mother Machine: Reproductive Technologies from Artificial Insemination to Artificial Wombs*, New York: Routledge Kegan Paul [FINRAGE]

Homans, H (ed) (1985), *The Sexual Politics of Reproduction*, Aldershot: Gower

Laborie, F (2000) 'Gender-based management of new reproductive technologies: A comparison between in vitro fertilization and intracytoplasmic sperm injection', in Saetnan et al, *Bodies of Technology* 278-303

MacNeil, M, Varcoe, I & S Yearley (eds) (1990) *The New Reproductive Technologies*, London: MacMillan, esp: Crowe, C; Yoxen, E 'Conflicting concerns: The political context of recent embryo research policy in Britain', 173-99 and Franklin, S (1990) 'Deconstructing 'desperateness': The social construction of infertility in popular representations of new reproductive technologies'

- Mulkay, M (1997) *The Embryo Research Debate: Science and the Politics of Reproduction*, Cambridge: Cambridge University Press [the UK Parliamentary debate about IVF and embryology]
- Ploeg, I van der (1995) 'Reproductive technology's hybrids: "Couples", "fetuses" and the dissolutions of the individual female body', Workshop on the Mutual Shaping of Gender and Technology, University of Twente, The Netherlands, 6-8 October [WF mimeo]
- Science as Culture*, 3(17), 1993 Special Issue on the New Reproductive Technologies, include Kirejczyk, M (1993), 'Shifting the burdens onto women: The gender character of in vitro fertilisation', *Science as Culture*, 3(17): 507-521 [the use of IVF for male infertility through 'ICSI']
- Stabile, C (1994) *Feminism and the Technological Fix*, Manchester: Manchester University Press
- Van Dyck, J (1995) *Manufacturing Babies and Public Consent*, London: MacMillan [the Dutch IVF debate]

Seminar 2: Technologies of pregnancy Technologies developed to screen the fetus during pregnancy raise major issues of *choice*, and are very loaded in terms of the *meanings* which attach to their use: we explore these two themes with respect to ultrasound screening and amniocentesis. How do these technologies shape how people experience and feel about childbearing and/or abortion?

Ultrasound scanning – routinisation and meanings

- (*) Petchesky, RP (1987) 'Fetal images: The power of visual culture in the politics of reproduction' in Stanworth (ed) *Reproductive Technologies...*, 57-80 [on the role of fetal ultrasound in perceptions of pregnancy]
- * Saetnan, AR (1996) 'Speaking of gender ... Intertwining of a medical technology policy debate and everyday life' in *Making Technology our Own? ...*, 31-63 [routinisation of ultrasound screening and the implications of this for how pregnant women are viewed by doctors and midwives]
- Kerr, A (1991) MSc in Science and Technology Studies dissertation [doctors' lack of attention to any risks from ultrasound and their motives for routinising the technology; kept in SSU office]
- Morgan, LM & MW Michaels (1999)(eds) *Fetal Subjects, Feminist Positions*, University of Pennsylvania Press, Philadelphia, 13-25 [challenges feminist deconstructions of fetal images]
- (*) Franklin, S (1991) 'Fetal fascinations: New dimensions to the medical scientific construction of fetal personhood', in Franklin, S, Lury, C & M McNeil (eds) *Off-Centre: Feminism and Cultural Studies*, 190-205
- Mitchell, LM & E Georges (2000) 'Cross-cultural cyborgs: Greek and Canadian women's discourses on fetal ultrasound', in Saetnan et al *Bodies of Technology...*, 384-409

Amniocentesis – issues of choice

- (*) Farrant, W (1985), 'Who's for amniocentesis? The politics of prenatal screening' in Homans, H (ed), *The Sexual Politics of Reproduction*, Aldershot: Gower, 96-121
- Hubbard, R (1984) 'Personal courage is not enough: Some hazards of childbearing in the 1980s' in Arditti, R, Duelli Klien, R and Minden, S (eds), *Test-tube Women: What Future for Motherhood?* London: Routledge & Kegan Paul, 331-355 [problematizes 'informed choice' over fetal screening]
- (*) Rapp, R (1998) 'Refusing prenatal diagnosis: The meanings of bioscience in a multicultural world', *Science, Technology, & Human Values*, 23 (1): 45-70
- Williams, C, Alderson, P & B Farsides (2002) 'Too many choices? Hospital and community staff reflect on the future of prenatal screening', *Social Science and Medicine*, 55: 743-753 [practitioner views]

Further reading on technologies of childbirth

- Akrich, M & B Pasveer (1995) 'Technologies of giving birth: Comparing women's bodies and competencies during "normal" birth in France and the Netherlands', paper presented to International Workshop: The Mutual Shaping of Gender and Technology, University of Twente, The Netherlands, 6-8 October [women's encounters with technology in two different maternity systems] [WF mimeo]
- Boyd, C & L Sellers (1982) *The British Way of Birth*, London: Pan Books [an informative report of the 'That's Life' survey which was a product of the consumer revolt of the early 1980s]
- Davis-Floyd, R & CF Sargent (eds) (1997) *Childbirth and Authoritative Knowledge: Cross-cultural Perspectives*, London: University of California Press

- Evans, F (1985) 'Managers and labourers: Women's attitudes to reproductive technologies' in *Smothered by Invention...*, 109-127 [women have deeply ambivalent attitudes to childbirth Ts]
- Martin, E (1989) *The Woman in the Body: A Cultural Analysis of Reproduction*, Milton Keynes: Open University Press
- Oakley, A (1980) *From Here to Maternity*, and *Women Confined*, Oxford: Martin Robertson
- Rich, A (1977) *Of Woman Born*, London: Virago

Week 10 FEMINIST STRATEGIES AND VISIONS FOR S&T

Lecture: *The lecture will draw themes about the co-production of gender and S&T: what does it mean to say that S&T are gendered and gendering? The seminar will consider what does a constructivist understanding of gender and of S&T suggest in terms of political strategy? Different feminist strategies have addressed how women as 'end users' can influence the S&T which affect their lives. Central themes are: whether 'we' can control S&T; if so, whether this is best done from inside or outside the institutions of S&T; what visions 'we' have for technology; and how diverse users' voices and interests can be meaningfully expressed.*

* Faulkner, W (2001) 'The technology question in feminist: A view from feminist technology studies', *Women's Studies International Forum* [summarises theory relating to T aspects of the course and concludes that feminist politics need to steer a course between rejection and endorsement of T]

seminar 1: Compare and contrast different feminist strategies and positions, keeping the above themes in mind. *NB Split this reading amongst the group..*

Working on the inside

Green, E, Owen, J and Pain, D (eds)(1993) *Gendered by Design? Information Technology and Office Systems*, London: Taylor and Francis [explores possible avenues for greater female involvement in T design]

Kerr, A (1995) *Feminising science: Linking theory and practice*, PhD thesis University of Edinburgh [in SSU library; ch 9+10 reflect on how one might build a feminist science from where science is now]

Sørensen, KH (1992) 'Towards a feminized technology? Gendered values in the construction of technology', *Social Studies of Science*, 22: 5-31 [suggestive evidence that women bring more 'caring values' to engineering and that this can influence problem choice]

Ecofeminism

(*) Cox, C (1992), 'Eco-feminism' in *Inventing Women*, 282-94

Caldicote and Leland (1983) *Reclaim the Earth* [ecofeminist classic]

Gaard, G (ed) (1993) *Ecofeminism: Women, Animals, Nature*, Philadelphia: Temple University Press

Merchant, C (1992) *Radical Ecology: The Search for a Livable World*, New York: Routledge

Mies, M & V Shiva (1993), *Ecofeminism*, Halifax, Nova Scotia: Fernwood Publications and London/New Jersey: Zed Books

Cyberfeminism

Plant, S (1993) 'Beyond the screens: film, cyberpunk and cyberfeminism', *Variant* 14 (Summer): 12-17; (1995) 'Babes in the net', *New Statesman and Society* (27 January): 28

(*) Adam, A (1997) 'What should we do with cyberfeminism?', in R Lander and A Adam (eds) *Women in Computing*, Exeter, Intellect, 17-27 [reviews cyberfeminism + challenges technological determinism]

Technology assessment

(*) Morgall, JM (1991), *Developing Technology Assessment: A Critical Feminist Approach*, ch 9, 198-207 [a considered proposal for feminist engagement in government efforts to regulate technology]

or (*) Koch, L and Morgall, J (1987) 'Towards a feminist assessment of reproductive technology', *Acta Sociological* 30(2): 173-91 [the above applied to reproductive S&T]

Cyborgian politics

(*) Haraway, D (1991) 'A cyborg manifesto: Science, technology and socialist-feminism in the late twentieth century', in *Simians, Cyborgs and Women: The Reinvention of Nature*, London: Free Association Books; orig publ in *Socialist Review* 80(1985): 65-107 [very influence piece using the cyborg as a metaphor for feminist theory and practice; a call to embrace S&T without losing critical distance]

Kember, S (2002) *Cyberfeminism and Artificial Life*

or (*)Oldenziel, R (1995) 'Of old and new cyborgs: Feminist narratives of technology', *Literature D'America* 14(55): 95-111 [explores the implications of a Haraway's cyborg manifesto]

Seminar 2: What are the lessons of the Frankenstein story (or its various incarnations)? Can you see a role for 'dreaming the future', as Rose suggests, through feminist distopias and utopias?

NB Please feel free to read other science fictions than those listed below.

Marge Piercy (1990) *Body of Glass* [entitled *He, She or It* in the US edition] **or** *Woman on the Edge of Time*

or Mary Shelley *Frankenstein* [reasonably well portrayed in the recent film]

NB Other relevant items of feminist science fiction are reviewed in:

* Rose, H (1994) 'Dreaming the future: Other wor(1)ds', *Love, Power and Knowledge...* 208-29