I. Technology and Liberation — Introduction.

Technology, it is often said, has made the liberation of women possible. Labour-saving devices in the home, modern birth-control methods, the higher standards of living made possible by industrialization, have freed women from the more onerous household duties and given them a chance to take part in public life. Technological developments in the workplace — the introduction of office machinery is often cited as an example — have opened up more opportunities for female employment.

There is, of course, some truth in this popular belief. Beverly Kingston in *My Wife, My Daughter and Poor Mary Ann* describes washday in a middle-class Australian household of the last century:

> From a cauldron of boiling water the clothes were lifted, heavy with water and burning with steam, to drain before they could be subjected to the appropriate rinsing, wringing, blueing, starching, or mangling processes. All of these involved heavy lifting... These operations would regularly occupy one day in every week and were so time-consuming and wearing that early rising was necessary.

For most women in Western societies, this particular household sweatshop no longer exists. Washing machines do make washing easier.

Nevertheless, the popular view provides a distorted, misleading picture of the relation of technological change to traditional household work. One thing wrong with this thesis is that it suggests that women are biologically shackled to childbearing and
home duties, and require a technological crutch — provided generously by scientists and engineers — to free them. Those who hold this view are unaware of, or ignore, the important economic roles women have played in many pre-industrial societies. (2)

A more serious problem with the conventional thesis is that it takes a narrow view of technology. What it counts as technological are the machinery and processes that are the results of scientific research and industrial production (like the microwave oven or the pill). But women had, and still have, methods of birth control that were used long before 'scientific' devices were developed and marketed by drug companies. Women had, and still have, methods of food preparation and skills in using materials which are properly regarded as technological skills. But skills which aren't products of the industrial-scientific system tend to be overlooked or discounted.

Thus we tend to think of technology as something that comes from outside: something developed by scientists or engineers and offered for sale as commodities. The modern conveniences which are supposed to have freed the housewife are products of this sort.

Housewives are consumers of this technology, not the creators or developers of it. They buy it, use it, but they don't make the decisions about how and whether it should be developed. The role of women, in general, in the development of industrial and scientific technology has been marginal. Women work in factories and offices, as lab workers, less often as low level managers, rarely as top level managers, technicians and scientists. (3)

In their discussion of the technology of fertility control, Hilary Rose and Jalna Hanmer warn us that it is a mistake to think of technology as neutral, as a law unto itself. Technological and scientific developments are socially conditioned; they are affected by, and often reinforce, certain social relationships. When examining a particular development, it is wise to ask: What people make the decisions about how it is developed? What priorities do they have? What are the effects on the status, wellbeing, health of those who use it? What kind of work is provided by it? Is it work that increases or decreases the workers' autonomy and sense of worth? Does it tend to challenge or reinforce existing social arrangements? When the answers to these questions are examined, a technology which, at first, appears to be liberating, may turn out to have hidden implications which are far from beneficial. It may provide an easier and more efficient way of doing a particular piece of work at the cost of boredom, mental strain, dissatisfaction and a greater feeling of powerlessness and loss of confidence.

In the workplace, modern industrial technology and methods of organizing work have tended to decrease workers' autonomy and decision-making power, devalue and destroy their skills, making work less satisfying. (4) In a paper produced for the Melbourne Working Women's Centre, Linda Rubenstein shows how computers and modern office machinery have this effect on women office workers.

How has technology affected women's work in the home? Beverly Kingston argues that housework has been similarly deskillled by industrial technology and labour-saving devices. She suggests that the devaluation of work typically done by women has led to the devaluation of women in general, and to the sexist view of women as having chiefly ornamental value.

An ability to sew, cook, raise poultry, preserve and make jam, or grow fruit and vegetables, no longer constituted an economic advantage or make a desirable wife. The plain girl with skills as a dairymaid or seamstress had been thought a 'good catch', now plain girls had no skills and only their plainness was relevant to their marriage prospects. Even after marriage, whereas once there had been a long, very busy and creative set of opportunities, now shopping was about the most creative and absorbing activity available. (5)

I believe that Kingston exaggerates the extent to which housework has become unskilled labour. But since the industrial revolution began, housework has been changing, and this has affected the way in which this work is valued and the attitudes that those who do this work have toward their job. These affects are not always so liberating or favourable to women as many people have assumed.
The question of how technological changes have affected women’s work is a big and largely unexplored topic. In what follows I am concentrating mainly on the effect of changes in technology on housework — changes in the way technological development happens as well as changes in the products of technology. Even this is too much for one paper, and I am aware that much of it is speculation backed up by inconclusive arguments and inadequate empirical evidence. I regard it as the beginning of a discussion.

II. Housewifery — Old Technology and New.

Once upon a time, a farmer complained to his wife that her work in the house was much easier than his work in the fields. To settle the matter, they agreed to swap jobs for one day. Left with the housework, the farmer promptly made a mess of everything he touched. He slopped the contents of the churn over the floor; he let the fire under the stew go out; the washing fell into the dirt; the cow kicked over the milk bucket; and when his wife came home from the fields (there is no record that she had any problems), she found her child screaming, and her husband engaged in a desperate struggle with the goat on the thatched roof of the cottage.

Traditional story.

Properly understood, the moral is not that men shouldn’t do women’s work, but that housewifery is a skill, and no one can expect to do it satisfactorily without training.

But the story is about ‘olden times’. Today, it might be argued, that housework has been simplified by modern conveniences to the point that any idiot can do it. You don’t have to churn butter or milk the cow, because the milk and butter can be bought at the milk bar. You don’t stoke the wood-burning stove; you turn the switch on the gas or electric oven. Clothes and dishes can be washed in the automatic washer, and convenience foods (according to the adverts) make cooking a matter of heating and stirring.

Some of the things women used to do at home have been taken out of the home into the production lines of the factory. The rest has been automated by modern conveniences. No wonder being “just a housewife” doesn’t rate very high as an occupation.

This picture of modern housework is too simple. First of all, it gives the wrong reason for the low status of the job. Many feminists have argued (I think, correctly) that the main reason work in the home is so poorly regarded is that it is carried on in private for no wages; it is not part of the world of work, as this is usually understood, and is therefore invisible. Becoming a more creative houseworker — making your own bread, sewing your children’s clothes — is not going to change this. In any case, men who like to think of themselves as the family providers, and gain status from being able to keep their wives at home, have a stake in depreciating the economic contribution made by the housewife. (6)

It also underrates the skills that housewives have to possess in order to do their work well. Anyone who has had housework suddenly thrust on her (or him) without much preparation knows that housework requires skill — even when the special problem of childcare is excluded. A large component of housework is organizing tasks so that things get done when they have to be done. However tedious housework might be for many people, it seems to me that there is a qualitative difference, as far as skill and use of judgement is concerned, between housekeeping and working at a machine in a factory or on an assembly line — jobs which in the world of work count as skilled or semi-skilled.

What has modern household technology (7) done for housewives? It has made particular tasks less physically demanding and less time-consuming. No more Victorian washdays. But oddly (and contrary to popular belief) it hasn’t reduced the amount of time housewives spend doing housework. A number of studies have pointed this out. (8)

The reason for this is not clear. Some researchers believe that housewives obey Parkinson’s Law — that women fill in the available time by doing their work more slowly and inefficiently, or by doing unnecessary chores. My own experience suggests that the amount of housework has not decreased because housework standards have risen; and that household technology has been largely responsible for this rise in standards. (9)
When new technology is introduced into the workplace, the factory worker's job may, in one sense, become simpler. The new technology is likely to require less skill to operate. On the other hand, she/he will now be expected to increase her production rate. The time and effort saved by the machine will not benefit her.

Something similar seems to happen with housework. Washing machines makes it possible to wash clothes more quickly. The more you wash your family's clothes, the cleaner they will be. The higher standard of cleanliness you can achieve becomes a necessity, something you must achieve if you are to count as an adequate housewife.

There are, of course, important differences between the way in which technology raises the standards of household production and the way in which it raises the standards of production in a factory. In the household, women are working for their families, and the standards have to do with the quality of work, not the quantity of goods that can be turned out. For the factory worker, the standards are set by the employer and the sanctions for not fulfilling them are clear. In the case of the housewife, it is not clear who sets the standards or imposes the sanctions. Husbands may do so, but they also may care less than their wives about how the house is kept. But this doesn't mean that housewives set their own standards (as people who say that housewives make work for themselves are implying). Community standards exist, though they differ somewhat for different classes and localities. Children are aware of them; so are neighbours. They're publicised by the media, exhibited in advertising. (10) Some women ignore these standards, but few are unaware of them and many feel that their worth depends upon measuring up. Labour which seems to an outsider to be dispensable, may, in the social context, be necessary.

In the same way, household appliances change from luxuries to necessities as they become embedded into a way of life. Mixers, blenders, mincers, juicers, etc., make more elaborate cooking feasible; the new standards which such cooking brings into existence in turn creates a demand for such utensils. The woman who doesn't own them soon finds herself at a disadvantage. Even people who adopt simpler styles of life don't
escape this problem. A popular book promoting a low energy life-style and vegetarianism, *Diet for a Small Planet*, contains large numbers of recipes which call for the use of a blender. Some cooking books assume that the cook has an electric mixer, just as the directions of many products assume the existence of a household refrigerator.

If modern appliances do save the housewife time on some tasks, she is likely to spend whatever time she gains attending to the needs of her children. Again my impression is that the standards for childcare have also risen, at least in middle-class households. Since the war, there has been an extraordinary amount of popular literature on the needs of young children, on the crucial importance of the child's early years. A mother who doesn't spend a considerable amount of time concentrating on the children is likely to be regarded, and regard herself, as a poor mother.

What else has household technology done for women? Kingston and others suggest that it enabled middle-class women to do without servants and married women to enter the workforce. But the relationship between improvements in household technology and the ability of women to work outside the home is not a clear one. Whether or not married women work outside the home probably has more to do with the type of labour available and the needs of industry, and the financial requirements of the family than the introduction of household technology — or even modern methods of birth control. During the times when women are being discouraged from working outside the home, household technology is presented as something which can make a women into a better housewife. The standards can always be raised. In Britain in 1924, an organisation called Electrical Association for Women was founded to promote the liberatory implications of the new 'electric household'. This was at a time when occupations outside the home were opening up to women. The organisation still exists, but now pronounces that its aim is 'to educate women so that they can become useful and efficient in the home'. Technology, by itself, won't make us free.

### III. Deskilling of the Houseworker.

Kitchens, pantries, wash houses and dairies were workshops for colonial housewives. There were few things they could not do and make. They kept the kitchen range and stove black and shining with their own mixture of black lead, blue stone, turpentine and methylated spirit. They made butter in elegant cherry wood churns and their families enjoyed that lost delicacy, fresh buttermilk. They made their own soap with saltfree fat, caustic soda and resin, setting it in flat boxes lined with wet cloth.... They made their own cleaning pastes, their own sand soap, their polish for harness, using turpentine, beeswax, white of egg and black or brown colouring. They took on the hard work of tanning and dyeing sheepskin mats for floors and sheepskin coats for their menfolk.

They smoked hams in deep pits; they preserved eggs in a mixture of water, slaked lime and salt. They made their own vinegar, their ginger beer and hop beer. They made cider, and perry, a pleasant pear drink, raspberry vinegar and home-made cordials; their pantry shelves were stacked with jams, pickles, sauces and they very early began bottling fruit in mason jars without the benefit of a professional outfit and thermometer.

Joan Gillison: *A Colonial Doctor and His Town.*

Gillison presents the 19th century country housewife as a craftswoman — a mistress of the technology of household production. The work she describes, it is true, was done by women in an isolated country town (Mansfield, Victoria). City housewives of that period would probably not have made their own soap or tanned sheepskins. Nevertheless, as Kingston also suggests, Australian housewives of the last century practiced a wide variety of technical skills which have since altered or become unnecessary. These skills were passed on from mother to daughter, were not written down except in a cursory fashion. Kingston notes that earlier recipes were little more than a list of reminders:

A light biscuit: half a pound of flour, three ounces of butter or fresh lard; two ounces of sugar, one egg, half a teaspoonful of volatile salt. (11)

One important feature of the household technology that Gillison describes, is that it was controlled and developed by the
housewives themselves. Women were in the same positions, in respect to the technology they used as pre-industrial craftsmen and women. The glassblowers and iron smelters, etc., of the pre-industrial society had a practical knowledge of the materials they handled. They developed their skills and knowledge long before anyone had a scientific understanding of the materials and processes involved (just as housewives knew that scalding milk prevents disease long before Pasteur explained why this is so). The development and application of the technology was in their hands.

What changed this situation was the industrial revolution and the growing bond between science and technology, which both stimulated and was stimulated by the industrial revolution. Iron and glass production is now done in large, highly mechanised factories, in which work is organised in a hierarchy of skills and responsibilities. Technological innovations are generally the responsibility of the scientists, often working closely with the managers of the industry. Most of the workers have little knowledge and no control over the development and application of the technology.

Something like this has happened with household technology, though the change has been much more gradual and complex. It has not eliminated housewifery in the way it has eliminated most of the traditional crafts. But it has, to a large extent, taken the control of the technology away from women who do the work. The goods are produced in the factory where women participate mainly as factory hands. Or they are produced in the home using machines, chemicals and equipment which are the result of technical and industrial processes which housewives themselves do not control and generally do not understand. Thus, in an important sense, housewives have been deskilled by modern technology. They have lost control of much of the technology that has traditionally belonged to their sphere of work.

This does not mean that housework has become unskilled labour. As well as the technical skills that I mentioned earlier, women in the home are expected to have other abilities — not properly called technical — such as the ability to care for children and to manage family relationships. On these matters, women are the experts. There are, it is true, outsiders who speak on childcare and human relations with the authority that their status as academics or psychologists give them. But there is an important difference between the relation of the homeworker to these experts and her relation to the technological experts. First of all, their area of expertise is a shaky one (compared to the entrenched position of the scientist or engineer). There are differences of opinion among them, and much has to be left to the woman's own judgement. No matter how carefully a mother (or father) reads Dr. Spock, there are still many situations in which they have to exercise 'common sense' based on their experience and practical knowledge. In any case, the outside experts can only advise; they can't control the way the housewife does these things. Women aren't licensed to become housewives or mothers.

People have contradictory views of women's work in the home. On one hand this work is pictured as a matter of pushing buttons and turning dials — a mindless procedure which has necessity as its only virtue. On the other hand, work women do at home is also regarded as a heavy responsibility — so awesomely difficult that many people worry that the average housewife is not up to performing it. That is, it is admitted that important skills are still largely in women's hands. It has not been institutionalized: no formal apprenticeship is required, no particular degree or diploma. And it is not adequately captured by any scientific or technical discipline. And therefore it is counted as unskilled, and doing it gives a woman no qualifications for doing anything else. (12)

IV. Technological rationality

As a retired philosophy professor with nearly 40 years of teaching college students, I am firmly convinced that biologically males are superior in reasoning to females. I can recall fewer than a dozen girls who showed real ability or interest in logic and related
fields, but there were scores of boys who were extraordinarily gifted in this area.


The observations on which the professor rests his fallacious conclusion are probably correct. Few women choose to specialise in logic or mathematics. They also tend to avoid the related areas of science and engineering. They are rarely found in the technical professions, except those like nursing, which are labelled as 'women's work'.

For most women, the technology of the motor, the electrical circuit, the transistor, the computer, the jet, the nuclear power station belong to an alien world. Boys are early initiated into the mysteries of this realm. They are encouraged to play with mechanical toys, take things apart; become interested in tinkering with pushbikes, then with motor cycles and cars. Some boys follow up these interests in their education by becoming mechanics, electricians, etc., or go to university and become engineers or scientists. Girls do not usually go through the initiation process; it's a man's world, and the occupations are male occupations.

So women, by and large, grow up surrounded by machines, chemicals, processes which they don't understand. In the home, a woman is surrounded by appliances which she had no part in designing, the workings of which she doesn't know anything about. If a machine goes wrong, she is helpless.

Men are in a different position. It is true that many men don't know how to fix their cars, can't deal with the vacuum cleaner when it stops working. It's also true that a lot of new technology is too complicated for anyone but the experts to understand in detail. (13) But nevertheless, these mechanisms belong to a man's world. In the simple cases, men generally have some idea how they function; if they can't deal with more complex problems or technologies, this is only because they've never bothered to get the relevant training or experience.

Women do not only not understand mechanical things, but in many cases feel that they aren't capable of understanding them. The mysteries of these matters are at the same time beneath and beyond us. A man explains, perhaps in a rather patronizing way, why your car won't start, but you won't listen. You know you won't understand; you don't want to try to understand. Robert Pirsig in *Zen and the Art of Motorcycle Maintenance* describes the combination of helplessness and disgust with which two friends (in this case both a woman and a man) regard mechanical matters. Pirsig believes that this kind of alienation limits personal development; for this reason he learned to fix his own motorbike.

Women too have skills which they are thought to have a natural aptitude for. And many men have corresponding feelings of unease and disgust when confronted with 'women's work'. But the way in which our society regards those abilities that are assigned to women is very different from the way in which it regards competence which belongs to the male sphere. The traditional skills of men and women are separate but not equal.

It is common to try to explain why technology, science, most mechanical arts are largely matters for men, by reference to male/female biological differences. For instance, Hutt and Gray, in an influential study noted that men on average do better than women at tests having to do with spatial skills, and argue that this is the result of innate biological programming which gives men an advantage in fields such as maths, science, mechanics, and engineering. Women, according to this view, are unsuited to participate in what our society regards as the mainstream of technological development.

There are many criticisms that can be made of this hypothesis and the research which is supposed to have established it. (14) At most, Hutt and Gray’s hypothesis says that on average men will do better than women at subjects and fields requiring spatial skills. It does not explain why nearly all women are excluded from these areas. So even if the hypothesis were true, further explanation would be needed for women's marginal participation in mainstream technological development.

In *Origin of the Family, Private Property and the State*, Engels speculated that the "world historical defeat of the female sex" occurred "when the tasks connected with man's sphere — care of flocks and fields —
came to overshadow in economic importance women's household work (something that happened when private property came into being). This hypothesis ignores the role that women in traditional societies play in agricultural production. But something like Engel's hypothesis may help explain women's relation to technology: one of the most important features of modern technology is its dependence on science. Scientific research has always been a male affair.

The women and men who practiced traditional crafts had neither the leisure nor the education to work toward a scientific comprehension of their operations. When a scientific understanding of these technical skills was achieved, it was the work of people of another class. The scientists of the 17th, 18th and even the 19th centuries were gentlemen of means (or were patronized by the wealthy) whose university education made them familiar with the scientific and philosophical tradition and who had the leisure and the resources to conduct experiments and carry on correspondence.

A few women had the leisure for such activities, but almost none had the education. Universities, until the latter part of the 19th century, were closed to women, and even afterwards science was regarded as an unsuitable course of study for a woman. Women didn't do science. And soon it became common to believe that women couldn't do science. The abilities to reason dispassionately, to analyse, to use logic (it was said) belong to men, and it is just these abilities that are required for science. (15) So a woman who wanted to study a science not only had to overcome the usual prejudices against educated women, but also had to fight against the prevailing idea that women were constitutionally unfit to be scientists.

It is remarkable that the men particularly noted for their depth of thought and their scientific or philosophical achievements — e.g., Newton, Kant, Descartes, Darwin, Marx — either had no families to worry them, or managed to retire into the study or the library for large amounts of time. Virginia Woolf argues that to be a creative woman you need some money and a room of your own. To be a scientist you also need large amounts of peace and quiet and a long and intensive education, and contacts with the scientific community. It is possible for a woman to write good novels at home without a training in literature, in intervals between taking care of family needs. It is not possible for anyone to do science in this way. The institutionalization of knowledge and skills nearly always works to the disadvantage of women.

When scientists were able to explain theoretically the processes involved in traditional technology, then the possibility opened up of making alterations and innovations in this technology through scientific understanding. Becoming an expert in a craft began to mean obtaining a scientific or technical training at an institution. In some cases the skills and their theoretical background were incorporated into the university curriculum: medicine was first; engineering became a university discipline in parts of Europe in the 19th century. In other cases, special technical institutes provided the training and certification.

Women find it much more difficult than men to satisfy formal requirements for an occupation. The more sophisticated — and longer — the training the more at a disadvantage a woman will be. It is well known that women have a more difficult time getting to tertiary institutions and a still more difficult time staying there for any length of time. In any case, becoming a top person in a scientific field, becoming one of the elite who designs, innovates, and manages, requires a total commitment of time and energy which most women are unable to give. In a hierarchical system of work where position depends on formal qualification and uninterrupted service, women tend to sink to the bottom.

Another feature of modern technology is that its most awe-inspiring visible achievements have been in areas which are usually considered male domains. Large-scale industry, mining, metal working, the military, transportation — this is where the money for research goes; this is where the results are achieved.

The development of modern science has always gone hand in hand with the development of technology associated with activities which are almost exclusively male. The mechanics, of the 17th century, which is
now regarded as the beginning of modern science, was stimulated, and in turn stimulated, the technology of mining, construction, navigation, military operation. The new science, applied with so much success in these areas, gave rise to a metaphysical world picture. The heavens, living things, even human beings, came to be seen as objects operating according to the laws of motion. The kind of technological and scientific development characteristic of Western society has been mainly an attempt to develop and apply this picture of how things work. Skills, practices and world views which didn’t fit this picture were taken over, denigrated or dismissed as superstitions. This probably happened to a number of skills and technical practices traditionally carried on by women.

Barbara Ehrenreich and Deidre English in *Witches, Midwives and Nurses* recount how work that belonged to women, even into the 19th century, namely healing, was wrested away from them by professional medical associations, which is one way or another excluded women. The authors stress that the doctors got control of medical practice not because they were better healers — in the early days, at least, this was not so — but because they had the universities, the scientific establishment, and eventually the law on their side. Women were largely relegated to subordinate service roles in medicine.

It is important to see this, not just as a male takeover, but as the replacement of one kind of technology and outlook with another. (16) One reason the doctors had the universities and the scientific establishment on their side is because they were working in the framework of the accepted scientific world picture. They were the scientists, and the midwives and herbalists were practising superstition.

Women’s traditional work is still being colonized by industrial and scientific technology. The position of the housewife in relation to technology is something like that of the peasant of a pre-industrial society. In the name of progress, products of modern industry are thrust upon her, sometimes by well meaning experts, more often by people in search of a profit. The benefits of this new technology are lauded; the costs are seldom recognized. On the other hand, experts will sometimes admit that many skills women practice have not been adequately comprehended by modern science or reduced to a technological process (just agronomists sometimes have to admit that peasants may make better judgements about their land than the experts do). Nevertheless, there is an arrogant assumption that in the end modern science and technology will take over these remaining outposts of traditional knowledge. Houseworkers and peasants will be incorporated more completely into the industrial-technological machinery of modern society.
The behavioural psychologist B. F. Skinner, for example, looks forward to the day when children can be scientifically conditioned using the latest behavioural technology, rather than the ‘unscientific’, ‘inefficient’ methods of teaching now employed by parents. His idea of progress is to take from the parents — which means, primarily, the mother — the decision-making and judgement now associated with childrearing. This will pass into the hands of the scientifically trained expert; the mother's or father's job will be to follow the instructions.

Skinner's ideas about how humans learn have been strongly criticised. There are philosophical as well as practical difficulties in applying the scientific world picture — so successful in explaining the motions of water — to the behaviour of human beings. Nevertheless, it seldom occurs to experts that ordinary people who have had practical experience and insights derived from this experience could contribute to the store of human knowledge — especially if these people are housewives. The practice of the housewife is dismissed as a low-level skill or a matter of instinct; her insights are derided as 'woman's intuition'. What she does or thinks has nothing to do with what is grandly labelled 'human knowledge'.

V. Conclusion

The inability of women to have some control over or participate in mainstream technological development tends to get worse rather than better. There is a tendency for technology to become more complex, to require for its maintenance and development highly specialized training in science, mathematics, or engineering.

What we must do, say many people who are concerned about the small number of women who participate in the development of technology, is to encourage more girls to obtain a scientific and technological education. Such a programme would not help the women who do not have, and are not likely to get, a tertiary education of any kind; it won't do much to enhance the status or increase the confidence of the houseworker. Further, it is unlikely that, given the disadvantages that women suffer, women will ever be proportionately represented in scientific and technological elites — unless the position of women in society changes drastically.

But apart from these problems, the proposed remedy is inadequate in a more basic way. It fails to question the division of labour between the scientific-technological elite and the ordinary person, the cult of the expert, the centralization, vulnerability, and sometimes threatening nature of the technology developed by bureaucrats and capitalists, the way science is practised and the directions research has taken. More radical criticisms of the present state of science and technology are beginning to be made, but the alternative is far from clear.

What I think women should do, whether they have had a scientific education or not, is to bring a feminist perspective to the critique of science and technology and to the search for alternative technology. The danger is that the discussion and design of these alternatives may be left entirely to men, particularly those who are already scientists or engineers, with the result that the 'new' technology will be as elitist, male-dominated and male-oriented as the old.

I am not suggesting that the present sexual division of technical labour is a good thing. Human potential is limited by the sex-typing of skills and characteristics. One thing that is wrong with many present-day attempts to find new life-styles is that they don't question this division. Women are supposed to return to the household skills and crafts of the past: breadmaking, spinning, etc.; the men plan and design the important technology. What is needed is an alternative which enables women to play a creative role in the development of all aspects of social life — not a return to the Victorian kitchen, and not our present position as passengers on a ride to a technologically created nightmare.

* This paper was given at the Women and Labour Conference, May 1978, and was originally published in Part 2 of the Conference Papers.
References

(1) Kingston: pp. 36-37.
(2) Ann Oakley in Housewife claims that both single and married women in pre-industrial England commonly belonged to guilds, ran businesses, carried on trades. She argues that the modern housewife is a creation of the industrial revolution.
(3) There have been many recent studies which document the scarcity of women in scientific and technical fields, particularly in the top level of these fields. A recent Australian study is found in Refractory Girl, September, 1977.
(4) Harry Braverman develops and argues for this thesis in Labor and Monopoly Capital.
(6) The idea of being able to keep an ornamental woman, which has spawned the myth of the idle housewife, is not only a middle class phenomenon, although this is where it originated. Anne Summers in Damned Whores and God’s Police says that working class men in Australia were able to adopt this ideal much earlier than working class men elsewhere, because wages in the new colony were generally good enough for a man to support his wife and children.
(7) By modern household technology, I mean devices like washing machines, dish washers, vacuum cleaners, etc.—the products of modern industrial-scientific development—and the energy sources which make use of these devices possible—i.e., gas and electricity in the home.
(8) See Oakley, Ch. 1; also Blackburn and Jackson.
(9) Cowan makes this point in “A Case Study of Technological and Social Change: The Washing Machine and the Working Wife”. My paper owes a lot to hers.
(10) However, I don’t believe that housewives are brainwashed by advertisers, or anyone else, into accepting these standards. This explanation is too simple.
(12) However, one of the recommendations of The Royal Commission into Human Relationships is that people who wish to enter the public service be given credit for experience gained in working at home or for voluntary organizations.
(13) This is probably becoming more and more true. Braverman argues that repairing skills are becoming rarer because modern machinery and equipment often are not designed to be repaired. When something goes wrong the machine itself, or a unit of it, is simply replaced.
(14) Science for the People, No. 29, p. 6, suggests that this research, which was funded by the U.K. Department of Education and Science and the Department of Employment and Productivity, may be used as a justification for cuts in spending in science education for girls.
(15) Genevieve Lloyd traces the growth of this ideology in “Man of Reason”.
(16) However, the authors emphasize that women healers were attacked by the religious establishment before the advent of scientific ideas about medicine.

Bibliography