



Nancy Paterson, "Bicycle TV: Some Interactive Exercise"

"Bicycle TV" is a video-based virtual reality system which enables the viewer to control both the speed and the direction of video playback (scenic Canadian landscapes) by pedalling and steering a stationary bicycle.

A New Technology But

by Margaret Lowe Benston

Le présent article est une version remaniée d'un document présenté par Margaret Benston à la BOAG Foundation Conference à Vancouver en octobre 1983. Il analyse les questions liées à l'effet de l'automatisation sur le monde du travail et sur le travail des femmes en particulier.

Editorial Note: This paper, found on Maggie's computer disc after her death, appears to be a developed version of a paper she gave to the BOAG Foundation Conference in Vancouver, October, 1983. The ideas expressed are still fresh, further indication that Maggie's ideas were often new and anticipatory.

Part 1: Summary of the Argument

The emergence of microchip technology and a crisis in capitalism will have major effects on the work world. The swing to the right noticeable in England, the U.S. and Canada is closely tied into both of these developments and the net result for women is likely to be an attempt to reverse the trends of the last period and to reinforce traditional ideas about women's roles.

Specific social circumstances and policies supported expanding employment, especially from the end of the second world war to sometime in the late 60s or early 70s. It was this situation that was the basis for one of the major features of the economies of most Western industrialized countries during this period: women's increasing entry into wage labour, especially into clerical and service work. The circumstances have now changed. Deepening problems with capitalism are being exacerbated by the introduction into almost all areas of work of a technology—

the new microtechnology-based automation and information systems—that is unprecedented in power and scope. These systems are being introduced both to increase productivity, with a consequent decrease in the amount of labour required, and to increase management control over the work process. This increase of control is both in terms of day-to-day operations and also in terms of enhancing the ability of businesses to implement large scale strategies, i.e. moving production around, withstanding or rolling back union demands or strikes, and resisting new organizing. Unemployment in Canada is rising to levels unprecedented since the depression, partly because of the economic crisis but increasingly because of the effect of the new technology. There is no alleviation of high unemployment rates likely in the foreseeable future. High levels of unemployment are accompanied by business and government policies that have also meant a drop in the standard of living for many of those still employed, both in terms of social services and real wages. Further, the new technology, created as it has been by capitalism and shaped for capitalist purposes, has an overall tendency, if unopposed, to strengthen conservative positions. Technological determinism, which gives credence to the idea that both rule by experts and displacement by machines are inevitable, lessens working people's resistance; new developments in communications and information handling increase the abilities of the state in surveillance and control.

All of these developments will affect both men and women but not in the same ways. Among the most important of the effects on women are, first, the numbers of clerical and service jobs will most

probably decrease as a result of automation. Creation of adequate numbers of jobs to replace those lost to automation is highly improbable. Given this and an overall situation of high unemployment, it seems highly likely that capitalists will attempt once again to exploit the historic usefulness of women as a reserve army of labour by promoting a renewed conservatism about women's roles. This would, among other things, serve to encourage more women to 'voluntarily' withdraw from the wage labour force, thus lowering the apparent unemployment rate. Secondly, it is clear that capitalists intend to use microtechnology as a tool to increase control over and degrade the conditions of the wage work that remains for women (and men). Capitalism is using a number of tools to undermine resistance to this trend—the fear of job loss engendered by overall high unemployment, the mystique of technological inevitability (which those without technological confidence may be especially vulnerable to) and, for women, the traditional views of their roles. Such traditional roles, besides providing an ideology to keep women out of the labour force when necessary, encourage women to think of their 'real' work as that in the home and so discourage ideas of workplace organization and action.

A third disproportionate effect on women comes from the drop in standards of living and the cutbacks in social services. Not only will it hit the poor hardest—and women are a majority of the poor—but women are also the majority of consumers of many social services. Also, and most important for the argument being made here, the cuts will affect women especially since they, acting in their traditional private, nurturing roles, will be

the Same Old Story

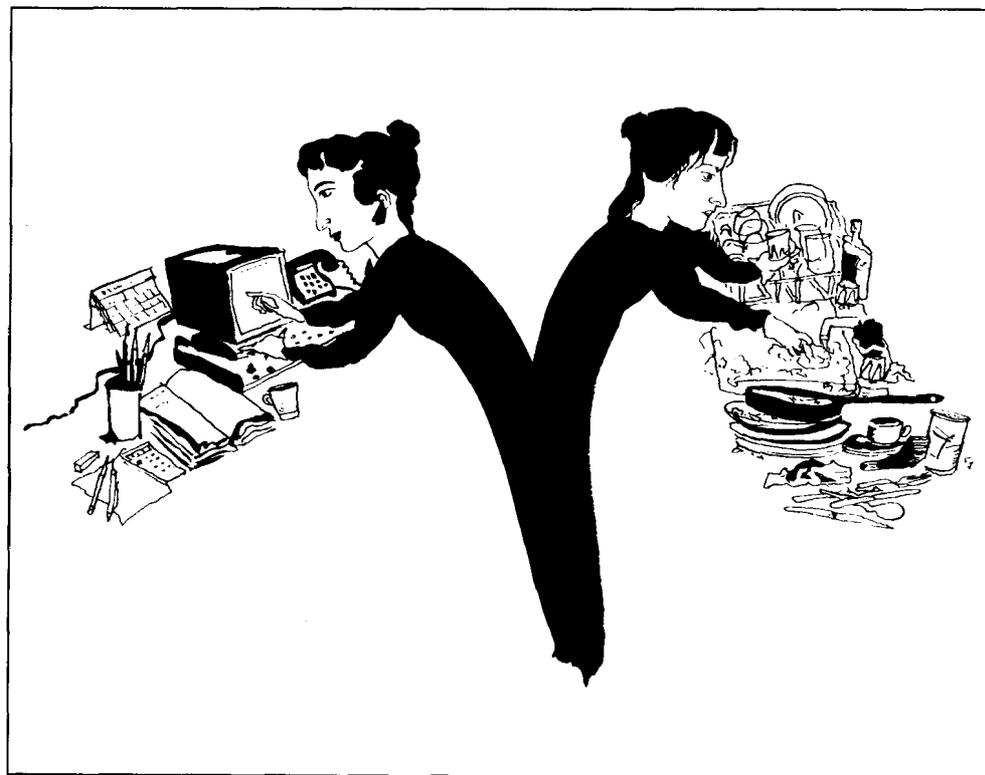
expected to replace missing public services. The idea that women should not be doing wage work but should instead be at home available to substitute their private labour for expensive public services is already apparent in conservative positions.

The re-establishment of the idea that women's place is in the home (revamped in modern idiom of course) would clearly be of great benefit to capitalists and to the state. This does not mean that it is inevitable—there are obviously major problems involved. One of these is the drop in standard of living of many households that would follow from the loss of women's wages. Another is the loss of consumer spending that would result from a substitution of home cooking, say, for fast food or convenience meals. Yet another is the strength of the women's movement and the strength of women's commitment to equal opportunities. But this does not mean that it can't happen—the history of women's wage work shows this quite

clearly—and the potential benefits for capitalists are major. The glib response by socialists that 'we've come too far and women can't be put back in the home' overlooks the fact that the very real power of the capitalists to create and to change ideology will be coupled to economic reality for many young women—if no jobs are available, the tendency to believe that it has been a free choice to stay out of the labour market is one perfectly natural response, especially if the ground is already prepared. A more critical understanding of the situation will not happen automatically—it must be presented as a

counter to the conservative position. The fight for the right to wage work for those who want it must be coupled with a critique of the present work process and with a rejection of capitalist control of that process. This cannot be done without an understanding of the way in which technology, both old and new, makes that control possible. Socialists must have a program of resistance to the degradation of work, to the rise of highly exploited part time work and to the undermining of union strength and the ability to organize.

These are clearly issues that affect both male and female workers—but in different ways. But the problems that affect women specifically must be seen as issues not just for feminists but for all of those working for social change. Socialism involves an attempt to overcome all institutions of domination and it must incorporate feminism in its fundamental programs—the present economic situation and the growth of the new technology pose major threats to the (still extremely limited)



Gail Geltner, "Double Time"

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gains that feminists have won and any program for socialism must include moves to counter these threats.

Part II: The arguments in more detail

Capitalism and technology

Capitalist economies must grow to survive and, in particular, there is a built-in tendency for the introduction of technology that will reduce labour costs and hence potentially increase competitiveness with other companies or industries. The history of industrial capitalism shows a continuing growth in the level of, first, mechanization and, later, automation.¹ The Industrial Revolution meant the introduction of a new organization of production as well as the introduction of new machines. The machines and techniques were introduced 1) to directly increase productivity, i.e. to multiply the effect of human labour power, and to produce more goods or services with fewer people, and

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2) to give management more control over the production process and more ability to extract all possible work from labour. Division of labour, deskilling and routinization of jobs in the productive process were made possible by the management's increasing understanding of the details of the productive process. This understanding was the precondition for the further mechanization and later automation of the work process. Increasingly, the knowledge that the producers had about the work process has been transferred to and embodied in the design of machines. Computers are the logical culmination of this process.

In the past, new technologies have been introduced in relatively localized areas of the economy. Textiles, agriculture in both the 17th and 20th centuries, steelmaking, railroads, automobiles, and the chemical

industries are important examples. New technologies had major effects on employment levels and on the techniques and organization of work in these areas.

The introduction of the newest development in computing, microtechnology, has potential effects surpassing any of the effects that automation has had before. This technology is being introduced in virtually all areas of work, both in private sector and in government.

If Marxist economists are right, the continuing introduction of new technology, which usually implies an increase in capital intensity, leads to the tendency for the rate of profit to fall and to the periodic economic crises of capitalism. The push for higher productivity which leads to the introduction of new technology may also, though this is a matter of much debate, lead to an overall tendency for stagnation and under- or unemployment in capitalist economies, as fewer and fewer workers are required to produce the same amount of goods.²

The new technology: especially microtechnology

Computers, and especially chip based ones, are machines that are at the same time like and unlike the other machines that have been introduced since the industrial revolution. They come out of the historical process that has seen the introduction of machinery as much to increase control over the work process and the work force as to directly increase productivity.

Microtechnology and computer-based automation have been introduced for the same reasons that machines have been introduced since the beginning of the industrial revolution. In this sense, they are being used as though they were machines like any other. It is clear though, that in important ways, a computer is *not* just

another industrial machine. This is a technology that can, to at least a limited degree, embody human judgment. Computer-based automation can potentially replace vast amounts of human labour in nearly every sphere of economic activity and in every area of employment. The equipment is (or is potentially) versatile and cheap, and it makes possible absolutely astounding productivity gains. The scale of the enhancement of human labour that this technology offers means that we may be seeing the beginning of a turning point in the productive process. The increased potential for control of the work process for the workers remaining is also a major feature of the new automation.

For all of these reasons the introduction of microtechnology is not confined to a few areas or a few industries—the chip is appearing in nearly all workplaces at once. As a demonstration of this phenomenon, which is unique in the history of technology, the next few pages give an outline of the places where the new technology is being introduced.

The first commercial computers were introduced in 1954 and the development of computer technology has been exceedingly rapid since then. Major breakthroughs were the development, first, of single transistors and, later, of techniques for putting many miniaturized transistors in a single circuit. The first 'computer on a chip' appeared in 1974. Over the past twenty years or so, there has been a drop in the price of computing power and memory of at least a factor of one thousand. This, coupled with increased reliability and decreased size has opened up a range of uses for microtechnology in the workplace and in communications technology that was unimaginable twenty years ago. Microtechnology is changing both the actual production and the distribution of goods and services. It is also being used as a both a decision making aid by business and as a way of managing and controlling relations with the work force. Chips are also being introduced into products themselves and they have meant the development of some completely new products (games, calculators, home computers, etc).

In the manufacture of goods, major developments in robotics such as the Japanese factories that produce cars, or robots themselves, with virtually no human la-

bour, have probably been the focus for the most public attention but microtechnology is also being used in many other ways in the actual production of goods. Flow or process industries like oil refining have been developing computer sensing and control systems for many years now and microtechnology has meant a rapid increase in the level of automation in such industries. With computer-aided manufacture (CAM), computer-based systems are used to do production scheduling, identification of bottlenecks, and generally to optimize the various intermeshing aspects of the flow of production. Computer aided design (CAD) has meant major productivity breakthroughs in many areas of manufacture.

Chips are increasingly being used in agriculture, mining, fishing, and forestry. They are probably being used most often to increase the effectiveness of mechanization in these areas (i.e. the kinds of machines and processes that are already in use) but there does seem to be some trend to automation rather than simply improved mechanization, particularly in mining. (Scientific American articles)

'Office work' is done both in the area of production and distribution of goods, by financial institutions and by all the levels of government. In all of these, the new technology is being used to change the ways that information is processed, stored and retrieved. The mechanization of such work has taken longer than did factory production. Partly this is because the need for masses of information to be processed in offices developed later than the industrialization of production and partly it is because the work done in offices is, in many ways more difficult to understand, analyze, and control. It is *information* that is the product in offices and the processing of this information requires judgment, decision making, and knowledge in ways that the actual production of cars or deodorant does not. Computer-based automation systems do not, in any meaningful sense, incorporate human judgment and decision-making capabilities, but they can be programmed to follow complex rules and complex logics. And they can enhance or replace human labour in a variety of routine clerical tasks.

The mechanization of office work, accompanied by increased division of labour and routinization of tasks, has been

going on throughout this century. (Braverman) There has been a steady growth of information processing equipment in offices—from typewriters through punch card sort-and-tabulate systems, or calculators and posting machines to the introduction of computers in the mid 1950's. This followed from an increasing understanding of the basics of office work by management and from the imposition of more 'industrial' organizational structures. These developments are crucial preconditions for the development and implementation of the new microtechnology-based office automation systems.

Offices have historically been undercapitalized, compared to production itself, and they are ripe for both the kinds of productivity gains promised by this new technology and for the control over the workforce it promises. This is especially true since the new technology itself has become cheap enough that the capital investment involved is feasible, even (or especially) in times of economic downturn.

In the 'office of the future', word processing is, of course, one of the major new developments, but it is just the tip of the iceberg. In such an office, the older computerized records—most often accounting, billing and personnel—are increasingly being supplemented by electronic files containing many of the other necessary records of the company. This is still not fully implemented—the existence of vast paper archives, problems with software support, compatibility of various kinds of equipment, etc.—tend to limit it at present. Computerization of inventory records is a natural for both manufacturing and retailing operations. Massive information retrieval systems, relational databases, and electronic inter and intra-office communications systems are all developments that are on the verge of widespread introduction. Executives increasingly have executive work stations or portable micros that provide them with some of the support services now provided by clerical staff. Overall, the introduction of computer-based systems into offices can be expected to accelerate over the next period.

The advantages to management in terms of industrial relations are immense. Electronic information can be shipped elsewhere for processing during strikes (as

ICBC did here) or work can be done at home if there is a need to break a strike or to isolate workers to avoid organizing attempts. The ability to monitor, to get 'productivity' figures and to isolate workers from each other is enhanced enormously.

In the area of sales, new types of cash registers—'point of sale terminals'—which connect to other electronic data handling equipment in a store, are already having a major effect on retail sales procedures. A few stores in the United States already have direct connections with some financial institutions so that payment is done by direct transfer from a customer bank account to the store account. The technical possibility now exists for a completely clerkless store where checkout would be done by the customers themselves. Using optical scanners, payment would be by on line debiting of customer accounts and shoplifting discouraged by warning chips on the goods themselves which would be deactivated after payment and before leaving the store. Some of the bits and pieces of this are already in operation and whether or not the fully automated store is implemented, the general trend toward labour saving, computer-based retail operation is clear.

Banks and other financial institutions, like insurance companies, deal almost exclusively with information and it is not surprising that they have been leaders in the use of electronic information handling techniques. Automatic tellers are the most visible evidence of this but there is a wide variety of electronic systems that have allowed such institutions to handle a greater and greater volume without a corresponding rise in labour. At present, hiring in the banks has clearly leveled off (instead of increasing as it had done for some years) and it appears that banks are in fact beginning to reduce their overall clerical staff (and some lower level managers and loan officers). The large insurance companies are *at best* maintaining a stable work force while increasing their volume of trade. This 'jobless growth' is at the expense of other companies where decreases in business mean job loss, usually by both attrition and layoffs. This job loss is in fact the result of the introduction of microtechnology in other companies. (Menzies, 1981)

In transportation, computer scheduling

and electronic record keeping have meant, among other things, the growth of containerization. Airlines have been leaders in the development of massive and reliable information storage and retrieval systems for their reservation systems. A number of them have systems under development that would eliminate most of the ticketing and boarding staff at airports. (It is now more or less accepted in Canada that if pregnant women so wish they should get temporary transfer off VDT work. In at least one of the Canadian airlines, there are *no* non-VDT jobs for pregnant women to move to). Warehousing procedures are increasingly reliant on computer-based records and, for large operations, fully automated warehouses are in fact in operation.

The conjunction of computers, microcircuitry, and both old (telephones) and new communications technology (satellites, fibre optics) is opening up an enormous potential for the sharing of information. Airline reservations systems are an example of such a complex information system that relies on telecommunications, computing and extremely sophisticated data base management systems. Business is increasingly relying on the linking of information handling systems either within a single office or vast distances apart, on electronic mail, on a geographical division of labour (within the same multinational corporation) and much more. The advantages to the state in terms of control and the ability to keep track of people's movements and activities are clear. This potential is being rapidly implemented at both the provincial and federal levels, as witnessed by the growth of government data banks, police use of this technology, and the sharing of information between different agencies.

Computers are not only being used to make the production and distribution of goods and services more efficient, they are being used *in* consumer products in a wide variety of ways and this too has implications for employment. For example, not only do point-of-sale terminals increase productivity of workers in retail sales, the actual manufacture of the machines requires less effort than the manufacture of the cash registers they are supplanting since the complexities of the cash register have been replaced by a few

chips. When the number of components of some product is reduced, the final assembly process is also simplified. Testing and maintenance becomes easier (and in fact the trend is toward self-diagnosing products where possible). Transportation costs go down and fewer stocks need to be held because there are fewer parts involved (and there is better control of the pacing of the productive process with CAM). The volume of paperwork also decreases as the productive process is simplified. At all of these points of simplification, less labour is needed.

In many other areas, health care and teaching for example, this new technology is just beginning to show its potential. And the use of microcircuitry and computer based automation is especially noticeable in manufacture in high technology areas such as bioengineering or chip manufacture.

In general, there have already been major gains in productivity in all of the areas where microtechnology has been introduced.³ The present productivity gains for these systems are not as high as they will be, since there are problems of training workers, devising adequate management techniques, changeover in methods, incompatibilities between equipment or between equipment and existing methods. In many cases, companies run a paper system along side the computer one until they are sure it is bugfree.

As mentioned above, the widespread introduction of microtechnology-based equipment has resulted from the decrease in the price of computing power by about a factor of one thousand over the last twenty years. (There are estimates that the rate of technological innovation is higher in Canada over the last few years than at any other time). It is important to recognize that that process is by no means over. Microtechnology is still changing rapidly and *the cost of computing power is continuing to drop*. One estimate is for a drop of another factor of a thousand over the next twenty years. (Dertouzos and Moses: 333) Such further drops in price will undoubtedly accelerate the present trends toward technological change. Even if the price drop is 'only' a factor of ten or a hundred, we have still do not have anything like a final view of what the potential for uses of this technology might be.

The question of unemployment and technological innovation

Technology does not operate autonomously—it does not impose some logic of its own on society independent of any choices that people might make. On the contrary, the design and implementation of various technologies have clearly been done to serve the interests of the people with power in the society. Nonetheless, once choices have been made about basic technologies and once they have been introduced, consequences follow that may not be intended by those who introduced them and that may be difficult to alter or compensate for. Microtechnology is being introduced deliberately, and the design of the systems reflects the intent in introducing it, to serve the immediate needs of capitalist profit making. It is being introduced, however, in a situation of international competition—primarily between the U.S., Japan and Europe, especially Germany. Decisions about automation in Japan put considerable pressure on other countries to follow suit and make it very much in the interests of individual businessmen to introduce this equipment as fast as possible. Considerations of the long term social effect are only now beginning to emerge.

Canadian governments, at both the provincial and federal levels, have consistently held the position that our only option in dealing with our economic problems is to introduce high technology techniques (especially microtechnology) as fast as possible.⁴ This reflects, to some extent, choices that are being forced upon them. Their public position is that the effect of this will be to reduce unemployment. Government spokesmen and task forces argue 1) that productivity gains are absolutely necessary and are good in all circumstances, and 2) that employment problems will consist mainly of dislocations since jobs lost by automation will be compensated for automatically by new jobs. These new jobs will be created by the economic growth resulting from increased competitiveness in international markets, by growth in the high tech industries themselves, and by industries that will arise to provide products and services in new areas.⁵

The Canadian government has a public

rhetoric that distinguishes between the 'sunrise' and the 'sunset' industries—the sunset ones of course being those which cannot be upgraded to compete in the international scene. So, for example, 80,000 jobs for textile workers (almost certainly largely women) were written off in a recent government pronouncement that it was uneconomical to protect this 'sunset' industry against cheaper foreign imports. (Saskatoon Star-Phoenix, 3) (It should be recognized that the same multinationals may be owners of both the domestic and the foreign operations). Unfortunately, the most probable result of full scale automation will almost certainly be to raise the unemployment rate.

Increasing productivity is basic to maintaining profits in capitalist economies but what's good for business may not in fact be good for working people. If there are significant productivity gains in present industries, then either the same number of workers produce more goods—which must be sold somewhere—or fewer workers produce the same amount as was originally produced. In this second case, new products and services are needed to create jobs for displaced workers; otherwise productivity gains simply mean increased unemployment and decreased standard of living for workers on average. And microtechnology, as Jenkins and Sherman point out, is "a technology the main attribute of which increases productivity rather than stimulating the production of new goods and services."

The productivity gains potentially made possible by microtechnology are in important ways *not* simply extensions of past trends—microtechnology makes possible such enormous increases in productivity that one needs to be careful about the use of the term at all. The amount of living human labour required to produce many goods can potentially be reduced to such a small portion of the total process that the net result may very well be to push the logic of capitalist economies right to their limits.

One implausibility in the governments' approach is the assumption of continued growth in markets. As will be discussed below, growth in both the domestic and the world economies and consequently the full utilization even of existing productive capacity is, in fact, increasingly problematic. Resource limitations, satu-

ration of markets, and the increasing impoverishment of large parts of the third world (as shown by the enormous debts 'owed' to the industrialized countries, the multinationals and the banks) all are indicators of limits in this area. The growth of world manufacturing capacity with the rise of the Japanese and West German (and more recently and in a more limited form some South East Asian dictatorships) economies has meant more competition for the markets that do exist (these, of course, expanded somewhat with the increased domestic market in these areas but output has expanded more).

The governments' position that high technology will provide an edge in competitiveness as far as the international market goes may be true in a few areas but in general it can be argued that automation becomes necessary simply to *maintain* present positions in international trade. Canada must innovate and automate if her rivals are doing so but the net result is most probably not an increase in international sales but simply the maintaining of

increase in complexity and size of capitalist economies. Another reason for the rise in the service sector, and also for the appearance of new products, can be found in the pulling of many activities that had previously been done in the home into the area of commodity production or into public services. Food preparation, sewing, cleaning of clothes, and other traditional household tasks increasingly became commodities rather than work done by women outside the market. (This was especially true for farm women where mechanization meant the reduction and transformation of much of the work they had done.) Other aspects of work in the home were also pulled into the public sphere—such as teaching and health care.

The mechanization of agriculture took place during a period when there was not only a general tendency for world markets to expand but there was a simultaneous expansion of the domestic market. One of the consequences of this is that, in the period after the depression, not only were there jobs for men but increasing numbers

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the ones we now have while employing far fewer people to produce the goods involved.

It has happened in the past that major areas of the economy have been mechanized with enormous productivity gains—agriculture is the best example in this century—without permanent massive unemployment. Government policymakers argue from these examples that since it didn't happen then, it won't happen now. They assume that the 'free' play of the economy will prevent massive unemployment now. What they are conveniently ignoring is 1) the fact that the 'free' economy is a myth; the question is who benefits from the interventions that are made, and 2) the major differences between then and now. At the same time that agriculture was being mechanized, for example, there began the rapid development of the service sector which opened up new jobs. This development in services had to do on the one hand with the

of women followed their work into the wage labour force.

Having said that, it is important to note the special conditions under which it happened. The tendency for the domestic and world markets to expand, for example, has not been a smooth one or an automatic result of pure market forces. Since the early 1900s when the mechanization of agriculture really began, we have had the first world war (with increased employment needs and stimulation of demand), followed by a major slump with high unemployment. and then a brief period (less than ten years) of prosperity and high employment. This in turn was followed by the Depression, and the second world war, and by an economic theory which depends on deficit spending (the war being in fact a major aid to implementation of policies based on that theory). Then came another brief period (about 30 years) of prosperity fueled by the militarization of the U.S. economy, and the rebuilding

of Japan and Germany, financed by the U.S. government,⁶ by cheap oil prices and by major deficit spending. Since 1975 or so, real incomes of Canadians who work for wages have been going down and unemployment has been rising.

Those attempting to maintain the system⁷ refuse (of course) to admit that capitalist property relations and capitalist economic logic are increasingly in conflict with growing capacity and decreasing labour needs in production; they maintain firmly that new jobs will appear. Bell and Johnson, among others, claim that the prime candidate as a creator of such new jobs is the whole range of high technology industries. (Bell, Vancouver Sun, Task Force) That this is more ideology than reality is shown by *Time's* predictions for the areas of job growth in the U.S. Occupations in high technology industries do not even appear on the lists. The major reasons for this are: 1) the process of mechanization and automation is on the whole labour saving—if it weren't there would be no reason to do it. (An analogy would be an economist in the early part of this century saying that all the farm workers who were losing their jobs in the early 1900's to farm automation could get jobs making or repairing tractors. (McGillivray, 1983)) and 2) the analysis of the labour process and use of technology to obtain high productivity is already well advanced in most high tech areas. The demand for programmers, for example, will almost certainly fall drastically with the spread of more efficient programming techniques, the use of canned programs and the development of programs that write programs. Increasingly, machines are built with self-diagnosing circuits in them so that repairs take less skill and are faster. Manufacture of high tech equipment is already highly automated—a factory that builds robots in Japan uses almost no human labour—it is all done by robotics. Overall, the prospects for massive job creation in high tech industries are not good.

There will clearly be some jobs created in manufacture of high tech goods and in support services for the technical jobs around software, new systems design or whatever. It is in fact true that when you count the people engaged in the manufacture, sales and distribution of farm equipment, pesticides, fertilizers, etc. that the decline in farm related employment is not

nearly as dramatic as it looks at first. Some jobs will in fact be transferred to the high technology industries and support services, but not nearly as many as the technology replaces.

The optimists about technology (and capitalism) also ignore the fact that for at least the last thirty years, the major source of new jobs has been the public sector. Left to itself, private industry has not been capable for some time of creating enough jobs to counteract even the pre-chip level of automation and productivity gains. In British Columbia, 25 per cent of the wage labour force is on the public payroll. When those on unemployment insurance, welfare, old age pensions, and other non-wage public payrolls are included, the percentage of the population supported by the various governments is close to 50 per cent. A reliance on the private sector to create jobs in a situation of extraordinary productivity gains and world economic crisis seems much more ideological than rational.

The other source of jobs is to be in new products and services—new industries made possible by the productivity gains in the present sectors. There are some serious problems with this. Already many 'new' products are merely more expensive replacements for old ones. Some government spokesmen are reduced to predicting growth in the 'leisure industries' selling fitness or jogging suits or massive growth in video games. The irrationalities of this kind of manufactured need are exemplified by the example of the multinational which first sells us highly processed junk food and then makes a profit with its Weight Watchers groups.

There are also predictions that new jobs will be found in the 'human' or 'caring' areas. Since most of these are at present in the public sector and this sector is being severely cut back, these predictions are either based on daydreaming or they embody the idea that privatization of the services will open up new areas for profit making (regardless of the suffering that might result for the poor).

Women and wage labour

In the mid 1940s, about 25 per cent of Canadian women were employed or looking for work; in 1980, this had increased to just over 50 per cent. Women make up

nearly 40 per cent of the total official paid labour force. If, additionally, all the women who would take paid employment if they could and those who do unrecorded work—babysitting, working at home, etc.—were included the figure would be much higher.

Although there are now women who have jobs in all occupations and industries, the labour force is still highly sex stratified. Most women work in a relatively few areas, at jobs that have become stereotyped as women's work. (Even where men and women do work in the same areas, there is a clear gender division in actual jobs, for example nurses aides and orderlies). In 1980, one-third of all women who worked for wages did clerical work. The second most important category for women is in service jobs—it accounted for nearly 20 per cent of women's employment in 1980. Another 10 per cent of women were in sales work.

The numbers of jobs in the clerical and service sectors have grown, first of all, because the development of capitalism has pulled more and more areas of production into the market. As a result of this, increasingly, work that was previously done in the home tends to be done as part of commodity production, largely in the service sector. Second, these jobs have grown as a result of a growth in the needs of business for clerical support workers because of 1) the expansion of the domestic economy (where the complexities of interconnections grow faster than the economy itself), 2) the shift in information from production floor to office due to Taylorist methods, and 3) the increase in international trade (this is probably more true for the U.S. than Canada since Canada has few head offices except in the banking industry). Finally, many clerical and service jobs have opened up as a result of the growth of government services. (Women employed by the government also have, incidentally, the highest rate of unionization of all women in the wage labour force).

While growth in these areas has opened up jobs for women, the jobs have generally been characterized by low pay and low status. Men are the supervisors even where the majority of the workers are women. Promotion opportunities for women are either non-existent or are limited to lower level supervisory positions,

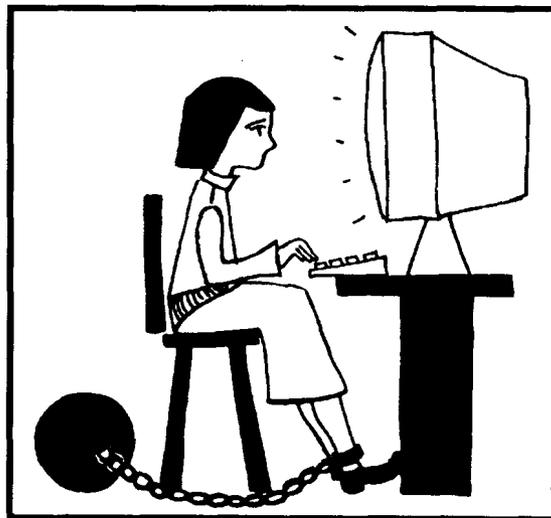
often part time. Such positions often involve more work and responsibility but little real increase in power. In spite of the fact that a higher proportion of working women were managers in 1980 than ever before, this does not mean a breakthrough into management positions for women. The total percentage of managers increased also and men have in fact had a disproportionate share of this increase. Women managers are also concentrated in the service industry. As the Armstrongs point out: "while some women have improved their position by moving into managerial jobs, these jobs are likely to be at the bottom of the pile, directing small beauty salons rather than large factories." (Armstrong and Armstrong, 11) And even such limited upward mobility is, in reality, the exception.

Few women are in the professions, non-traditional occupations or in technical fields. In the professions, women have traditionally found a foothold only in teaching and nursing. Women in these areas account for a declining proportion of the women who work for pay and an increasing number of these professionals work part time. As far as non-traditional occupations go, though the participation rate of women in some (but by no means all) of these has been rising (or was until the current depression), the actual numbers of women involved are relatively small. For example, there is a relatively high percentage, as these things go, of women transport equipment operators: in 1975, 3.1 per cent of such operators were women and this rose to 5.7 per cent in 1981. This means that roughly 20,000 women were transportation equipment operators in 1980, compared to the couple of million who were clerks. (Field, 220)

Few women work in scientific or technical fields. The highest percentage is in biology and the lowest is in engineering. While women have moved into computing where as many as 20 per cent to 30 per cent of software workers may be women (Kuhn, 1980), they are concentrated at the lower levels. At the senior levels—that of system analyst for example—the numbers of women are much smaller, at most a few percent. In Canadian universities, women make up a very small percentage, at most ten per cent, of the faculty and

graduate students.

The ways in which this ghettoization of women workers is created and maintained has been a major area of feminist scholarship over the last 15 years. The explanation seems to lie in a combination of socialization, women's responsibilities in the home, factors in the educational system that channel women out of certain areas plus, of course, outright discrimination. The result is that, for most women, entry into managerial, professional or technical fields is impossibly difficult (in technical fields, for example, it probably means going back to get high school equivalent training in math and basic science). For most working women there has been no route out of their low level jobs into higher paying, higher status ones.



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Effect of the new technology on women's jobs

There does not seem to be much argument in Canada that there will be massive job loss in many areas of the economy, including those which are concerned with manipulation of information. These are the jobs that are among the major targets in the drive for efficiency and higher productivity through new technology. This means that women wage workers, as a group, are likely to be particularly vulnerable to the impact of microtechnology since it is in these areas where women's work is concentrated. The Labour Canada

Task Force on Microelectronics and Employment, which takes a resolutely technologically determinist line ("as society once adapted to the automobile, it must now adapt to microelectronic technology") and sees "microelectronics as a tool with the potential to create jobs, to increase productivity, to improve economic growth, and to enrich personal development," admits that women will face problems because of the impact of the new technology. They predict fewer clerical workers, especially those involved in inventory or in classification, updating or otherwise processing information, and fewer typists, telephone operators, sales clerks, and bank and financial workers.⁸ (Task Force on Microelectronics) Depending on a whole range of assumptions and scenarios, Menzies estimates that between

10 per cent and 30 per cent of clerical workers in Canada could lose their jobs by the mid 1990's. These figures for Canada are supported by European studies, for example Nora and Minc.

It is probable that the process of technological displacement of women in the service sector is already well underway. The process is hidden by claims that a reduction in staff is the result of the recession. In addition, there have been no massive lay-offs of clerical or other service workers. Instead, the job loss due to technological change is often handled through attrition. Women tend to move in and out of the job market more frequently than men do and employers can use this to gradually reduce the number of clerical and service workers they employ. Where

this happens, the number of jobs lost at any one time tends to be small and this would tend to mask the fact that levels of unemployment from the new technology are growing. There are no good figures to support this conjecture but the fact that the unemployment rate for women was going up before the current downturn is one indicator; fairly limited and unsystematic evidence from Vancouver would tend to support the conjecture also. The 'jobless growth' cited by Menzies also tends to mask the effect of technological change in creating unemployment.

In some submissions to the Task Force, there were apparently those who felt that

higher for women than for men and it is likely that a more realistic definition of unemployment would increase that difference since the option of 'voluntary withdrawal' from the labour force (usually to be a full time houseworker) is an option for more women than men. The official figures do not take into account the large number of women who would take a job if they could find one. Armstrong and Armstrong (42) estimate that "at least half of the women no longer counted as unemployed left the official labour force not because they no longer wanted paid work but because in their view they could not get it." In addition, the official statistics do count as employed anyone who has even a few hours of paid work. Since women do more part time work than men do,¹² this criterion also tends to underestimate the number of women who are in essence unemployed. The unemployment rate for women would most likely increase dramatically if the criteria were more realistic.

Women's motives in 'choosing' to join the labour force are seen as a problem in a way that men's motives for working are not. This is presumably because it is assumed that women can choose to stay home. This is largely an unrealistic assumption for a majority of working women.

Single women work because they must and this is reflected by their continued participation in the official labour force during periods of unemployment: the unemployment rate for single women in 1980 was 10.2 per cent compared to a rate of 7.5 per cent for married women. But married women also work because they must—very close to half of all married women worked for wages in 1980. The incomes of two wage earner families are not much higher than the income in families where only the husband works (around 23,000 compared to around 19,000 in 1975, for example). Where the husband is in the lower income brackets, the wife's 'second' income is a necessity. Several studies have shown that the lower the husband's income, the more likely the wife is to work for wages. (For such families Canada has, in practical terms, moved away from the practice of the 'family wage' paid to a male head-of-household to a situation where each adult contributes their individual share. The

idea of individual rather than family incomes was the prevailing one in the early industrial revolution with the difference that during that time children were also expected to contribute). Married women's need for work is shown in the fact that the official unemployment rate for married women is rising—married women are no longer so likely to 'disappear' from the wage labour force into the home during periods of unemployment.

The question of what impels women into wage labour cannot simply be answered by pointing to 'economic need'. There must also be jobs available. From the beginning of this century, the general trend has been for the size and complexity of capitalist economies to expand, both in private and the public sectors. Along with this, more and more work that was previously done in the home has been pulled into the area of commodity production. As a result of these processes, more and more jobs became available for women. At the beginning of the 30's, the participation rate was around 20 per cent, largely made up of unmarried women. After the depression, these trends continued and the participation rate for married women increased steadily.

Other factors enter into the choices that individual women make: responsibilities in the home, particularly for children; the tradeoff between time (to produce goods and services in the home) and money (to buy equivalent goods and services); the need to 'get out of the house'; the desire for financial independence; etc. Overall, the resulting 'participation rate' for women is highly dependent on social factors, government policies, ideas about expected standards of living, and much more. The official statistics tend to present this as a much simpler phenomenon than it is; this is especially true of the idea of 'voluntary withdrawal from the labour force'. The difficulties with the concept of voluntary withdrawal or even the concept of some fixed official unemployment rate are highlighted by comparing the present period with the Depression. The official unemployment figures in 1937 were around 17 per cent—if women has been participating in the wage labour force in present day numbers, that figure would be at least double. The relative lowness of the official figures is a result of women's 'choice' not to ask publicly for non-existent jobs.

Political choices

If the tendency to crisis of some kind is a problem that is fundamental to capitalism (and exaggerated by the new technology), the responses to that problem are not predetermined. Above I have deliberately talked about the Canadian government's *public* assertions that high technology will solve unemployment problems. Besides opting for as rapid introduction of high technology as possible, these governments have chosen conservative and anti-people economic policies to go with that. In spite of their public statements, there is apparently no concern for the real effects this policy is likely to have on unemployment.¹³ On the contrary, in reality the government seems quite prepared to accept a high level of unemployment for some considerable time to come—they are just not prepared to say so publicly.

One symptom of this is the swing away from Keynesian policies, with their explicit goal of full employment. Increasingly supply side doctrines are dominant in policy matters in the U.S and the U.K. In Canada, while not as dominant, similar policies are clearly visible at both the federal and provincial level. Supply side economists are explicit in their belief that the unemployment problem is best handled by market forces. The idea of a 'natural' rate of unemployment is a crucial one—this rate apparently being whatever the economy actually produces. If wages are too high and there are too many social benefits, then workers have unrealistic expectations of their value and stay out of the labour market (unemployment is created by workers, not bosses). If wages fall enough and if there are no incentives not to work, then workers will take jobs at realistic (from the point of view of employers) wages, production will increase, consumption will increase and the economy will expand as it should. They claim that when wages are too high, the rate of profit is too low, investment does not take place and the whole process is shortcircuited.

Their strategy is to maintain a high level of unemployment for a sustained period of time. The effect of this will be, they claim, to restore 'health' to the economy by driving out inefficient firms, lowering costs of production and restor-

ing the conditions under which the remaining firms can make adequate profits. As Chernomas points out "The effects on wages, working conditions, and worker productivity would clearly be beneficial for those capitalists still in business after the market has passed its judgment on inefficient firms."

This is much the same set of policies that were in place before the depression. There is no question that in the short run—during the crisis that the supply siders create—the effects on the poor, on workers, on the unemployed will be severe. There is a big question as to whether or not such policies would in fact work in their own terms—i.e. whether or not they would lead to a period of expansion, full employment and prosperity. The evidence from the 30's does not give one much confidence.

As just one example of problems with the approach, consider the question of reinvestment. Even if companies do begin making an 'adequate' profit, there is absolutely no guarantee that, where multinationals are concerned, investment will take place in the same place where profits are generated. The short history of the production of microtechnology itself, as an example, is one of work being shipped around the world.

With the Canadian governments at both levels embracing high tech options in the context of these kinds of economic policies, it seems clear that there is no chance that unemployment in Canada will decrease significantly over the next period. The chances are good, in fact, that if the policies continue unchanged, the dropping cost of the new technology will accelerate its introduction and will push those levels even higher.

It is clear that governments and business could make at least a few other choices. Nationalizations, government intervention in the investment and resource management areas, control over foreign investment, and regulation of labour relations are all possibilities that in no way challenge the fundamental relations of capitalism but which would not place the burden for paying for the crisis almost exclusively on the people at the bottom. One of the major ways of counteracting the effects of automation on employment in the past, for example, has been a shortening of the work week. If

there is no cut in pay, this involves a substantial sharing of productivity gains with workers.¹⁴ Such policies would however not solve the fundamental problem the resource limitations and increasing productivity are creating for capitalism. And they would not solve the problem of the degradation of work created by capital using the new technology. The conservative nature of the technology created by capitalism and the fundamental logic of capitalism itself mean that the use of the technology to enhance human lives and to create an economy of abundance is fundamentally impossible.

Even given the limited range possible, the choice of conservative, high unemployment policies is made easier for both governments and business by the weakness of the union movement and the apparent lack of resistance by those affected by rising unemployment. These policies are being used in attempts to further weaken the power to resist by both employed and unemployed workers. The proposal to forbid unions in high technology industrial parks in B.C. is a clear example of this, as is moving labour techniques and organizations out of unionized areas wherever possible.¹⁵

Business, and with it government, is reacting to the continuing crisis of capitalism with an attempt to turn back the gains that working people have made. Technology is clearly a tool in this attempt. The idea that this technology is inevitable and that we must somehow learn to adjust to it fosters the idea of unemployment as regrettable, but unavoidable and inevitable. And unemployment—either real or threatened—not only forces wage rates down but destroys peoples willingness to organize and take a risk. It increases willingness to put up with control of work life and deterioration of the conditions of work (which are also consequences of the new technology). The new technology also makes much easier the restructuring of the labour force with much more work being moved into unorganized areas and much more part time work being created. A major attack on the standard of living of working people in North America and a dismantling of the social services associated with the welfare state is well under way. British Columbia at this moment is a most graphic example of this with the Social Credit government dismantling

human rights and tenants' protections and threatening medicare, eliminating jobs and job security in the public sector and in a wide variety of social services. One apparent goal is to create a situation that investors will be happy with—a subdued labour force and a right wing government. The attack on women, minorities, the poor, the unions, and working people generally is being passed into law and put into practice. A free enterprise rhetoric is accompanied by moves to centralize political power. The vindictiveness and the underlying ideology that workers have it too soft and must be put down is all too clear. What recognizable economic policies there are seem to have their ideological roots in supply side thought. The stated intent of this government is to reduce the number of public employees by 25 per cent or over in a province which already has over 14 per cent unemployed and where unemployment of at least 12 per cent is predicted into the mid 1990s.

The federal government in Canada is, at present, part of this trend mostly in terms of letting unemployment rise and putting limits on wage raises. It has also indirectly cut funding for social services by decreasing transfer payments to the provinces. Overt pressure on social services has been relatively small compared to the U.K. and the States. (The Conservatives, however, who would probably be the winners if an election were imminent, are much more committed to the kinds of 'restraint' programs that Reagan and Thatcher have introduced).

It seems clear that a major part of this whole attack is to attempt to break the power of organized labour. The 'social contract' that has dominated the U.S. and the U.S.-dominated Canadian unions for the last 40 years is one where the unions guarantee industrial peace and, insofar as they can, a depoliticized working class. In return, capital provides a rising standard of living and a guarantee of relatively full employment. Clearly the multinationals think that this is no longer desirable—or perhaps that it is no longer necessary. In either case, both the recession and technological change are being employed to break the power of unionized workers. The workplace is coming into focus again as a center of struggles around wider social issues in both Canada and the U.S.

The new technology is likely to rigidify the sexual division of labour in the workforce, not to dissolve it.

Consequences for women

A number of conclusions can be drawn from the above. The first is that, assuming present policies continue, the unemployment rate for women in Canada will continue to rise. The conditions that supported the expansion of jobs for women have reversed and the introduction of microtechnology-based automation into the areas where women's jobs are concentrated will add to this. Coupled with dropping real wages for already underpaid women workers and cutbacks in social services, this will mean hardships for many women. There are already a disproportionate number of women who are living in poverty in Canada and this number is likely to increase.

Unions are by far the best protection that working people have. Union organizing is likely to become even more difficult than it has been for women. New industries are using a variety of techniques—including moving to third world countries—to avoid unionization, while older industries are reducing their workforce.

Even where unions exist, many of the issues around job loss and control over technological change cannot be dealt with adequately at the level of bargaining in a single workplace. The Canadian Union of Postal Workers has probably the best technological change clauses in Canada and they estimate that they are losing 1,000 jobs a year to technological change. What follows from this is that organized, unorganized women or women attempting to organize must begin to take on a much wider range of issues than the present union ones which are centered largely around wages.

As well as contributing to problems of unemployment, the new technology is likely to rigidify the sexual division of labour in the workforce, not to dissolve it. It will also degrade working conditions and increase the control that is possible

over workers. Since women tend to work in the bottom strata, this increase in control will likely affect most of their jobs. Even with more liberal government and business policies, these effects would still remain unchanged in essential details.

Probably the most frightening of the possible consequences of all this is a move to strengthen traditional roles for women and to reverse, so far as is possible, the erosions of patriarchy that have occurred both because of the entry of women into wage labour and because of the struggles of the last 15 years. The advantage of this to business and government are clear—the more women 'choose' to stay out of the wage labour force the more the unemployment rate will drop. They would presumably hope that the political consequences of their policies would be somewhat defused if considerable numbers of women firmly believed that they had freely chosen to remain at home. Historically this has been a standard method of manipulating the size of the wage labour force. The circumstances are of course different now than they were in the 1830's in England or after the second world war—the women's movement has made it much more difficult to overtly proclaim that women's place is in the home.

It is important not to overemphasize the gains of the last 15 years however. The struggle with the New Right in the States over the family and women's place and the continuing struggle around abortion in Canada indicate that patriarchal ideas are still very much a force to be reckoned with. And it is presumably possible to have both a token kind of affirmative action that would draw some of the potential troublemakers into positions of relative privilege while at the same time ensuring that considerable numbers of young women recognized clearly both that there were no jobs for them and that they had another 'choice' that they could make. (This does not have to work for every-

body, but every one that it does work for is a bonus for the unemployment figures). This scenario would seem less improbable if the ideology underlying the dominant business and government policies in Canada and the U.S. weren't perfectly in accord with it. The same outlook that supports the idea of a 'natural rate of unemployment', or the idea that workers must bear the brunt of restructuring the economy is the same outlook that supports narrow reactionary views about women or minorities or the environment. The fact that re-establishment of women's roles also has potential benefit in the economy will not, I believe, create the notion that it would be desirable for women to remain at home; it will certainly reinforce it.

The federal government in its training and retraining programs (the only attempt it is making to deal with the question of unemployment) is stressing almost exclusively programs aimed at 'prime' male workers. And this is in spite of the Task Force on Microelectronics' specific recommendation that special notice be taken of women's needs.

The net consequences for women that I see then are overwhelmingly negative, at least in the foreseeable future. The potential that is opened up, however, is considerable. The issues raised can only be dealt with by addressing very basic questions of power and the way that power is exercised in this society. Questions of control over the workplace have moved front and center with the introduction of the new technology. And the potential opened up by a different kind of new technology contrasted with the probable effects of the present systems make issues of ownership and control of production very practical and very graphic.

The existence of the women's movements means that socialists have a chance to work with organized and unorganized working women, along with women who

are unemployed. The socialist program must include a commitment to the right to wage labour for anyone who chooses it along with an educational program that begins with the possibilities for changing the work process and that includes a rejection of capitalist control of that process. This cannot be done without an understanding of the way in which technology, both old and new, makes that control possible. Socialists need an up to date program of resistance to the degradation of work in all its forms, including highly exploited part time work. Obviously, we must resist the undermining of union strength and the ability to organize that seem to be such a major goal of capital at the present time.

The problems that affect women specifically must be seen as issues not just for feminists but for all of those working for social change. Socialism involves an attempt to overcome all institutions of domination and it must incorporate feminism in its fundamental programs.

Maggie Benston was not able to finish this article before her death. The bibliographic references are therefore not complete, and the conclusion to the article was not written. The editors apologize for any confusion this may cause the readers.

¹The distinction between mechanization and automation is somewhat arbitrary but I am using mechanization to mean introduction of machinery that may speed up the labour process but still leaves most of the timing, decision making, etc up to the worker; automation implies an element of automatic control embodied in the machine—at least some of what previously was left to human judgment is now imposed by the logic designed into the machine.

²This has of course been offset by a number of other factors—notably the overall expansion of the world economy as more and more kinds of work and more and more parts of the world become part of the market and the reliance on advertising and consumerism to create new 'needs' and hence new markets. The arguments for the position that the long run tendency is toward stagnation are plausible to a non-economist, however, and many of the developments around microtechnology outlined in this paper

would seem to support them.

³This is not an unchallenged assumption. There are a number of people who claim that the new technology does not, in fact, increase productivity in many cases (see articles in *Office Automation* (Marshall and Gregory, eds) for some of these arguments. While it may in fact be true that some earlier computer systems were not cost effective (and Jenkins and Sherman (1979) discuss why this might be true) overall, computers have continued to be introduced because they provide savings more often than not. Generally, the introduction of microtechnology is more successful because the new technology is intrinsically more flexible. System designers also have learned from the mistakes of the past. It is important to keep in mind how new all of this technology really is.

⁴The British Columbia government, for example, is actively courting high technology industries with subsidies and industrial parks. They have publicly stated that it would be desirable to put a 'labour umbrella' over such parks—by which they mean forbidding unions.

⁵In addition, the fact that over the next period fewer people will be reaching an age to enter the work force is also presented as a reason why we don't need to worry about a lack of jobs. This drop in labour market entries because of demographic trends is real but, if present trends continue, would be at least partially compensated for by the continued increase in the participation rates for women.

⁶The Canadian economy is so tied to the U.S. one that to all intents and purposes, the direction of Canadian economic policy is virtually identical to that of the states and the health of the Canadian economy is dependent on the health of the U.S. one.

⁷And this includes such diverse analysts as Daniel Bell, Milton Friedman and the Canadian Minister of Economic Development, Donald Johnston.

⁸And it seems clear that an increasing proportion of the remaining jobs will be part-time jobs.

⁹Unlike the United States, where the U.S. Department of Labour continues to predict major growth in secretarial and service occupations for the next decade. There are a number of explanations for this: one might be that the Bureau is simply not taking technological change into ac-

count—a phenomenon noticeable in at least two major Canadian government reports on employment in the future. A second explanation might be that the Bureau is foreseeing a continuing growth of the U.S.'s controlling role in the world economy and its continuing role as headquarters for multinationals—the continuing need for expanded office and information functions might in fact support increased employment in these areas in the *United States*.

¹⁰While she raises some interesting points about present situations, I think she is wrong about this in the longer term.

¹¹Government rhetoric about affirmative action in Canada has never been accompanied by any effective mechanism to implement it.

¹²And in all of the major areas of women's work, part time work has been on the increase.

¹³A recent leaked internal report in the Ministry of Economic Development estimates massive job loss; this report has not been made public and its reported findings have been dismissed publicly by the minister.

¹⁴It would not completely solve the problem but it would make a good beginning. Jenkins and Sherman (1983) estimate that a ten per cent drop in the work week would result in a five per cent drop in the unemployment rate under present circumstances in the U.K.

¹⁵Employer resistance to new organizing, particularly in the clerical sector, is very strong. Campaigns by working women's organizations in both Canada and the States have been met with relatively little success.. In B.C. in fact, both employers and the established unions resisted efforts to organize bankworkers.

References

- Armstrong, Hugh and Pat Armstrong. *A Working Majority*. Ottawa: Canadian Advisory Council on the Status of Women, 1983.
- Braverman, Harry. *Labour and Monopoly Capital*. New York: Monthly Review Press, 1974.
- Chernomas, Bob. "Keynesian, Monetarist and Post-Keynesian Policy," *Studies in Political Economy* (Winter, 1983).
- Connolley, Patricia. *Last Hired, First Fired*. Toronto: Women's Press, 1978.

Dertouzos, M. and J. Moses. *The Computer Age*. Cambridge: MIT Press, 1980.
 Field, Debbie. "Rosie the Riveter," *Still Ain't Satisfied: Canadian Feminism Today*. Toronto: Women's Press, 1982.
 Jenkins, C. and B. Sherman. *The Collapse of Work*. London: Eyre Methuen, 1979.
 Marschall, D. and J. Gregory. *Office Automation*. Cleveland: Working Women Education Fund, 1983.
 Nora, S. and A. Minc. *The Computerization of Society*. Cambridge: MIT Press, 1980.
 "Garment Workers." *Saskatoon Star-Phoenix* 26 April 1983.
 Task Force on Labour Market Developments. *Labour Market Development in the 1980's*. Ottawa: Employment and Immigration Canada, 1981.
 Task Force on Microelectronics and Work. *In the Chips*. Ottawa: Labour Canada, 1982.

CAROL THORNTON

Closed Windows

Aboard the Saemun Express, car two
 first class, but when the toilet door opens
 the smell breaks through
 even this conditioned air.
 Halfway between Chamiwon and Pyorogok I spot you, sister.
 Partway up the hill, you sit in your field
 leaning on one elbow
 hip against the soft brown earth
 as you dig with a small hand tool.
 How is it that the earthy humus smell
 penetrates closed windows?
 So near we could converse
 except the only word I've learned is "mul"
 and you're probably more thirsty than I am.
 So why does my heart ache to trade places with you?

Carol Thornton lives in Saskatchewan, and is new to poetry writing. One of her poems has recently been published by Grain Magazine. Her short stories have been aired on cbc Radio.

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