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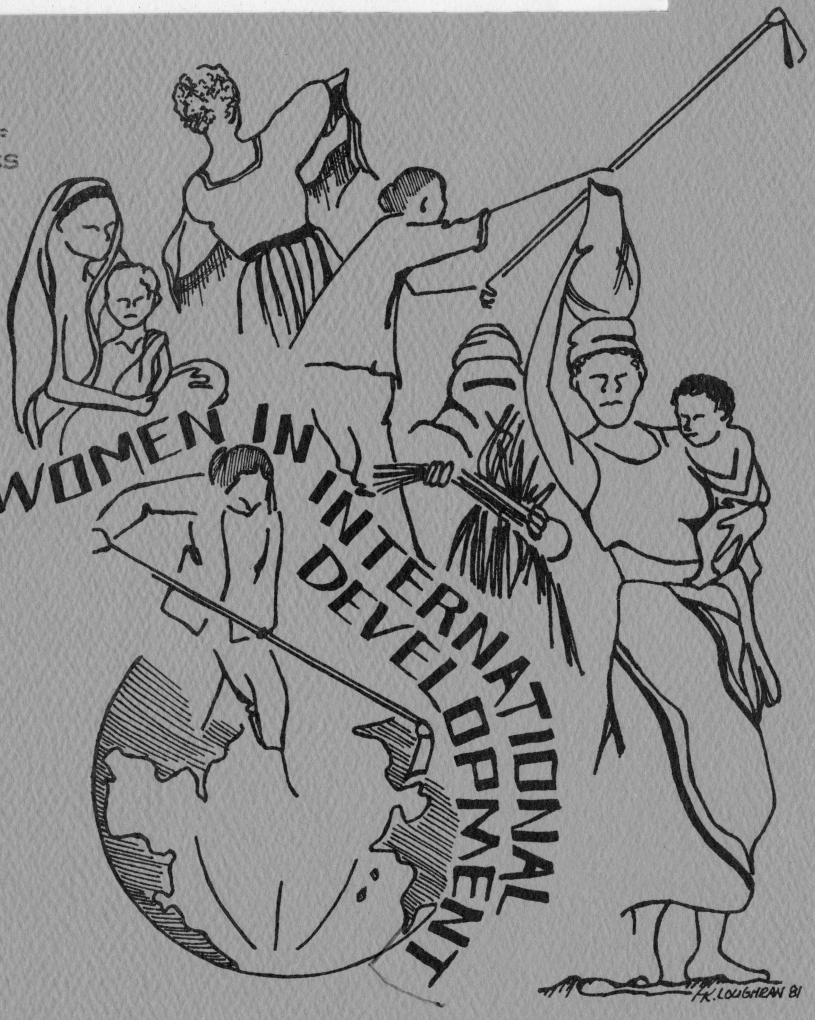

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IMPLICATIONS OF TECHNOLOGICAL CHANGE FOR HOUSEHOLD LEVEL AND RURAL DEVELOPMENT

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Abstract: When the contribution women make in production is not taken into account by development agencies, the introduction of technological change and large-scale projects may result in the destruction of the domestic economy and the impoverishment of families. Increasing rates of infant mortality are evidence of the polarization of wealth and the limited access to the means of production women and children in developing countries are permitted with the penetration of capitalism. As the ultimate unit of production in resisting the encroachment of capitalism, the domestic unit has subsidized the costs of capitalist production. Theories of the domestic mode of production are discussed in relation to development planning. Models focusing only on economic factors are seen as too limited to assess the outcome of development planning because of the cultural imperatives motivating behavior. Nine cases of development grouped according to type of innovation, e.g., the adoption of cash crops and mechanization; large-scale development projects such as dams, craft and industrial production; and forced migration, are discussed in relation to the following variables: (1) changes in the composition of the household, (2) changes in the division of labor within the household, and (3) migration of members of the family. The author concludes the article with a series of propositions about the relationship between these variables and the success of the projects measured in terms of their contribution to human welfare.

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IMPLICATIONS OF TECHNOLOGICAL CHANGE FOR HOUSEHOLD LEVEL AND RURAL DEVELOPMENT

The global integration of capitalism has proceeded at the cost of the disintegration and growing dependency of nations, communities, and households. One of the strongest points of resistance to the advance of capitalist penetration in rural underdeveloped areas is the semi-subsistence farming household.

Paradoxically, the position the household has occupied in sustaining its members at low cost has subsidized the cost of industrialization in developing countries. The margins of autonomy gained by rural households in the development process are now crumbling as the large-scale penetration of agro-industry draws its more productive members into development contributing to the accumulation of capital. Even those programs whose target is the small-scale farmer draw the few more able households into programs requiring capital for credit, technology, and fertilizers. The higher yields gained by these advanced sectors siphon the more successful producers from the claims of the immature, older, or less-favored members of the community and households.

The effect of the growing dependency of households, regions, and nations can be measured in indices related to the global redistribution of resources in relation to food, access to technology, labor involvement, credit and markets.

1. Food. The Food and Agricultural Organization (76) found that in the "most seriously affected countries" with food shortages in Africa and the Far East, there was an increase in the population below the critical limit of food intake (1.2 basal metabolic rate) from 25 percent to 30 percent in the period 1971 to 1974. While a few of the "developing market economies" in the Middle East and Latin America had improved the distribution of food by one or two percentile points, the nations defined by FAO as having "total developed market economies" had worsened their position by one percentile, falling into the critical category. Women subsistence producers, who provide 44 percent of family food needs (8, 19, 20, 75), are ever more hard-pressed to fulfill this role as agro-industry invades their landholdings and their intensively worked lands decline in productivity (62, 65).

This increase in the number of people suffering hunger was clearly a problem in distribution. Per capita food production increased from 1970-80 by 101 to 133 based on an index of 100 for the period 1969-71 in the case of developing countries and from 99 to 120 for developed market economies (83). In all the countries reviewed by the FAO (76), the most vulnerable are those "who don't grow enough, who can't buy enough, and women and children, with little girls last in family cues, even affecting their survival rates." Where patriarchy prevails, in countries such as India, Nepal, and Pakistan, food deprivation in childhood overcomes the natural physiological advantages females enjoy and results in a higher death rate for infant girls (80).[1]

2. Technology. Technological design is itself the product of the social relations in production, reinforcing control by the dominant group (29, 50, 55) and reflecting patriarchal bias (14, 21, 67). Far from overcoming the

physical disadvantages women might have in production efforts, investment in large-scale capital intensive development has often increased their disadvantage (2, 14, 21). In the USAID (79) Report to the Committee on Foreign Relations of the U.S. Senate, this point is elaborated:

> . . . the recent expansion of capital- and technology-intensive and large-scale agricultural estates often operated by transnational corporations adversely affects women's work in basic tertiary activities such as those related to small-scale urban, semi-rural and agricultural trade, which are crucial income-generating activities and are essential for community self-reliance.

This process, the authors conclude, "has actually jeopardized food production and the distribution of food and other basic subsistence goods."[2]

Sheehan and Standing (67) define the circular process whereby women, who live in countries where their participation in the wage labor force is limited, are deprived of an education and, because they have been deprived of an education, they are not trained to use the new technology. In those countries in Africa where women provide 70 percent of agricultural production and constitute 65 percent of the labor force (31), the contradictory decisions made in introducing technology reveal the class and patriarchal biases of the innovators. Tinker (74) notes:

> Thus, technology has been used in a way that has had detrimental and paradoxical consequences for African rural women. While, on the one hand, the technological changes in the modern agricultural sector have deprived women of employment, the shortage of simple technological improvements in food processing, energy and water supply, on the other hand, have left the rural women overburdened in their daily lives.

In a country where men plowed the land and women weeded, the government purchased one hundred tractors and only one weeder (31).

3. Labor. Despite the fact that women have limited access to wage employment in many parts of the world, their productive activities in the traditional sectors remain strong. Their share of the work in the maintenance of the family has, in fact, increased with development and/or migration. Considered estimates of the proportion of households headed by women range from 33 to 40 percent worldwide (15). Whether women enter migration streams to industrial centers within their own country or abroad or whether they are left behind, they must bear the increased responsibilities. Where migration reaches the scale of 40 to 50 percent of the male population, as in Mali and Mauritania, or up to 70 percent as in the case of Haiti, and 80 percent in the case of Botswana and Lesotho, the results are precipitous for females. In addition to providing for subsistence needs of the family, they must often supplement uncertain remunerations from abroad with wage work. In a country such as Botswana where most of the men must migrate to the mines, women constitute 52 percent of the wage labor force (30). Chaney (20) remarks that when outmigration reaches that level, the resulting despair for women and the families they are left to support can be calamitous.

Numerous cases have been compiled (4, 5, 10, 20, 77) showing the increasing labor burdens which women bear in development projects:

* In Bangladesh, higher yielding rice with the use of fertilizers required more work by women who did the weeding, harvesting, and processing. The Work Program provided backbreaking jobs for women who were paid at 40 to 60 percent of men's wages.

* Zambian women taught to grow onions along with subsistence crops refused to continue when they were not compensated for the work done on the onion crops sold by men.

* In Cameroon, expansion of rice production resulted in profits that went to men, although women worked the paddy land.

* In Egypt, the extension of cotton cultivation drew on women workers as pickers, adding this to their usual household tasks.

* In Brazilian coffee plantations, women, who constitute 80-90 percent of seasonal workers, work at piece rates with no social security or other benefits.

* In Kenya, where one-third of rural households are headed by women, females constitute 37 percent of the regular work force.

Estimating that the rural women's working day is on the average 15 to 16 hours, Ahmad (4) notes that they receive less medical care, less food, and less education than men. Frequently men are contracted at a "family wage" for the work of women and children who are not directly compensated (3, 5). Women workers who are dependent on wage work are often left destitute when deprived of opportunities to work. Rice mills introduced in Indonesia and India put women out of work (5). Similarly, the introduction of herbicides eliminated weeding and cut the demand for a female labor force in Uganda and Kenya (77). The "green revolution" in Asia left in its wake thousands of women who were pauperized when they lost their jobs in irrigation and cultivation to men who were trained to use the new technology (6, 13, 43, 44). There was a marked increase in malnourishment among women and especially female children as a result of green revolution technology, particularly in India (43, 44). When one learns that a tool as simple as a sickle, introduced in Mwea, shifted the labor force away from female workers, who used finger scythes, one realizes how delicately balanced these systems are (36, 69).

4. Credit and markets. The limited access for women to technology and wage work is linked to the lack of credit and banking (79) in the subsistence sector. Even in those countries where they had access to land under indigenous rule and during colonization, when they assumed the major responsibility for subsistence farming, the marginal security women possessed is being eroded as capitalized development or national reforms have deprived them of their land base. The very same land reforms and cooperatives that newly independent states proposed to alleviate the plight of poor farmers often

channeled these resources only to "heads" of households, taken to be the male. In polygynous societies this was particularly prejudicial to wives who were accustomed to managing their own production and returns for it (47, 51). The Ethiopian land reform proclamation eliminated women's ownership of land (6:430) and, simultaneously, their possession of collateral for raising capital. Given the importance of women in subsistence production, their lack of access to credit and markets can have disasterous results.

The few programs geared to make up the lack of available credit from traditional sources should be mentioned. The FAO is the only UN agency designed to extend credit to women, as they have done in Tasmania, India, and some countries of Africa (78:16). A remarkable development occurred in Korea with the organization of "Mothers' Clubs" set up to distribute birth control techniques when the women used these organizations as a base for developing credit pools (53). Women in Bolivian mining communities have developed extensive credit facilities through lottery pools, called pasanaku, with which they can acquire cash for their market enterprises or buy consumer durables at wholesale prices. These multi-purpose, flexible women's societies could be a base to promote credit facilities with little overhead costs (48).

Feminist scholarship emphasizes the prejudice against women in the redistribution of resources and rewards contingent upon capitalist development. This prejudice reflects the patriarchal cultural bias of the innovators as well as the economic bias inherent in private capitalist development against subsistence production. The fact that women do not gain credit reflects their chief responsibility in subsistence activities. The scarcity of credit for social reproduction in capitalist development is systemic since the motivation to invest is uniquely the drive for profit. The net effect is that people who have had marginal autonomy in semi-subsistence farming are increasingly disadvantaged in the cash economy. The allocation of resources and the distribution of rewards reinforces the process of capital accumulation by design. It is not an oversight that women, children, and the subsistence sector do not benefit from investment. This would be counterproductive to the central driving force of capital accumulation. In the following analysis of household strategies for coping with development, I shall try to put together the perspectives of feminist and Marxist analyses in order to understand the dialectical reinforcement of patriarchal cultural bias and capitalist economic bias.

Household Strategies for Coping with Development

Theoretical Models of Household Economy

As the spell of British structuralism and U.S. "folk" societies (56) was losing its explanatory power during the decades of independence and revolutionary movements following World War II, anthropologists were in search of models to explain their case studies. Field workers began talking about peasants rather than tribespeople, and the household was emerging as a significant unit of analysis as corporate lineage structures were becoming

atomized in the new social movements. Chayanov's (22) analysis of households among Russian peasants based on data collected in the late nineteenth and early twentieth centuries became a focus. For anthropologists steeped in kinship and folk morality, it had the charm of unfamiliar terms borrowed from classical economics. "Resource allocation," the "marginal utility of work," and "opportunity costs" were the new catchwords. It was simple enough for most practitioners to use to measure and predict behavior.

The attraction for anthropologists lay in the integration of consumption and production functions for those households throughout the world which were entering the market economy to produce "exchange values" but not yet freed from the strictures of corporate groups producing "use values," whether these were structured on the basis of kinship or community. Neo-Marxists and neo-classical scholars could nod at each other across the lowering divide as they calculated the factors determining peasants' willingness to enter wage work, sell craft products, and even accumulate capital goods. The household became the domain in which to watch the articulation of the capitalist and pre-capitalist economic systems. Representatives in three or even four modes of production united as a father producing use values on the family farm, a mother engaged in simple commodity production making pots, a son working as a tractor operator in a multinational agro-industrial enterprise, and a daughter entering domestic service came home to dine.

The question I shall raise is whether the neo-classical Chayanov model, even with modifications, is adequate to the challenge of anticipating even the simplest cultural datum in such a scene. What are they going to cook? What is the appropriate technology with which they will prepare it? Who will gain from their surpluses? And who will be the first to experience hunger when supplies are short? What are the different attitudes and expectations cultivated in members of the household as they enter into very different relations of production and what will they talk about when they come home to dinner?

First, I shall consider the assumptions in the updated Chayanov model and some of the advances made in using it. Then I shall analyze some of the data on households and their coping with technological change and economic reorganization in several developing areas and suggest some new approaches.

The focus in Chayanov's model is that production and consumption decisions are interrelated and vary in response to the number of producers in relation to consumers. This proposition is, of course, implicit in most ethnographies but it is not stated as simply and elegantly. Some of Chayanov's propositions can easily be translated into anthropological terms. When Chayanov states that income per capita beyond acceptable minimum has diminishing marginal utility, I relate this to George Foster's (32) "notion of the limited good" and wonder why he hasn't suffered the same abuse. I find myself translating the "increasing disutility per worker" into some of the substantivists' critiques of formalist debates. (For those who are not initiated into this occult debate, I think the substantivists are saying that principles based on market behavior such as maximizing do not work outside of economies dominated by the capitalist market. The question I ask myself is, do they work for markets dominated by monopoly capitalism?)

The "paradoxes" Chayanov encounters are simplistic hurdles for substantivists: Why is it that the poorest families will pay the highest prices for land and in rent? Why, during a harvest failure when prices are highest from agriculture, must a peasant household produce crafts at an ever-decreasing price? These are paradoxes only when it is assumed that all people are simply trying to maximize market opportunities. Anthropologists rarely, if ever, assume this even in the golden day of "tribal" and "primitive" economies.

Given the holistic analysis cultivated in anthropology, it was no problem for a "folk" anthropologist to understand why Maya women of Amatenango del Valle produced more and more pottery at ever-lower prices in the month of July when rains were heaviest and spoiled the firing. They needed money to spend on their patron saint's day in August (46). The real problem was to explain the rationality for the allocation of resources in those cases of resistance to innovation. Sol Tax did this in his analysis of the rejection of plow and draft animals by Panajachel, Guatemala Indians (72). The Indians preferred to use lands near the lake shore for growing labor-intensive crops of onions and garlic that had a much higher return, rather than to introduce the plow and draft animals. If they had chosen the latter "modernizing" course, they would have had to divert much of the corn fields where they grew their own subsistence crops to fodder for animals, thus losing the balanced complementarity of high-paying cash crop and subsistence food.

The formalist assumptions underlying the substantivist ethnographic accounts show the possibilities for convergence of anthropological and economic research. Chayanov might appear to be championing the substantivists when he argues that the capitalist concept of profit cannot apply to peasant households since there are no objective wage costs for family labor (39); he does in fact provide a model for assessing rational allocation of resources even when they are not precisely measured or measurable. Using a similar model, Schultz (64) and Bennett (11) were able to consider the degree to which allocations of resources were rational. The Maya of Panajachel, Schultz states, show a remarkable acuteness in allocating labor even though it is not paid. Similarly the Canadian plains frontier farmers analyzed by Bennett (11) showed a great deal of variation related to cultural and economic preferences in comparing the Indian, Hutterite, small-plot farmer, and large cattle rancher.

Chayanov's critics have attacked his model for failing to distinguish rich and poor peasants (37:197). By going beyond this restriction, Deere (25) has shown the dynamic of class differentiation in the penetration of capitalist institutions. Hunt (39) has faulted Chayanov for failing to distinguish variations in managerial skill among households. But by remaining within an economic paradigm, the critics accept the limitations of the model itself. The failure to take into account cultural factors defining the role relations and behavior of household members means that the dynamics of decision-making are lost. Hunt, for example, accounted for the degree of willingness to innovate as a managerial function related to the education of husbands. And yet the society she analyzed is polygynous with men working off-farm in cities more often than not. Older wives, who are in fact the

ones who most often make the innovations, are more likely expressing their greater autonomy in farming than carrying out their husbands' will. Again, to state that "The sexual division of labor in productive activities is not determined biologically, nor socio-culturally, but is an economic variable" as Deere, Humphries, and Leon de Leal (26) do is to lose the interconnectedness of life issues influencing decisions in social reproduction. It is hardly predictive in the many differently structured social formations in which capitalist relations in production have penetrated.

It is easier to use such formulae at the international and national levels, but the closer we get to home, the more social and cultural variables influence the relations in production. Deere (25) is convincing in showing more intensive participation by women of lower income households in Cajamarca, Peru, so that we can predict that, with reduction in income, women are more likely to work in the fields in that cultural context. But not everywhere. In Amatenango, where Maya women recognize the culturally proscribed use of male tools, widows and other women without male laborers in the household will hire labor for the field even at the sacrifice of food necessary for the survival of household members. The few who were rumored to have sneaked out at dark to work in the fields were socially ostracized (46).

Given these case examples, what can we propose about the sexual division of labor in our model of the household economy? Little more than that gender participation in the labor force responds to economic pressures, but the precise relationship between class and gender activities is not predictable in terms of an economic formula divorced from cultural constrictions. When Zambian men received cash in compensation for lands that were flooded in the Kariba Dam project (66), we could not predict that they would spend it competing for wives unless we knew that polygynous marriage was the preferred way of mobilizing more labor. Maya women in Belice did not work in cane fields on government allotments just as they had not worked in corn fields regardless of family wealth even though it meant that poorer families became proletarianized. Nor would we possibly make sense of why Mauritanian mothers continue to forcefeed their daughters in preparation for marriage when men are migrating to find work in other countries and the divorce rates continue to rise and along with it the likelihood that these women, who are incapable of working, will become dependent on the family of orientation (1). To say that the family does it for the cash benefits of the bridal payments is reductionist.

These cultural variables inform the decisions made by people but do not determine the outcome any more effectively than economic variables. They may even be the crystallization of ideologies related to pre-existing economic systems. They are, nonetheless, important considerations in family decision-making affecting realms beyond the domestic. We have only to turn to the different forms taken by British and Dutch colonization to show the importance of indigenous cultural and social variations of both the colonizer and the colonized in transculturation.

The "civilizing mission" of the British (12, 31) was to turn men into cash crop producers with women carrying out subsistence production, a solution that followed culturally defined roles in many areas where the women were chief farmers in hoe cultivation. When the women were threatened with a head tax in Nigeria that would have forced them into cash production along with the men, they protested vociferously with the "Aba Riots" (54). The Dutch introduced cash cropping in Indonesia through the "culture system," in which farm families expanded and retracted their own cultivation in relation to the demand for labor in cash crops, intensifying their labor input in their own fields when labor was underutilized in commercial agriculture, and using less intensive methods when they worked on the plantations. This was less disrupting to indigenous patterns than the British system, and both systems continued to influence post-colonial adaptations (34, 69).

So we can see that the colonizing agent in the capitalist penetration of Africa and Asia exploited existing cultural patterns in the division of labor by sex in such a way as to intensify them rather than subverting them. In the present state of capitalist penetration in agro-industry and manufacturing, it may undermine existing gender divisions of labor, or it may underwrite them; the outcome depends on the level of resistance on the part of the receiving group, as well as perceptions on the part of the dominant group as to their advantage. The myriad ways in which households expend their energies underline the importance of multiple strategies to maintain life (82). Rosenberg and Jean (59) point to a Sri Lanka household with thirteen members that had seven sources of income: (1) operation of 0.4 acres of paddy by an adult, (2) casual labor and road construction by head and eldest son, (3) work in a rubber sheet factory by second son, (4) toddy-tapping and jaggery-making by head and his wife, (5) seasonal migration to dry zone by wife as agricultural labor--also eldest son and daughter, (6) mat-weaving by wife and daughter, and (7) carpentry and masonry work by head and eldest son. In these multiple, coexisting production strategies, people move from "traditional" to "modern," from "subsistence" to "capitalist" modes of production in ways that defy doctrinaire analyses.

I shall now turn to some of the specific cases of household adjustment to change, dwelling on the interplay between cultural and social structural features in development and change in order to assess the "historical logic" (73) in the behavior. The aim is not to construct a model of household economic behavior nor to infer a priori determinants of the behavior of its members, but rather to see it as an arena in which people respond to some of the basic forces shaping their lives. Recognizing that households are, as Yanagisake (84) says, "inherently complex, multifunctional institutions imbued with a diverse array of cultural principles," we cannot expect their functions to be any less diverse.

Case Studies in Household Strategies in Coping with Development

When we take as a starting point in constructing a model of household behavior the cultural, social, legal, and political conditions that affect access to the means of production--land, water, technology, animal power, and

scientific knowledge--the otherwise paradoxical behavior of rural households becomes understandable. Forced to sell when the prices for the commodities they produce are lowest, to rent or sell their land when harvests increase in value, they are often branded as uneconomic production units. Seen from their own perspective, their multiple coexisting strategies are ways of avoiding proletarianization and the loss of whatever remaining autonomy in decision-making they control. I shall examine concrete cases that illuminate the process of adaptation to cash crops and large-scale development projects and the often unforeseen consequences of the strategies that rural households employ. The contribution anthropologists make with their studies is not a refinement of the models nor a search for "key variables," as Cancian (16) indicates, but is an emphasis on the complexity of the variables and the necessity for viewing them holistically. The importance of this holistic perspective is that it enables us to appreciate the dialectical interaction of these variables. In each case, I shall consider the following variables: (1) changes in the composition of the household--household head, reproductive rates, plural marriages, generational expansion or contraction; (2) changes in the division of labor within the household between males and females, parents and children, and extended generations; and (3) migration of members of the family and the impact of this on other members of the household. Cultural preferences must be taken into consideration along with the structural factors that condition the choices made by households in response to the penetration of capitalist ventures.

The cases below are grouped according to the technical innovation.

I. The Adoption of Cash Crops and Mechanization

A. A Sugar Refinery in British Honduras

The government of Belice purchased land from a sugar refinery to promote sugar cane production, distributing twenty-acre plots to families who promised to plant cane, a relatively permanent crop. Credit was advanced for planting the crop to those families which had the "capacity to deliver" a harvest, but it was left up to the cultivator to find credit for fertilizer and insecticides. Since women rarely work in the fields in subsistence cultivation by the Maya indigenous population, the amount of available labor depended on the number of male family members who are productively active. Henderson (38:146) comments that, "Unless a man has a substantial pool of free labor available to him, he is unable simultaneously to maintain his former level of milpa-production and expand his cane holdings to the point where profit from the latter, at present price levels, will meet his family's cash needs." Since cane cutting occurs at the same time as clearing bush for milpa, subsistence activities suffer and the family is forced to buy basic needs in the store. These purchases require cash, so smaller producers must work in the sugar refinery.

As a result of the shift to production of cane, the income of a few families favored with a high number of active males rose, in some cases from US $1,000 to $13,000. Stravakis and Marshall (70:11) found that this income

was spent on the purchase of trucks and tractors. Food, however, was in short supply. The production women carried out in raising animals such as poultry and pigs in their back yards, cultivating fruits, nuts, seeds, herbs, greens, tubers, and other products was neglected. The men put less effort into cultivating the milpa or other crops for home consumption such as beans, cassava, tomatoes, and squash as they devoted their energies to sugar cane.

A survey of food and nutrition in 1973 and again in 1974 showed that many families were buying canned food. Women had lost control of the food distribution and the complementary network of social relations cultivated along with it in the exchange of truck crops. As a result, Stravakis and Marshall reported that all the men continued to eat well; but when food was scarce, the women and children went without. A high increasing consumption of alcohol by men aggravated the problem in the domestic setting and in the community.

Large-scale cane production involved risk factors and peak demands for labor that were difficult for the small farmer to absorb. The old complementarity of men and women in food production, of their regulated inputs of available labor on different crops or hunting and gathering supplements was lost. The result, according to Jones (41) and Henderson (38), was the increasing wealth differences, the proletarianization of many, and the loss of valuable subsistence products.[3]

B. Navajo Wage Work

Changes in the economy that increase the dependency of women on men by the replacement of subsistence activities simultaneously aggravate the dependency relations in the wider society. This can be seen in the Navajo case. In the first major government effort to improve the economic welfare of Navajos in 1933, land was surveyed for irrigation and tracts of ten acres were assigned to men as heads of household, although women were important owners of land and worked in subsistence farming (35). The men also had access to wage work for the government in the construction of projects such as schools, hospitals, and dams or in lumbering, road work, oil drilling, mining, and military installations. With men away from home much of the time, women could not maintain the farms and they often had to give up their land. The decline of sheep herding which was in the charge of women owners of sheep also brought about a decline in weaving, an important source of cash for women.

Laila Shukry Hamamsy (35) reviewed the effects of a half century of the penetration of a cash economy on Navajo households in Fruitland. She observed a tendency away from matrilocality as women lost their focal position in the economy. She summarizes the position of women as follows: "Three aspects of the woman's role that have been adversely affected by the recent social and economic changes there--her economic position, the significance of her function within the family, and her sense of security and bargaining position in the family" (35:87). The poorest people in Fruitland were the middle-aged and old women with no male providers, once the most prestigious persons in traditional society.

The result of these structural changes forcing women to become dependent on male providers was endemic conflict between the sexes and between generations. Drinking exacerbated the competition for low income as the many needs of the family for cash were frustrated.

C. Mechanization in a Japanese Village

Mitsuru Shimpo (68) studied three decades in Shwa, Japan to assess the impact of rapid mechanization in the period 1955-60 on households. Expenditures on farm machines increased tenfold along with three times as much expenditure on pesticides and fertilizers. Correlated with this was a tenfold increase in expenditures on consumer goods.

Both men and women worked together using the new technology; but while men operated the machine, women did the bundling and feeding of the thresher and rice huller. The growing opportunities for men in urban industries caused a disproportionate migration of men. Whereas in 1950 52 percent of the farming population were women, in 1973 60 percent were women. Alert to the changing composition of the work force, a TV commercial showed an old man operating a small tractor. The young wife of his household runs over to do the job, saying, "Grandpa, I will do the job!" "No, I can do it with this machine!" he asserts. Along the road, waiting in line to try the machine, are twenty young men (68:51).

Shimpo studied the effect of the land reform and technological exchange on intermediate kin and community structures. The authority of the main household (honke) over the branch households (bunke) which were linked in the set called the dozoku was undermined and with it the power and authority of old wife over young wife. Commercial fertilizers were required as there was no longer dung from draft animals, which had been replaced by tractors. The branch household gained autonomy since it no longer had to apply to the head household for manure. The cooperatives gained power through the sale of tractors and the administration of fertilizers as well as the management of labor exchange. Some women became agents of the cooperative, a role which undercut local merchants.

As farm operations became distinct bases for commodity exchanges, household members began to accept responsibility for particular crops and jobs with clearly evaluated contributions from each member of the household. Shimpo (68) recounted the dismay of one household head who discovered that his wife's sale of her crop of one kilogram of mushrooms for 400 yen equaled that of his sale of 18 kilograms of apples. That night he drank a lot of sake and the following day he emigrated in search of seasonal employment to demonstrate that he could bring home more cash income than his wife could.

An even more dramatic story is the personal account of a young wife whose husband died in the war and who supported her four-year old son and in-laws. She lost the land which she had rented in the 1948 land reform, and the following year she lost all of her crop in the income tax. The cooperative agent advised her to keep accounts. In 1952 a dam was completed allowing her

to convert an apple orchard into paddy. Twelve years later she rebuilt the house in which she lived with her in-laws, along with a warehouse; and in 1970 she bought a transplanter. It was only after these successes, well documented in her accounts, that she could ignore the criticism of her in-laws.

Shimpo (68:90) concludes that while working teams still are based on seniority and sex, formal training and knowledge have changed traditional order. By 1968 women headed 94 of the 701 households. Since they are the continuous members of the cooperative, they have become the effective change agents. Their major problem is to find wives for heirs, since the opportunities for young women to make money has made it more difficult to find wives. While the favorite pastime in the past was to criticize young wives, their status had somewhat improved. The new pastime was viewing television.

II. Large-scale Development Projects

A. The Nemow Dam Project

When the government distributed land after building the Nemow dam, women-headed households received no land at all. Ingrid Palmer (52) describes their plight as the village residents' Association confirmed and strengthened existing patriarchy. Women who lived in households which acquired land are fully employed in weeding the fields plowed by men, and more prosperous households improved their lot while that of the landless declined. Women in the former fishing villages which were displaced by the dam complained that their diet was worse, but the majority were reported by Palmer (52) to have benefited from the changes. Women devote a good deal of attention to the subsistence plots where they grow beans, green vegetables, and lentils as well as maize. Nutrition has, in addition, been enhanced by the extension workers training women to preserve food. Nevertheless, the system of land allocation and the institutional emphasis on maximizing marketable surpluses weakened women's control over family's labor and income. Exclusively male membership of the Farmers Association negated women's legal entitlement to land and cut them off from direct access to credit, extension services, marketing, and returns to their own labor. The subsistence plots they worked were granted only in the form of a loan by the government, while the rice plots given to men could be inherited by their children. As a consequence, women were less interested in working on rice.

Palmer summarizes the net effect of the tradeoff between women's interests and development goals as a resentment on the part of women which lowered their support of and involvement in development goals. This provides one of the more clear-cut cases where the opportunity costs for patriarchy are measurable in reduced inputs by women.

B. The Kariba Dam Project

When the Zambian government gave compensation for lands flooded by the dam on a per capita basis to men for the whole family, including polygamists with numerous progeny, there were unforeseen consequences. Men held the

title to land in this patrilineal society. If the compensation had been paid to them for their land, Scudder and Colson (66) indicate, then the dam might have simply reinforced patriarchy. As it was, the women felt that the men owed them more than the English pound given to each woman and child above toddler's age, particularly since it was women's work to clear and prepare the land for planting.

The immediate effect of the new streams of wealth was to inflate bride-wealth. The reason may have seemed somewhat remote to developers, but it was immediately connected with the need for workers in the new cultivation areas, and the principal way that men of this tribe had to mobilize labor was to marry. Scudder and Colson (66:53) note that the enormous demand for labor immediately after the move from the dam area led men "to make major demands upon their dependents, especially upon their wives and adolescent sons, who were needed in clearing, building, herding, and plowing." Who, indeed, is the dependent if women had to work harder cultivating the new soils, hoeing more acreage, and brewing more beer for the more frequent ceremonies of marriage?

As a consequence of the move, men were thought to have accumulated debt to their wives and children which they had no way to repay. Furthermore, their dependence on the labor of wives was of considerable importance in making a profit from the cash crop of cotton. Scudder and Colson's (66:63) comparison of the earnings of a farmer with three wives who provided the only source of labor in picking the crop and who earned 27 pounds per acre with a farmer who had only one wife and hired labor who earned 16 pounds per acre shows the clear advantage of polygynous families in such a society.[4]

III. Craft Production and Industrialization

A. Road Construction and Its Effect on Rural Crafts in Amatenango del Valle, Chiapas, Mexico

For the most part, as Ruth B. Dixon states (27), rural women's craft production is easily displaced by factory production of cheap manufactured goods. Even those changes not directly connected with their craft, such as roads and electrification, threaten their trade. An exception to this generalization is that of Maya women in Amatenango del Valle in Chiapas, Mexico, who carried out the production of pottery, principally pots for carrying water (46). Pottery was able to compete with manufactured substitutes, even after the construction of the Pan American highway that ran through the township, for a variety of reasons related both to government policy and the fact that there were no capital costs for tools or raw materials. Clay could be mined within the boundaries of the township at no cost except for the labor input. The women potters did not use a wheel or enclosed oven; their coiled pots were turned on a sanded board; and they fired the pottery in the streets, banking up the burning embers with boards after the initial firing to provide an oven-like enclosure for the final stages of firing. The only cost was transportation to the markets, which was fairly inexpensive (about one-tenth of the proceeds of a pot) and which the

men enjoyed as an outing. More importantly, since the women traditionally did not work in the milpa except at the time of harvesting, as those Maya women of Belice discussed above, they did not have any "opportunity costs" to consider in alternative employment. They worked the pottery in with child-care, the tending of truck gardens in their patios and feeding small animals and poultry. The cash was important since it came in inter-harvest periods and, in cases of households headed by women, it was the principle source of cash income.

The quantity of pottery produced in each family is directly correlated with the number of women producers in the family. In the case of young, nuclear families, particularly when there was a child under two years of age, pottery is produced only sporadically if at all and usually in the weeks immediately preceding the fiesta of the patron saint when cash needs are high. Production is indirectly correlated with the number of productive males in the family. Single women living alone or with their children are the most productive potters since they rely on proceeds for most of their cash needs. The only cash crop grown in addition to the milpa is wheat, a crop that was clearly uneconomic for households that had to employ most of the labor. In households with several productive boys and men, there was very little production of pottery since the household usually extended its production of both corn and wheat, and women were involved in the cooking and nutrition of the men, bringing them lunches to the fields and entering themselves to help in the harvest period. The average pottery producing household earned from ten to fifteen percent of what a man working on the average holding of four acres could make.

Women-headed households which produced all of the family income could earn at least one-half of what a man could gain from the average holding. In such families if there were sons 15 years of age or older, they could farm the ejido, communally owned plots every household was allotted. The income and available subsistence resources of women-headed households were nearly equal to that of the male-headed households, and they did not have the problem of alcohol expenditures which drained a great deal of the resources of the latter.

In the last field session that I spent in Amatenango in 1967, the Instituto Nacional Indigena, which had carried out medical and marketing projects in the town for a decade, began to take an interest in the craft production. Their attempt to introduce kilns to save wood used in open hearth firing was unsuccessful because they did not assign a trained technician to work with the women and teach them how to use the ovens. The women did try; but when the initial attempts failed, they rejected the new method.

The effect of the Pan American highway was to change the marketing procedures which men were doing. Formerly, men had brought loads of six to eight dozen pots and assorted items on horseback to dispersed hamlets and townships throughout the mountainous areas, selling directly to buyers. Once the road was constructed and bus routes connected Amatenango with the departmental and state capitals, pots were loaded on the roof and carried to

the larger markets. There they were sold to intermediaries. The large influx of pottery during fiesta preparations brought very low returns because of the greater competition in the markets. Indians purchased their first cooperatively owned truck in 1964 when I was working in the town. This increased wealth differences, stimulated envy and competition, and eventually led to the death of at least two of the cooperative members.

The highway made Amatenango more participant in the tourist circuit in Chiapas and provided a new market for the pottery. The Instituto Nacional Indigenista assisted the townspeople in marketing the product in attractive tourist shops. The few tourists who had visited the town when I was living there used to buy pottery, particularly small items made by novice potters such as toy animals or small replicas of the utilitarian ware turned out by mature potters. When tourists offered to buy larger pots, they were often charged double the price given by middlemen. This was based on the premise that the buyer must have really been desperate to get a pot if they came all the way out of the village.

When I returned to visit the women in 1982, young women whom I had known in the period 1963-67 had, in some cases, become entrepreneurs in a thriving business linked through government and private agencies to a developed tourist market. They contracted out work to household members and provided the warehouse and the market contacts for other women in the community. So far as I could gather, women did not suffer the fate of male entrepreneurs two decades before.

B. Government-promoted Industry in a Rural Farm Area in Mexico

San Cosme Mazatecocho was a rural community of small plot peasant cultivators up to 1950 (60). A few men commuted to the nearby city of Puebla or to Mexico City to work in the textile factories. By 1970 the proportion of factory workers, most of whom worked outside of town, had more than doubled, reaching 27 percent, and by 1980, 60 percent of the economically active males over 12 years of age worked in factories, some of which were owned by multinational corporations.

In the transition from subsistence cultivation to dependence primarily on factory work, two major changes came about in the family. Married women, who had been active participants in all phases of subsistence farming, became dependent on male wage-earners (60). Households became child-centered and a great deal of the family earnings were devoted to the education of children. Some young women were able to find work in a garment factory opened in the area, but they were generally let go when they married or became pregnant, and most of the workers were very young (61).

The emphasis on education was based on the factory worker families' conviction that this would provide mobility for their children. Since they hated the monotony of their work and realized that there was little change of advancement, the family devoted their energy and resources to finding an escape for the children. Education, however, was not a guarantee of improved

social and economic position since each rise in the proportions of school children in secondary schools and advanced education was accompanied by an increase in the educational requirements for entry into preferred occupations.

Children became a full time "labor-intensive" occupation for mothers as they were cut off from productive tasks in the field. The children, age-segregated in schools for much of the day and later completely segregated in boarding schools as they went on to higher education, were no longer a potential source of labor in the household. Even when the families of factory workers held on to their subsistence plots, they preferred to hire workers to work the soil. Sex segregation was sharpened along with age segregation. Preference for male children--a preference based on the expectation that they will be the chief breadwinner in the family--means that they are the most likely candidates for going on to a higher education. As a result, Rothstein (60) concludes that childhood is a costly preparation in terms of foregone labor, school fees, demands for clothing, transportation, and so on. The entry of children into adulthood is delayed and because of the forced segregation from the adult world in their extended preparation to enter it, they often become alienated from the parents who sacrificed their own goals to make it possible. Children are not expected to, nor do they usually, provide social security for aging parents.

The attempt by workers to gain control over their own future by promoting the mobility of their children is somewhat illusory. While it does provide limited access to higher positions for a few, it does not ensure security to the parents who provided it. Furthermore, the ever-higher entry qualifications into preferred occupations negates the attempts by the mass of proletarians to gain mobility for the class as the favored few are cut off from leadership in a political field.[5]

IV. Capitalist Development Through Forced Migration

A. Bantustan Policy of Separate Development

The Bantustan policy of separate development, as Barbara Rogers (57:40) shows, is a separation not so much between black and white as between families and communities. If one were to imagine an extreme case of alienation in capitalist development, it would probably not even come near to the reality of contemporary South African society. Production is so cut off from "use values" that it no longer relates to human needs. The reproduction of the social system is so constricted within the system of Apartheid that it is a miracle that human reproduction can take place at all. In her book summarizing the effects of Apartheid, Rogers (58:31) gives us a glimpse of what the system means in practice:

> In practice, the mother of a family is forced to work full time, at rates considerably lower than those even for African men. Her efforts will help, but most probably will not bring the total family income up to the basic minimum level. In many cases she

> will be the sole wage-earner. The result is an acute impoverishment of the children's environment, deprived of any parental care or educational stimulus, and going all day without food, since many hours of the day will be wasted by the parents in commuting to and from the township.
>
> If urban African families are split up and living below any acceptable income level, the situation is worse for Africans in rural areas. African farm laborers surveyed in Natal were described as living in 'incredible poverty'; the report, in a Durban newspaper, described them as the most exploited and powerless people in the country. The whole family, including the children, work six months a year for little or no payment at all. They have no rights and are exposed to beatings by employers or immediate eviction to settlement.

When mineowners go to the "homelands" to recruit blacks, they eliminate competition among themselves to keep wages below even the South African average (58:48). By maintaining the fiction that the migrant workers are residents and citizens of the homeland, Rogers points out (57:50) they can be deprived of any permanent status in their workplace:

> It destroys the family unit by physically removing the father, or other primary wage-earner, from it in the struggle for subsistence. . . . The result, in destroying the culture and social well-being of entire communities, is not unlike that of slavery in that marriage, family, social and cultural mores were ignored there, also, in the effort of whites to split up and disintegrate families and cultures for their own profit and convenience.

The correlates of Apartheid are bigamy and illegitimacy and the evasion of all kinship obligations. It promotes commodity fetishism among men segregated from their families. At the same time, children and women are under-nourished. Rogers' indictment cannot be matched by paraphrasing, so I shall continue quoting verbatim:

> For every single African wage-earner--to whom an employer can point as an example to 'progress' since he has income to spend on consumer goods--there will be a whole extended family, including the very old and very young, which is desperate for the income he left home to earn--and on the verge of starvation.

The preference for male black laborers to migrate without women results from the fear that the presence of women and families will provide a more secure base for blacks in the sectors that whites claim. Even in rural areas, the old tenancy systems are being abolished to avoid any future claims.

Some claim that the Apartheid system is a product of the agricultural past that will be overcome by industrialization. Rogers (57:66) denies this, demonstrating how the fragmentation of jobs employs a low-paid work force segregated by race.

B. Dependent Development in Lesotho

Like a Bantustan, Lesotho is a labor reserve society providing workers for South African enterprises. Over 60 percent of the male labor force migrated to South Africa in the sixties. This migration has increased about 5,000 per year up to the present when it is judged to be about 80 percent of the male active labor force. Strom (71:23) estimates that 80 percent of all income in households was derived from non-farm labor--59 percent of which was from wage employment in South Africa and 21 percent from commodity production, service, and mining diamonds in Lesotho. The remaining 20 percent of family income was from farm lands which women worked. Since 1963 when Lesotho was established, there has been an increasing negative balance of trade between the export of unprocessed wool and mohair, livestock and diamonds, and the import of food and manufactured goods.

Many of the individually licensed miners operating within Lesotho are women. Their technology, in contrast to the heavily capitalized Johannesberg mines, is, according to Strom (71:132), "well adapted to the conditions prevailing in the area," i.e., pickaxes, spades, and water hoses. The large mine companies which attempted to enter the field failed since they were not prepared to engage in the labor-intensive prospecting that yields the highest returns in the uncertain diamond fields. Despite the claims of national miners, the government sold their shares to foreign companies in 1978. The miners staged a demonstration and the army fired on them, killing over 500 women and men (58). Local leaders have taken over the responsibility for repression from the colonial government as they cooperate with foreign investors to transfer the resources of the Basotho abroad.

The "gold widows" of Lesotho have found another outlet for employment in the service occupations of the tourist sector. The Holiday Inn Hotel, opened in Maseru in 1970, added a casino which increased the tourist flow that surpassed 100,000 in 1972 (71). In an economy distorted by dependency on foreign products and investments, high risks and low margins in mining, every human social relationship is mediated through the cash nexus as gambling, prostitution, and pandering to tourists provide the main sources of revenue in the uneven exchange that goes on with the outside world.

Despite their impoverishment, women have a degree of autonomy because of their subsistence production in agriculture where they constitute 75 percent of the labor force. Women are the more active participants in village cooperatives and are members of garden committees (45:165). The mutual dependency of men and women is one in which men's pay goes for modernizing the house and educating the children, but women provide a basis for retirement when men are too sick or old to work in the mines. Their interdependence as wives working in the cooperatives and on the lands does not, according to

Mueller (45:165), result in much cooperation since they are competitors for the resources men provide. Laura Ngobo (49:13) sums up the contradictions faced by African women under apartheid:

> When men have been severely oppressed, women have risen and become dominant; this in turn has further emasculated our men and made them even more reckless in their treatment of women in general. In different parts of the world today, women are demanding equal recognition with men in all walks of life and rejecting the home-centered life; our women are denied even that. With their men in the cities, our women can't even boast of caring for houses, for they stand straddled between father and children forever trying to create a kind of a family unity.

She concludes that, since men are powerless to yield any rights, women must join them in the fight for liberation.

Conclusions

The persistence of small plot household production in agriculture in many areas is proof of its flexibility in response to the changing needs of both the internal and external economy. Expanding commodity production in response to needs for cash, family labor, and market opportunities can also intensify efforts of its members in agricultural output. It is the ultimate unit of production, resisting the encroachment of the capitalist mode of production. At the same time, it hastens its own demise by subsidizing the costs of capitalist development.

Reviewing the case studies in relation to variations in household strategy, I shall summarize the changes in composition of the household division of labor among members and recourse to migration in relation to a series of propositions about the household economy in response to technological change and development.

A holistic view of development requires that we take into account the following propositions.

1. The penetration of cash crop cultivation may be costly when the total potential of the family is not taken into account.

In the case of Belice sugar cane production, Maya farmers prospered only insofar as they controlled sufficient manpower in the family. Lacking alternative forms of labor mobilization within the family, since there was a cultural preference for women not to work in the milpa, the result was polarization of wealth groups. The loss of subsistence activities, both by men in milpa cultivation and hunting and by women in truck gardens, reinforced the dependency of the women on men and of the household on the cash economy. The Navajo case parallels that of Belice and points up the importance of women's subsistence activities that are often ignored until their loss makes them recognized. Women's diversified economic activities in

herding sheep, weaving, and raising truck crops were undermined with the government stimulus to cash crops and irrigation as well as large-scale construction projects hiring men. The growing dependency of the household on wages and the government was reinforced with the increasing dependency of women on male wage-earners.

2. Technology is a two-edged sword, which may reinforce an existing hierarchy of relations or diffuse the gains of development, depending on who introduces it, who uses it, and who benefits from the increased production.

Of the many cases cited in section 1 of technology reinforcing wealth or patriarchy, an unusually successful case of mechanization and commercialization of agriculture is that of Shimbo, Japan. The case dramatizes the importance of linking the design and manufacture of technology in relation to the needs of its users. The light, small, and relatively inexpensive tractors introduced into the small plot farming villages and targeted in the sales appeal to the old men and young wives who would be their most likely users was an important asset in the post-war development of Japan's economy. The integration of at least a few women into the cooperative as managers enlisted their help in the transition from a patriarchal management of extended households to one in which women had more say and higher rewards from their own productivity. This was crucial in the industrialization of post-war Japan as men left the farms to take advantage of the more lucrative jobs in industry. The success of this case seems contingent on having an expanding industrial sector that absorbed young male workers from the rural areas and indirectly fostered greater autonomy for the women.

3. The opportunity costs for maintaining patriarchy are high if one accounts for withdrawal of support by women when they are not compensated.

Large-scale development projects such as the Nemow and Kariba dam developments ignored pre-existing social arrangements and negated the support of women in the project. Ignoring the separate accounting systems that the Gwembe Tonga were accustomed to practice, the project agents compensated men for the work done by women in the new lands brought under cultivation. The expenditure of funds men received in relation to the size of the household was channeled into brideprice to secure the labor of additional wives. Added to the fact that women were not compensated directly for the cash crops they grew, their increasing resentment undoubtedly cut down their productivity. This contrasts with the polygamous Cameroon case where women, as managers of the household economy, promoted the additional polygynous marriages to secure helpers on their husband's lands.

4. The enforced migration in separatist policies of development indicates the destructive potential of capitalist penetration where the social reproduction of use values is not just ignored, but deliberately subverted as the economy is devoted to production for exchange and profit.

The extreme cases of Bantustan and Lesotho reveal the destructive capacities of capitalist penetration when the resistance of family and community is totally subverted. South African families are split up in the process of production as men are forced to work for months and even years apart from their "homeland." The awareness on the part of the controlling white interests that households provide a basis for resistance to domination and authoritarian control should instruct us as to the importance of this final core of resistance.

5. The impact of wage labor in industry on reproductive strategies is indirect and reflects the stage of capitalist development, alternative employment for women, and the demand for highly skilled, educated workers.

The rising costs for children reflect both the educational costs borne by families and the opportunity costs for women not joining an industrial work force when jobs become available. The hidden costs of social reproduction in agricultural economies become more explicit when women's wage labor in a factory competes with household responsibilities (60, 61, 63). Although full socialization of the costs of social reproduction has never been attempted, the governments of those countries in the socialized countries and Sweden reveal the high cost of services hidden in the private oppression of women (23, 24, 42).

These propositions are drawn from a holistic view of development projects that addresses the issues of social reproduction. The case studies reviewed reveal the potentially harmful effects of the penetration of capitalist enterprises when women's productive potential is ignored or undermined. The rising indices of infant mortality, hunger, and impoverishment in those countries, such as Brazil and South Africa, that have experienced high rates of development confirm the destructive tendencies of capitalist production concerned only with profit. Some attention is now being directed toward development projects that will promote social reproduction. Unless such projects are rapidly implemented, there may be no need for them since the dislocation of families and the rising mortality of infants are destroying the basis for their success.

NOTES

I owe thanks to Professors Eltereich and Weil of the University of Delaware who provided many useful suggestions in the preparation of the paper for their Proceedings of the Conference on Technological Change and Rural Development in 1982.

1. Studies of regional and national imbalances that have had widespread influence in changing assumptions about the development process include Amin (7), Barkin (9), Cardoso and Faletti (17), Frank (33) and dos Santos (28). A recent review article published in CEPAL (18) documents the persistent growth of inequity stimulated by export-oriented production in Latin America in the seventies and up to the present.

2. See also the Economic Commission for Africa (3) which stressed this point.

3. The Belice case illustrates the more frequently encountered example of men enlisted as producers in cash crop economy. Opposition by men to forced cash crop production can be seen in the case of Mozambique in the 1940s under Portuguese rule. Isaacman (40) recounts the opposition by women to cotton production required by President Salazar. Men joined the women who resisted the cash crop because of the resulting food scarcities when land and labor was diverted to cotton. Their resistance, in contrast to the capitulation of Belice cane growers, was related to the very low rates of return on cotton sold to Portugal at below market prices. Both men and women cooked the cotton seed to discourage growth and convince the colonizers that the lands would not grow the crop. They burned fields and sabotaged the movement of the crop to market. These concerted actions by men and women show the awareness on the part of people confronted with the threat of food shortages that life itself was threatened. This awareness was expressed in their phrase "Cotton is the mother of Scarcity," which became the title of Isaacman's article. When one gender, usually the male, benefits from increased cash flows, this basic solidarity of the domestic unit can be broken. Even in Mozambique, many of the men resorted to flight across national borders, reflecting their greater mobility and employment opportunities, while women, "with stronger ties to their children and greater responsibility for feeding their families were undoubtedly more reluctant to abandon their homelands except as part of a larger group" (40).

4. The assumption underlying Scudder and Colson's work is that men are the managers of these polygynous households. A somewhat different functioning of polygynous families is described by Weekes-Vagliani (81) in Cameroon. There one-third of the households are made up of extended families with each wife living on her allotment under the overall administration of the husband. Women cultivate crops for themselves and their children. Men act as middlemen between the family and the purchaser, and, as a result, they are often considered to be the economic head of

the family by the outside world. According to Weekes-Vagliani (81:17), however, it is actually the first two wives who actually manage the cultivation of crops and who arrange subsequent marriages in the desire to gain more workers.

5. Helen Safa's paper (63) comparing Brazilian and New Jersey factory workers indicates the complexity of factors entering into decisions on family size and reproductive strategies. She relates the decrease in size of families in the case of New Jersey garment workers to a later stage of industrialization where there is a sharp reduction in the demand for unskilled workers and an increasing demand for skilled workers combined with educational opportunities for the masses. Some of these same conditions are seen in the Mexican case.

REFERENCES

1 Abeille, Barbara. 1979. A Study of Female Life in Mauritania. Washington, DC: USAID, Office of Women in Development.

2 Aguiar, Neuma. 1976. The Impact of Industrialization on Women's Work Roles in Northeast Brazil. In J. Nash and H. Safa (eds.) Sex and Class in Latin America. Brooklyn: J. F. Bergin Publishers, Inc. Pp. 110-128.

3. _____. forthcoming. Household, Community, National and Multinational Industrial Development. In J. Nash and M. P. Fernandez-Kelly (eds.) Women, Men, and the International Division of Labor. Albany: State University of New York Press.

4. Ahmad, Zubeida. 1980. Women at Work I. Geneva: International Labour Office. P. 8.

5. _____. 1980. "The Plight of Poor Women: Alternatives for Action." International Labour Review 119(4):425-438.

6. Ahmed, Iftikhar. 1980. "Employment and Development Department." Women at Work II. Geneva: International Labour Office.

7. Amin, Samir. 1974. Accumulation on a World Scale: A Critique of the Theory of Underdevelopment. New York: Monthly Review Press.

8. Aronoff, Joel and William D. Crano. 1978. "A Re-examination of the Cross-Cultural Principles of Task Segregation and Sex Role Differentiation in the Family." American Sociological Review 40(1):12-20.

9. Barkin, David. 1972. "A Case Study of the Beneficiaries of Regional Development." Regional Socio-Economic Development, International Social Development Review 4:84-94. New York: United Nations.

10. Beneria, Lourdes and Gita Sen. 1981. "Accumulation, Reproduction, and Women's Role in Economic Development: Boserup Revisited." Signs: Journal of Women in Culture and Society VII(2):279-298.

11. Bennett, John W. 1969. Northern Plainsmen: Adaptive Strategy and Agrarian Life. Chicago: Aldine Publishing Company.

12. Bernstein, Henry. 1979. "African Peasantries: A Theoretical Framework." Journal of Peasant Studies 6(4):421-443.

13. Billings, Martin and Arjan Singn. 1970. "Mechanization and the Wheat Revolution: Effect on Female Labour in Punjab." Economic and Political Weekly (Dec.):169-172.

14. Bossen, Laurel. 1979. Women in Modernizing Societies. In S. W. Tiffany (ed.) Women and Society: An Anthropological Reader. Montreal: Eden Press Women's Publications. Pp. 93-119.

15. Buvinic, Mayra and Nadia H. Youssef, with Barbara Von Elm. 1978. Women Headed Households: The Ignored Factor in Development Planning. Washington: USAID International Center for Research on Women.

16. Cancian, Frank. 1977. "Can Anthropologists Help Agrarian Systems?" Culture and Agriculture II:1-8.

17. Cardoso, Fernando and Enzo Faletti. 1971. Dependencia y desarrollo en America Latina. Mexico: Siglo XXI.

18. CEPAL Economic Projections Centre. 1981. "Problems and Orientations of Development." CEPAL Review 15(Dec.):47-70.

19. Cepede, Michel. 1971. The Family Farm: A Primary Unit of Rural Development in Developing Countries. In R. Weitz and Yehuda H. Landau (eds.) Rural Development in a Changing World. Cambridge, MA: The MIT Press. Pp. 236-251.

20. Chaney, Elsa. 1981. "Third World Women and International Migration." Paper read at the Annual Meeting of the American Political Science Association. New York, September 3.

21. Chaney, Elsa and Marianne C. Schmink. 1976. Women and Modernization: Access to Tools. In J. Nash and H. Safa (eds.) Sex and Class in Latin America. Brooklyn: J. F. Bergen Press. Pp. 160-182.

22. Chayanov, A. V. 1966. The Theory of Peasant Economy. D. Thorner, B. Kerblay, R. E. F. Smith (eds.). Homewood, IL.

23. Croll, Elizabeth. 1979. Women in World Development: The People's Republic of China. Geneva: ILO.

24. _____. 1981. "Women in Production and Reproduction in the Soviet Union, China, Cuba, and Tanzania: Socialist Development Experiences." Signs VI(2):361-374.

25. Deere, Carmen Diana. 1978. "The Differentiation of Peasantry and Family Structure: A Peruvian Case Study." Journal of Family History 3(4):422-438.

26. Deere, Carmen Diana, Jane Humphries, and Magdalena Leon de Leal. 1979. "Class and Historical Analysis for the Study of Women and Economic Change." Paper prepared for the Conference on the Role of Women and Demographic Change, Geneva, ILO.

27. Dixon, Ruth B. 1979. Jobs for Women in Rural Industry and Services. Washington, DC: Office of Women in Development, USAID.

28. dos Santos, Theotonio, Tomas Vasconi, Marcos Kaplan, and Helio Jaguaribe. 1969. La Crisis del Desarrollismo y la Nueva Dependencia. Lima: Instituto de Estudios Peruanos.

29. Doughty, Paul. 1972. Engineers and Energy in the Andes. In H. R. Bernard and P. J. Pelto (eds.) Technology and Social Change. New York: The Macmillan Co. Pp. 109-134.

30. Ducomim, Rosalie. 1980. "African Women Workers." Women at Work. Geneva: ILO. P. 9.

31. Economic Commission for Africa. 1973. The New International Economic Order: What Roles for Women? United Nations E/Cn. 14/ATRCW/77/WD 3 31 Aug.

32. Foster, George. 1965. "Peasant Society and the Image of the Limited Good." American Anthropologist 67:293-315.

33. Frank, Andrew Gunder. 1967. Capitalism and Underdevelopment in Latin America: Historical Studies of Chile and Brazil. New York: Monthy Review Press.

34. Geertz, Clifford. 1963. Agricultural Involution. Berkeley: University Press.

35. Hamamsy, Laila Shukry. 1979. The Role of Women in a Changing Navaho Society. In S. W. Tiffany (ed.) Women and Society. St. Albans, VT: Eden Press.

36. Hanger, Jane and Jon Morris. 1973. Women and the Household Economy. In Robert Chambers and Jon Morris (eds.) Ewea: An Irrigated Rice Settlement in Kenya. Ifo Institute fur Wirtschaftsforschung Africa Studien 83 Munchen Welforum.

37. Harrison, M. 1975. "Chayanov and the Economics of the Russian Peasantry." Journal of Peasant Studies 2(4):389-417.

38. Henderson, Peta M. 1972. A Sugar Usina in British Honduras. In H. R. Bernard and P. J. Pelto (eds.) Technology and Social Change. New York: The Macmillan Co. Pp. 136-163.

39. Hunt, Diana. 1979. "Chayanov's Model of Peasant Household Resource Allocation." Journal of Peasant Studies 6(3):247-299.

40. Isaacman, Allen, Michael Stephen, Yussuf Adam, Maria Joao Homen, Eugenio Macamo, and Augustinho Pillilao. n.d. "'Cotton is the Mother of Poverty': Peasant Resistance to Forced Cotton Production in Mozambique, 1938-1961." Manuscript, University of Eduardo Mondlane.

41. Jones, Grant D. 1969. "Los Caneros: Sociopolitical Aspects of the History of Agriculture in the Corozal Region of British Honduras." Ph.D. Dissertation, Brandeis University.

42. Karchev, Anatoli. 1973. "The Soviet Family: A Sociologist's Viewpoint." Soviet Life (March):27.

43. Mencher, Joan. 1974. "Conflicts and Contradictions in the 'Green Revolution': The Case of Tamilnadu." Economic and Political Weekly 9(6-8-9):309-323.

44. _____. 1978. "Why Grow More Food: An Analysis of Some of the Contradictions in Kerela." Economic and Political Weekly, Review of Agriculture Dec. 23-30:a98-a104.

45. Mueller, Martha. 1977. Women and Men, Power and Powerlessness in Lesotho. In Wellesley Editorial Committee Women in Development: The Complexities of Change. Chicago: University of Chicago Press. Pp. 154-166.

46. Nash, June. 1970. In the Eyes of the Ancestors: Belief and Behavior in a Maya Community. New Haven: Yale University Press.

47. _____. 1977. "Women in Development: Dependency and Exploitation." Development and Change 8:161-182.

48. _____. 1979. We Eat the Mines and the Mines Eat Us: Exploitation and Dependency in Bolivian Tin Mines. New York: Columbia University Press.

49. Ngobo, Laura. 1978. "On Liberation and Oppression." ISIS International Bulletin 9:708.

50. Noble, David. 1977. America by Design: Science, Technology and the Rise of Corporate Capitalism. New York: Alfred A. Knopf.

51. Pala, Achola. 1976. African Women in Rural Development: Research Trends and Priorities. Washington, DC: American Council on Education, Overseas Liaison Council Paper No. 12.

52. Palmer, Ingrid. 1979. The Nemow Case: Case Studies of the Impact of Large Scale Development Projects on Women: A Series for Planners. Working Paper No. 7. Washington, DC: USAID.

53. Park, Hyung Jong, et al. 1974. "Mother's Clubs and Family Planning Clubs in Korea." Quoted in Tinker n.d. Seoul: National University, School of Public Health.

54. Perham, Margaret. 1937. Native Administration in Nigeria. New York: Oxford University Press.

55. Perlman, Michael. 1979. Farming for Profit in a Hungry World: Capital and Crisis in Agriculture. New York: Universe Books.

56. Redfield, Robert. 1942. The Folk Culture of Yucatan. Chicago: University of Chicago Press.

57. Rogers, Barbara. 1973. South Africa: The 'Bantu Homelands'. London: Christian Union.

58. _____. 1976. White Wealtn and Black Poverty: American Investments in Southern Africa. Westport, CN: Greenwood Press.

59. Rosenberg, David A. and Jean G. 1978. Landless Peasants and Rural Poverty in Selected Asian Countries. Ithaca: Cornell University Rural Development Committee Monographs. P. 17. Quoted in Tinker n.d.

60. Rothstein, Frances. 1979. Two Different Worlds: Gender and Industrialization in Rural Mexico. In M. B. Lyons and F. Rothstein (eds.) New Directions in Political Economy: An Approach from Anthropology. Westport, CN: Greenwood Press. Pp. 249-266.

61. _____. 1980. "Capitalist Industrialization and the Increasing Costs of Children." Paper read at the 1980 Annual Meeting of the American Anthropological Association.

62. Rubbo, Anna. 1975. The Spread of Capitalism in Rural Colombia: Effects on Poor Women. In R. Rapp Reiter (ed.) Toward an Anthropology of Women. New York: Monthly Review Press. Pp. 333-357.

63. Safa, Helen. Forthcoming. Women, Production and Reproduction in Industrial Capitalism: A Comparison of Brazilian and U. S. Factory Workers. In J. Nash and M. P. Fernandez-Kelly (eds.) Women, Men, and the International Division of Labor. Albany, NY: SUNY Press.

64. Schultz, Theodore W. 1964. Transforming Traditional Agriculture. New Haven: Yale University Press.

65. Scrimshaw, Nevin S. and Lance Taylor. 1980. "Food." Scientific American 243(3):78-88.

66. Scudder, Thayer and Elizabeth F. Colson. 1972. The Kariba Dam Project: Resettlement and Local Initiative. In H. R. Bernard and P. J. Pelto (eds.) Technology and Social Change. New York: Macmillan Co. Pp. 39-69.

67. Sheehan, Glen and Guy Standing. 1978. "A Note on Economic Activity of Women in Nigeria." Pakistan Development Review 17:253-261.

68. Shimpo, Mitsuru. 1976. Three Decades in Shwa: Economic Development and Social Change in a Japanese Farming Community. Vancouver: University of British Columbia Press.

69. Stoler, Ann. 1977. Class Structure and Female Autonomy in Rural Java. In Wellesley Editorial Committee Women and National Development: The Complexities of Change. Chicago: University of Chicago Press. Pp. 74-92.

70. Stravakis, Olga and Marion Louise Marshall. 1979. "Women, Agriculture and Development in the Maya Lowlands: Profit or Progress." ISIS International Report 11(Spring):10-13.

71. Strom, Gabriele Winai. 1978. Development and Dependence in Lesotho, the Enclave of South Africa. Stockholm: Libwr Tryck.

72. Tax, Sol. 1950. Penny Capitalism. Washington, DC: Smithsonian Institute.

73. Thompson, E. P. 1978. The Poverty of Theory and Other Essays. New York: Monthly Review Press.

74. Tinker, Irene. n.d. "New Technologies for Food Chain Activities: The Imperatives for Equity for Women." Washington, DC: WID Resource Center, USAID.

75. Tinker, Irene and Michele Bo Bramsen. 1976. Women and World Development. Washington, DC: American Association for the Advancement of Science, Overseas Development Council.

76. United Nations Food and Agricultural Organization. 1979. "The Struggle for Security." Ms. May.

77. United Nations General Assembly. 1978. "Technological Change and its Impact on Women." Minutes, 26 October. A/33/238.

78. United Nations. 1980. "Women in Rural Areas." World Conference of the United Nations Decade for Women: Equality, Development and Peace. A/Conf/94/28.

79. United States Agency for International Development (USAID). 1980. Women and Technology. Washington, DC: USAID Office of Women in Development, Report to the Committee on Foreign Relations, U. S. Senate and Committee on Foreign Affairs, U. S. House of Representatives.

80. U. S. Bureau of the Census. 1980. Illustrative Statistics on Women in Selected Developing Countries. Washington, DC.

81. Weekes-Vagliani, Winifred. 1976. Family Life and Structure in South Cameroon. Paris: Development Centre of the Organization for Economic Cooperation.

82. Wood, Charles H. 1981. "Structural Changes and Household Strategies: A Conceptual Framework for the Study of Rural Migration." Human Organization 40(4):338-344.

83. World Bank. 1975. The Assault on World Poverty. Baltimore: Johns Hopkins Press.

84. Yanagisake, Sylvia Yunke. 1979. "Family and Household: The Analysis of Domestic Groups." Annual Reviews in Anthropology 8:161-205.

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