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## The Domestication of Wood in Haiti: A Case Study in Applied Evolution

*Gerald F. Murray*

*In its annual report on the state of the planet, the World-watch Institute describes the growing shortage of wood for fuel and construction throughout the Third World. The problem is most acute in densely populated areas with a long history of agriculture. In these areas, peasant farmers or members of their families can spend several hours each day finding firewood. Because forests take such a long time to grow and such a short time to cut down, reforestation is a worldwide ecological challenge.*

*As described in this selection, Haiti has a severe deforestation problem that is closely related to wider issues of poverty and overpopulation. In this context, traditional reforestation projects, with ponderous educational components on the value of trees, had failed miserably. Anthropologist Gerald Murray, who had done research on land tenure among rural Haitian peasants, had the rare opportunity to design and implement an alternative project in forestry and agricultural development. His anthropological understanding of the economic system and culture of the Haitian people clearly paid off. The project represents applying cultural anthropology at its best.*

*As you read this selection, ask yourself the following questions:*

- Why does Haiti have a deforestation problem?

- How was Gerald Murray's anthropological alternative project different from traditional reforestation programs?
- Why was using particular kinds of trees important for the project?
- What accounted for the Haitian peasants' enthusiasm for the idea of trees as a cash crop?
- What is meant by the title of this piece?

*The following terms discussed in this selection are included in the Glossary at the back of the book:*

*arable land  
cadastral  
domestication of plants and animals  
horticulture  
population pressure  
reforestation  
swidden cultivation  
usufruct rights*

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## PROBLEM AND CLIENT

Expatriate tree lovers, whether tourists or developmental planners, often leave Haiti with an upset stomach. Though during precolonial times the island Arawaks had reached a compromise with the forest, their market-oriented colonial successors saw trees as something to be removed. The Spaniards specialized in exporting wood from the eastern side of the island, whereas the French on the western third found it more profitable to clear the wood and produce sugar cane, coffee, and indigo for European markets. During the nineteenth century, long after Haiti had become an independent republic, foreign lumber companies cut and exported most of the nation's precious hardwoods, leaving little for today's peasants.

The geometric increase in population since colonial times—from an earlier population of fewer than half a million former slaves to a contemporary population of more than six million—and the resulting shrinkage of average family holding size have led to the evolution of a land use system devoid of systematic fallow periods. A vicious cycle has set in—one that seems to have targeted the tree for ultimate destruction. Not only has land pressure eliminated a regenerative fallow phase in the local agricultural cycle; in addition the catastrophic declines in per hectare food yields have forced peasants into alternative income-generating strategies. Increasing numbers crowd into the capital city, Port-au-Prince, creating a market for construction wood and charcoal. Poorer sectors of the peasantry in the rural areas respond to this market by racing each other with axes and machetes to cut down the few natural tree stands remaining in remoter regions of the republic. The proverbial snowball in Hades is at less risk than a tree in Haiti.

Unable to halt the flows either of wood into the cities or of soil into the oceans, international development organizations finance studies to measure the volume of these flows (50 million trees cut per year is one of the round figures being bandied about) and to predict when the last tree will be cut from Haiti. Reforestation projects have generally been entrusted by their well-meaning but short-sighted funders to Duvalier's Ministry of Agriculture, a kiss-of-death resource channeling strategy by which the Port-au-Prince jobs created frequently outnumber the seedlings produced. And even the few seedlings produced often died in the nurseries because the peasants were understandably reluctant to cover their scarce holdings with state-owned trees. Project managers had been forced to resort to "food for work" strategies to move seedlings out of nurseries onto hillsides. And peasants have en-

deavored where possible to plant the trees on somebody else's hillsides and to enlist their livestock as allies in the subsequent removal of this dangerous vegetation.

This generalized hostility to tree projects placed the U.S. Agency for International Development (AID)/Haiti mission in a bind. After several years of absence from Haiti in the wake of expulsion by Francois Duvalier, AID had reestablished its presence under the government of his son Jean Claude. But an ambitious Integrated Agricultural Development Project funded through the Ministry of Agriculture had already given clear signs of being a multimillion-dollar farce. And an influential congressman chairing the U.S. House Ways and Means Committee—consequently exercising strong control over AID funds worldwide—had taken a passionate interest in Haiti. In his worldwide travels this individual had become adept at detecting and exposing developmental charades. And he had been blunt in communicating his conviction that much of what he had seen in AID/Haiti's program was precisely that. He had been touched by the plight of Haiti and communicated to the highest AID authorities his conviction about the salvific power of contraceptives and trees and his determination to have AID grace Haiti with an abundant flow of both. And he would personally visit Haiti (a convenient plane ride from Washington, D.C.) to inspect for himself, threatening a worldwide funding freeze if no results were forthcoming. A chain reaction of nervous "yes sirs" speedily worked its way down from AID headquarters in Washington to a beleaguered Port-au-Prince mission.

The pills and condoms were less of a problem. Even the most cantankerous congressman was unlikely to insist on observing them in use and would probably settle for household distribution figures. Not so with the trees. He could (and did) pooh-pooh nursery production figures and asked to be taken to see the new AID forests, a most embarrassing request in a country where peasants creatively converted daytime reforestation projects into nocturnal goat forage projects. AID's reaction was twofold—first, to commission an immediate study to explain to the congressman and others why peasants refused to plant trees (for this they called down an AID economist); and second, to devise some program strategy that would achieve the apparently unachievable: to instill in cash-needy, defiant, pleasant charcoalmakers a love, honor, and respect for newly planted trees. For this attitudinal transformation, a task usually entrusted to the local armed forces, AID/Haiti invited an anthropologist to propose an alternative approach.

## PROCESS AND PLAYERS

During these dynamics, I completed a doctoral dissertation on the manner in which Haitian peasant land tenure had evolved in response to internal population growth. The AID economist referred to above exhaustively reviewed the available literature, also focusing on the issue of Haitian peasant land tenure, and produced for the mission a well-argued monograph (Zuvekas 1978) documenting a lower rate of landlessness in Haiti than in many other Latin American settings but documenting as well the informal, extralegal character of the relationship between many peasant families and their landholdings. This latter observation was interpreted by some in the mission to mean that the principal determinant of the failure of tree planting projects was the absence among peasants of legally secure deeds over their plots. Peasants could not be expected to invest money on land improvements when at mildest the benefits could accrue to another and at worst the very improvements themselves could lead to expropriation from their land. In short, no massive tree planting could be expected, according to this model, until a nationwide cadastral reform granted plot-by-plot deeds to peasant families.

This hypothesis was reputable but programmatically paralyzing because nobody dreamed that the Duvalier regime was about to undertake a major cadastral reform for the benefit of peasants. Several AID officers in Haiti had read my dissertation on land tenure (Murray 1977), and I received an invitation to advise the mission. Was Haitian peasant land tenure compatible with tree planting? Zuvekas' study had captured the internally complex nature of Haitian peasant land tenure. But the subsequent extrapolations as to paralyzing insecurity simply did not seem to fit with ethnographic evidence. In two reports (Murray 1978a, 1978b) I indicated that peasants in general feel secure about their ownership rights over their land. Failure to secure plot-by-plot surveyed deeds is generally a cost-saving measure. Interclass evictions did occur, but they were statistically rare; instead most land disputes were intrafamilial. A series of extralegal tenure practices had evolved—preinheritance land grants to young adult dependents, informal inheritance subdivisions witnessed by community members, fictitious sales to favored children, complex community-internal share-cropping arrangements. And though these practices produced an internally heterogeneous system with its complexities, there was strong internal order. Any chaos and insecurity tended to be more in the mind of observers external to the system than in the behavior of the peasants themselves. There was a danger that the

complexities of Haitian peasant land tenure would generate an unintended smokescreen obscuring the genuine causes of failure in tree planting projects.

What then were these genuine causes? The mission, intent on devising programming strategies in this domain, invited me to explore further, under a contract aimed at identifying the "determinants of success and failure" in reforestation and soil conservation projects. My major conclusion was that the preexisting land tenure, cropping, and livestock systems in peasant Haiti were perfectly adequate for the undertaking of significant tree planting activities. Most projects had failed not because of land tenure or attitudinal barriers among peasants but because of fatal flaws in one or more key project components. Though my contract called principally for analysis of previous or existing projects, I used the recommendation section of the report to speculate on how a Haiti-wise anthropologist would program and manage reforestation activities if he or she had the authority. In verbal debriefings I jokingly challenged certain young program officers in the mission to give me a jeep and carte blanche access to a \$50,000 checking account, and I would prove my anthropological assertions about peasant economic behavior and produce more trees in the ground than their current multimillion-dollar Ministry of Agriculture charade. We had a good laugh and shook hands, and I departed confident that the report would be as dutifully perused and as honorably filed and forgotten as similar reports I had done elsewhere.

To my great disbelief, as I was correcting Anthro 101 exams some two years later, one of the program officers still in Haiti called to say that an Agroforestry Outreach Project (AOP) had been approved chapter and verse as I had recommended it; and that if I was interested in placing my life where my mouth had been and would leave the ivory tower to direct the project, my project bank account would have not \$50,000, but \$4 million. After several weeks of hemming and hawing and vigorous negotiating for leave from my department, I accepted the offer and entered a new (to me) role of project director in a strange upside-down world in which the project anthropologist was not a powerless cranky voice from the bleachers but the chief of party with substantial authority over general project policy and the allocation of project resources. My elation at commanding resources to implement anthropological ideas was dampened by the nervousness of knowing exactly who would be targeted for flak and ridicule if these ideas bombed out, as most tended to do in the Haiti of Duvalier.

The basic structural design of AOP followed a tripartite conceptual framework that I proposed for analyzing projects. Within this framework a project is

composed of three essential systemic elements: a technical base, a benefit flow strategy, and an institutional delivery strategy. Planning had to focus equally on all three; I argued that defects in one would sabotage the entire project.

### Technical Strategy

The basic technical strategy was to make available to peasants fast-growing wood trees (*Leucaena leucocephala*, *Cassia siamea*, *Azadirachta indica*, *Casuarina equisetifolia*, *Eucalyptus camaldulensis*) that were not only drought resistant but also rapid growing, producing possible four-year harvest rotations in humid lowland areas (and slower rotations and lower survival rates in arid areas) and that were good for charcoal and basic construction needs. Most of the species mentioned also restore nutrients to the soil, and some of them coppice from a carefully harvested stump, producing several rotations before the need for replanting.

Of equally critical technical importance was the use of a nursery system that produced light-weight microseedlings. A project pickup truck could transport over 15,000 of these microseedlings (as opposed to 250 traditional bag seedlings), and the average peasant could easily carry over 500 transportable seedlings at one time, planting them with a fraction of the ground preparation time and labor required for bulkier bagged seedlings. The anthropological implications of this nursery system were critical. It constituted a technical breakthrough that reduced to a fraction the fossil-fuel and human energy expenditure required to transport and plant trees.

But the technical component of the project incorporated yet another element: the physical juxtaposition of trees and crops. In traditional reforestation models, the trees are planted in large unbroken monocropped stands. Such forests or woodlots presuppose local land tenure and economic arrangements not found in Haiti. For the tree to make its way as a cultivate into the economy of Haitian peasants and most other tropical cultivators, reforestation models would have to be replaced by agroforestry models that entail spatial or temporal juxtaposition of crops and trees. Guided by prior ethnographic knowledge of Haitian cropping patterns, AOP worked out with peasants various border planting and intercropping strategies to make tree planting feasible even for small holding cultivators.

### Benefit Flow Strategies

With respect to the second systemic component, the programming of benefit flows to participants, earlier projects had often committed the fatal flaw of defining project trees planted as *pyebwa leta* (the state's trees). Authoritarian assertions by project staff concerning

sanctions for cutting newly planted trees created fears among peasants that even trees planted on their own land would be government property. And several peasants were frank in reporting fears that the trees might eventually be used as a pretext by the government or the "Company" (the most common local lexeme used to refer to projects) for eventually expropriating the land on which peasants had planted project trees.

Such ambiguities and fears surrounding benefit flows paralyze even the technically soundest project. A major anthropological feature of AOP was a radical frontal attack on the issue of property and usufruct rights over project trees. Whereas other projects had criticized tree cutting, AOP promulgated the heretical message that trees were meant to be cut, processed, and sold. The only problem with the present system, according to project messages, was that peasants were cutting nature's trees. But once the landowner "mete fos li deyo" (expends his resources) and plants and cares for his or her own wood trees on his or her own land, the landowner has the same right to harvest and sell wood as corn or beans.

I was inevitably impressed at the impact that this blunt message had when I delivered it to groups of prospective peasant tree planters. Haitian peasants are inveterate and aggressive cash-croppers; many of the crops and livestock that they produce are destined for immediate consignment to local markets. For the first time in their lives, they were hearing a concrete proposal to make the wood tree itself one more marketable crop in their inventory.

But the message would ring true only if three barriers were smashed.

1. The first concerned the feared delay in benefits. Most wood trees with which the peasants were familiar took an impractically long time to mature. There fortunately existed in Haiti four-year-old stands of leucaena, cassia, eucalyptus, and other project trees to which we could take peasant groups to demonstrate the growth speed of these trees.
2. But could they be planted on their scanty holdings without interfering with crops? Border and row planting techniques were demonstrated, as well as intercropping. The average peasant holding was about a hectare and a half. If a cultivator planted a field in the usual crops and then planted 500 seedlings in the same field at 2 meters by 2 meters, the seedlings would occupy only a fifth of a hectare. And they would be far enough apart to permit continued cropping for two or three cycles before shade competition became too fierce. That is, trees would be planted on only a fraction of the peasant's holdings and

planted in such a way that they would be compatible with continued food growing even on the plots where they stood. We would then calculate with peasants the potential income to be derived from these 500 trees through sale as charcoal, polewood, or boards. In a best-case scenario, the gross take from the charcoal of these trees (the least lucrative use of the wood) might equal the current annual income of an average rural family. The income potential of these wood trees clearly would far offset any potential loss from decreased food production. Though it had taken AID two years to decide on the project, it took about twenty minutes with any group of skeptical but economically rational peasants to generate a list of enthusiastic potential tree planters.

3. But there was yet a third barrier. All this speculation about income generation presupposed that the peasants themselves, and not the government or the project, would be the sole owners of the trees and that the peasants would have unlimited rights to the harvest of the wood whenever they wished. To deal with this issue, I presented the matter as an agreement between cultivator and the project: We would furnish the free seedlings and technical assistance; the cultivators would agree to plant 500 of these seedlings on their own land and permit project personnel to carry out periodic survival counts. We would, of course, pay no wages or "Food for Work" for this planting. But we would guarantee to the planters complete and exclusive ownership of the trees. They did not need to ask for permission from the project to harvest the trees whenever their needs might dictate, nor would there be any penalties associated with early cutting or low survival. If peasants changed their minds, they could rip out their seedlings six months after planting. They would never get any more free seedlings from us, but they would not be subject to any penalties. There are preexisting local forestry laws, rarely enforced, concerning permissions and minor taxes for tree cutting. Peasants would have to deal with these as they had skillfully done in the past. But from our project's point of view, we relinquish all tree ownership rights to the peasants who accept and plant the trees on their property.

Cash-flow dialogues and ownership assurances such as these were a far cry from the finger-wagging ecological sermons to which many peasant groups had been subjected on the topic of trees. Our project technicians developed their own messages; but central to all was the principle of peasant ownership and usufruct of AOP trees. The goal was to capitalize on the

preexisting fuel and lumber markets, to make the wood tree one more crop in the income-generating repertoire of the Haitian peasant.

### Institutional Strategy

The major potential fly in the ointment was the third component, the institutional component. To whom would AID entrust its funds to carry out this project? My own research had indicated clearly that Haitian governmental involvement condemned a project to certain paralysis and possible death, and my report phrased that conclusion as diplomatically as possible. The diplomacy was required to head off possible rage, less from Haitian officials than from certain senior officers in the AID mission who were politically and philosophically wedded to an institution-building strategy. Having equated the term "institution" with "government bureaucracy," and having defined their own career success in terms, not of village-level resource flows, but of voluminous and timely bureaucracy-to-bureaucracy cash transfers, such officials were in effect marshaling U.S. resources into the service of extractive ministries with unparalleled track records of squandering and/or pilfering expatriate donor funds.

To the regime's paradoxical credit, however, the blatant openness and arrogance of Duvalierist predation had engendered an angry willingness in much of Haiti's development community to explore other resource flow channels. Though the nongovernmental character of the proposal provoked violent reaction, the reactionaries in the Haiti mission were overridden by their superiors in Washington, and a completely nongovernmental implementing mode was adopted for this project.

The system, based on private voluntary organizations (PVOs), worked as follows.

1. AID made a macrogrant to a Washington-based PVO (the Pan American Development Foundation, PADF) to run a tree-planting project based on the principles that had emerged in my research. At the Haiti mission's urging, PADF invited me to be chief of party for the project and located an experienced accountant in Haiti to be financial administrator. PADF in addition recruited three American agroforesters who, in addition to MA-level professional training, had several years of overseas village field experience under their belts. Early in the project they were supplemented by two other expatriates, a Belgian and a French Canadian. We opened a central office in Port-au-Prince and assigned a major region of Haiti to each of the agroforesters, who lived in their field regions.

2. These agroforesters were responsible for contacting the many village-based PVOs working in their regions to explain the project, to emphasize its microeconomic focus and its difference from traditional reforestation models, to discuss the conditions of entry therein, and to make technical suggestions as to the trees that would be appropriate for the region.
3. If the PVO was interested, we drafted an agreement in which our mutual contributions and spheres of responsibility were specified. The agreements were not drafted in French (Haiti's official language) but in Creole, the only language spoken by most peasants.
4. The local PVO selected *animateurs* (village organizers) who themselves were peasants who lived and worked in the village where trees would be planted. After receiving training from us, they contacted their neighbors and kin, generated lists of peasants interested in planting a specified number of trees, and informed us when the local rains began to fall. At the proper moment we packed the seedlings in boxes customized to the particular region and shipped them on our trucks to the farmers, who would be waiting at specified drop-off points at a specified time. The trees were to be planted within twenty-four hours of delivery.
5. The *animateurs* were provided with Creole language data forms by which to gather ecological, land use, and land tenure data on each plot where trees would be planted and certain bits of information on each peasant participant. These forms were used to follow up, at periodic intervals, the survival of trees, the incidence of any problems (such as livestock depredation, burning, disease), and—above all—the manner in which the farmer integrated the trees into cropping and livestock patterns, to detect and head off any unintended substitution of food for wood.

## RESULTS AND EVALUATION

The project was funded for four years from October 1981 through November 1985. During the writing of the project paper we were asked by an AID economist to estimate how many trees would be planted. Not knowing if the peasants would in fact plant any trees, we nervously proposed to reach two thousand peasant families with a million trees as a project goal. Fiddling with his programmed calculator, the economist informed us that that output would produce a negative internal rate of return. We would need at least two mil-

lion trees to make the project worth AID's institutional while. We shrugged and told him cavalierly to up the figure and to promise three million trees on the land of six thousand peasants. (At that time I thought someone else would be directing the project.)

## Numbers of Trees and Beneficiaries

Though I doubted that we could reach this higher goal, the response of the Haitian peasants to this new approach to tree planting left everyone, including myself, open mouthed. Within the first year of the project, one million trees had been planted by some 2,500 peasant households all over Haiti. My fears of peasant indifference were now transformed into nervousness that we could not supply seedlings fast enough to meet the demand triggered by our wood-as-a-cash-crop strategy. Apologetic village *animateurs* informed us that some cultivators who had not signed up on the first lists were actually stealing newly planted seedlings from their neighbors' fields at night. They promised to catch the scoundrels. If they did, I told them, give the scoundrels a hug. Their pilfering was dramatic proof of the bull's-eye nature of the anthropological predictions that underlie the project.

By the end of the second year (when I left the project), we had reached the four-year goal of three million seedlings and the project had geared up and decentralized its nursery capacity to produce several million seedlings per season (each year having two planting seasons). Under the new director, a fellow anthropologist, the geometric increase continued. By the end of the fourth year, the project had planted, not its originally agreed-upon three million trees, but twenty million trees. Stated more accurately, some 75,000 Haitian peasants had enthusiastically planted trees on their own land. In terms of its quantitative outreach, AOP had more than quintupled its original goals.

## Wood Harvesting and Wood Banking

By the end of its fourth year the project had already received an unusual amount of professional research attention by anthropologists, economists, and foresters. In addition to AID evaluations, six studies had been released on one or another aspect of the project (Ashley 1986; Balzano 1986; Buffum and King 1985; Conway 1986; Grosenick 1985; McGowan 1986). As predicted, many peasants were harvesting trees by the end of the fourth year. The most lucrative sale of the wood was as polewood in local markets, though much charcoal was also being made from project trees.

Interestingly, however, the harvesting was proceeding much more slowly than I had predicted. Peasants were "clinging" to their trees and not engaging in

the clear cutting that I hoped would occur, as a prelude to the emergence of a rotational system in which peasants would alternate crops with tree cover that they themselves had planted. This technique would have been a revival, under a "domesticated" mode, of the ancient swidden sequence that had long since disappeared from Haiti. Though such a revival would have warmed anthropological hearts, the peasants had a different agenda. Though they had long ago removed nature's tree cover, they were extremely cautious about removing the tree cover that they had planted. Their economic logic was unassailable. Crop failure is so frequent throughout most of Haiti, and the market for wood and charcoal so secure, that peasants prefer to leave the tree as a "bank" against future emergencies. This arboreal bank makes particular sense in the context of the recent disappearance from Haiti of the peasant's traditional bank, the pig. A governmentally mandated (and U.S. financed) slaughter of all pigs because of fears of African swine fever created a peasant banking gap that AOP trees have now started to fill.

### THE ANTHROPOLOGICAL DIFFERENCE

Anthropological findings, methods, and theories clearly have heavily influenced this project at all stages. We are dealing, not with an ongoing project affected by anthropological input, but with a project whose very existence was rooted in anthropological research and whose very character was determined by ongoing anthropological direction and anthropologically informed managerial prodding.

My own involvement with the project spanned several phases and tasks:

1. Proposal of a theoretical and conceptual base of AOP, and concept of "wood as a cash crop."
2. Preliminary contacting of local PVOs to assess preproject interest.
3. Identification of specific program measures during project design.
4. Preparation of social soundness analysis for the AID project paper.
5. Participation as an outside expert at the meetings in AID Washington at which the fate of the project was decided.
6. Participation in the selection and in-country linguistic and cultural training of the agro-foresters who worked for the project.
7. Direction and supervision of field operations.
8. Formative evaluation of preliminary results and the identification of needed midcourse corrections.

9. Generation of several hundred thousand dollars of supplemental funding from Canadian and Swiss sources and internationalization of the project team.
10. Preparation of publications about the project (Murray 1984, 1986).

In addition to my own participation in the AOP, four other anthropologists have been involved in long-term commitments to the project. Fred Conway did a preliminary study of firewood use in Haiti (Conway 1979). He subsequently served for two years as overall project coordinator within AID/Haiti. More recently he has carried out revealing case study research on the harvesting of project trees (Conway 1986). Glenn Smucker likewise did an early feasibility study in the northwest (Smucker 1981) and eventually joined the project as my successor in the directorship. Under his leadership, many of the crucial midcourse corrections were introduced. Ira Lowenthal took over the AID coordination of the project at a critical transitional period and has been instrumental in forging plans for its institutional future. And Anthony Balzano has carried out several years of case study fieldwork on the possible impact of the tree-planting activities on the land tenure in participating villages. All these individuals have PhDs, or are PhD candidates, in anthropology. And another anthropologist in the Haiti mission, John Lewis, succeeded in adapting the privatized umbrella agency outreach model for use in a swine repopulation project. With the possible exception of Vicos, it would be hard to imagine a project that has been as heavily influenced by anthropologists.

But how specifically has anthropology influenced the content of the project? There are at least three major levels at which anthropology has impinged on the content of AOP.

1. *The Application of Substantive Findings.* The very choice of "wood as a marketable crop" as the fundamental theme of the project stemmed from ethnographic knowledge of the cash-oriented foundations of Haitian peasant horticulture and knowledge of current conditions in the internal marketing system. Because of ethnographic knowledge I was able to avoid succumbing to the common-sense inclination to emphasize fruit trees (whose perishability and tendency to glut markets make them commercially vulnerable) and to choose instead a fast-growing wood tree. There is a feverishly escalating market for charcoal and construction wood that cannot be dampened even by the most successful project. And there are no spoilage problems with wood. The peasants can harvest it when they want. Furthermore, ethnographic

knowledge of Haitian peasant land tenure—which is highly individualistic—guided me away from the community forest schemes that so many development philosophers seem to delight in but that are completely inappropriate to the social reality of Caribbean peasantry.

2. *Anthropological Methods.* The basic research that led up to the project employed participant observation along with intensive interviewing with small groups of informants to compare current cost/benefit ratios of traditional farming with projected cash yields from plots in which trees are intercropped with food on four-year rotation cycles. A critical part of the project design stage was to establish the likelihood of increased revenues from altered land use behaviors. During project design I also applied ethnographic techniques to the behavior of institutional personnel. The application of anthropological notetaking on 3-by-5 slips, not only with peasants but also with technicians, managers, and officials, exposed the institutional roots of earlier project failures and stimulated the proposal of alternative institutional routes. Furthermore, ethno-scientific elicitation of folk taxonomies led to the realization that whereas fruit trees are classified as a crop by Haitian peasants, wood trees are not so classified. This discovery exposed the need for the creation of explicit messages saying that wood can be a crop, just as coffee, manioc, and corn can. Finally, prior experience in Creole-language instrument design and computer analysis permitted me to design a baseline data gathering system.
3. *Anthropological Theory.* My own thinking about tree planting was heavily guided by cultural-evolutionary insights into the origins of agriculture. The global tree problem is often erroneously conceptualized in a conservationist or ecological framework. Such a perspective is very short-sighted for anthropologists. We are aware of an ancient food crisis, when humans still hunted and gathered, that was solved, not by the adoption of conservationist practices, but rather by the shift into a domesticated mode of production. From hunting and gathering we turned to cropping and harvesting. I found the analogy with the present tree crisis conceptually overpowering. Trees will reemerge when and only when human beings start planting them aggressively as a harvestable crop, not when human consciousness is raised regarding their ecological importance. This anthropological insight (or bias), nourished by the aggressive creativity of the Haitian peasants among

whom I had lived, swayed me toward the adoption of a dynamic “domestication” paradigm in proposing a solution to the tree problem in Haiti. This evolutionary perspective also permitted me to see that the cash-cropping of wood was in reality a small evolutionary step, not a quantum leap. The Haitian peasants already cut and sell natural stands of wood. They already plant and sell traditional food crops. It is but a small evolutionary step to join these two unconnected streams of Haitian peasant behavior, and this linkage is the core purpose of the Agroforestry Outreach Project.

Broader anthropological theory also motivated and justified a nongovernmental implementing mode for AOP. Not only AID but also most international development agencies tend to operate on a service model of the state. This idealized model views the basic character of the state as that of a provider of services to its population. Adherence to this theoretically naive service model has led to the squandering of untold millions of dollars in the support of extractive public bureaucracies. This waste is justified under the rubric of institution building—assisting public entities to provide the services that they are supposed to be providing.

But my anthropological insights into the origins of the state as a mechanism of extraction and control led me to pose the somewhat heretical position that the predatory behavior of Duvalier's regime was in fact not misbehavior. Duvalier was merely doing openly and blatantly what other state leaders camouflage under rhetoric. AID's search of nongovernmental implementing channels for AOP, then, was not seen as a simple emergency measure to be employed under a misbehaving regime but rather as an avenue of activity that might be valid as an option under many or most regimes. There is little justification in either ethnology or anthropological theory for viewing the state as the proper recipient of developmental funds. This theoretical insight permitted us to argue for a radically nongovernmental mode of tree-planting support in AOP. In short, sensitivity to issues in anthropological theory played a profound role in the shaping of the project.

Would AOP have taken the form it did without these varied types of anthropological input? Almost certainly not. Had there been no anthropological input, a radically different scenario would almost certainly have unfolded with the following elements.

1. AID would probably have undertaken a reforestation project—congressional pressure alone would have ensured that. But the project would have been based, not on the theme of “wood as a peasant cash-crop,” but on the more traditional approach to trees as a vehicle of soil conservation. Ponderous educational programs would have been launched to teach the peasants

about the value of trees. Emphasis would have been placed on educating the ignorant and on trying to induce peasants to plant commercially marginal (and nutritionally tangential) fruit trees instead of cash-generating wood trees.

2. The project would have been managed by technicians. The emphasis would probably have been on carrying out lengthy technical research concerning optimal planting strategies and the combination of trees with optimally effective bench terraces and other soil conservation devices. The outreach problem would have been given second priority. Throughout Haiti hundreds of thousands of dollars have been spent on numerous demonstration projects to create terraced, forested hillsides, but only a handful of cooperative local peasants have been induced to undertake the same activities on their own land.
3. The project would almost certainly have been run through the Haitian government. When after several hundred thousand dollars of expenditures few trees were visible, frustrated young AID program officers would have gotten finger-wagging lectures about the sovereign right of local officials to use donor money as they see fit. And the few trees planted would have been defined as *pyebwa leta* (the government's trees), and peasants would have been sternly warned against ever cutting these trees, even the ones planted on their own land. And the peasants would soon turn the problem over to their most effective ally in such matters, the free-ranging omnivorous goat, who would soon remove this alien vegetation from the peasants' land.

Because of anthropology, the Agroforestry Outreach Project has unfolded to a different scenario. It was a moving experience for me to return to the village where I had done my original fieldwork (and which I of course tried to involve in the tree-planting activities) to find several houses built using the wood from leucaena trees planted during the project's earliest phases. Poles were beginning to be sold, although the prices had not yet stabilized for these still unknown wood types. Charcoal made from project trees was being sold in local markets. For the first time in the history of this village, people were "growing" part of their house structures and their cooking fuel. I felt as though I were observing (and had been a participant in) a replay of an ancient anthropological drama, the shift from an extractive to a domesticated mode of resource procurement. Though their sources of food energy had been domesticated millennia ago, my former village neigh-

bors had now begun replicating this transition in the domain of wood and wood-based energy. I felt a satisfaction at having chosen a discipline that could give me the privilege of participating, even marginally, in this very ancient cultural-evolutionary transition.

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