they take the risk because they are paid $17.00 per hour. Because of the pay scale and their undocumented status, they do not complain to OSHA.

9. With my encouragement and with the aid of the Prisoners Legal Services, Miguel V. successfully challenged several determinations made in his case by the Department of Corrections of New York State. In March 1992 he was released, on parole, without a high school diploma or any marketable skills after serving four years in prison.

9 Peasants, Projects, and Anthropological Models: Fragile Causal Chains and Crooked Causal Arrows

GERALD F. MURRAY

THOUGH DESCRIPTION AND CLASSIFICATION are central to many branches of science, they are minor-league preliminaries to the much more important achievement that distinguishes science from most other forms of knowledge: the discovery of cause and effect relationships. In their efforts to uncover causal chains that have heretofore been operating in nature quite well, despite human ignorance of them, natural scientists assume (or behave as though they assume) three features of cause and effect relationships: that they are real; that they are often discoverable; and, in many instances, that they are manipulable for human purposes. The discovery of the relationships may be difficult, and their complex mutual interactions, or their differential operation under different circumstances, may require nuanced, qualified formulation. And at a given point in the evolution of human technology some causal processes are not yet (and may never be) subject to human manipulation. But despite such qualifications, the entire scientific undertaking is predicated on the existence of real, discoverable, and manipulable causal chains that operate objectively in the world—like the humdrum law of gravity—quite independently of the state of human knowledge or of human opinions about them.

This article will be predicated on the following five assumptions:

1. The three above-mentioned features of causality—its objective presence in the real world, its discoverability, and its potential manipulability—apply no less to living beings than to inanimate objects, and no less to humans than to other life forms.

2. It is both possible and desirable to apply causal insights into the design of programs aimed at altering problematic human situations.

3. Analysts of human social life, whether they explicitly intend to or not, import cause and effect models into their analyses.

4. Some causal models are more accurate than others.
5. Explicit models are better than hidden models.

Many anthropological discussions of causality focus on the past. For example, what caused the shift to agriculture: was it the discovery of new ideas from above or the surfacing of new material pressures from below? But there is one group of anthropologists—applied anthropologists—whose involvement in program analysis forces them to examine causal dynamics in terms of the present and the future. Whereas the anti-science bias of postmodernists is harmful principally to the discipline of anthropology, and an inaccurate causal reconstruction by an evolutionary anthropologist is equally harmless to the world at large, flawed causal models on the part of anthropologists involved in program design have the potential either for inflicting localized harm or for at least jeopardizing what might otherwise have been a flow of local program-mediated benefits. One would hope, therefore, that applied anthropologists would be particularly meticulous and fussy in the examination of their toolkit of causal arrows and causal chains.

This has not always been the case. As the following analysis will show, much of applied anthropology is done for agencies that have implicitly committed themselves beforehand to very questionable causal models. Because these models are often hidden rather than explicit, anthropologists are often in the position of being contracted to work out some of the surface, cultural details of programs whose very theoretical substructure is flawed.

My intent here is to identify some of these hidden models and examine their impact on the design of development projects. I will do this through the conceptual lens, commonly used in materialist analysis, that disaggregates all societies into three universal subsystems found by ethnographers to exist in one way or another in every human social system:

1. A technological subsystem generating the resource procurement options that link the society and its members to the material base on which they must survive.
2. An organizational subsystem generating a web of social relations linking actors within a society to each other.
3. A symbolic subsystem generating a logically interlinked structure of ideas, beliefs, values, interpretations, meanings, mental maps, and other cognitive elements that coalesce into a more or less coherent worldview.

In examining a reasonably large menu of rural development projects with which I have been either personally involved or acquainted, I have observed three competing models of social change, each competing for budgetary attention. Each model has as its key distinguishing feature a predilection for initiating change in one of the three above-listed sectors. Each project strategy designates one of these areas as the target for initiating primary changes, which will then presumably ripple and radiate outward to trigger off secondary changes in the other two sectors.

I will label the three competing models as ideational causality, social structural causality, and material causality. These might be called, metaphorically, the three religions of the world of development: salvation through the spread of new ideas, salvation through the organization of new group structures, and salvation through infusions of new material resources. Applied anthropologists not only brush regularly with members of all three sects in their developmental work; we may even belong to one.

CAUSALITY AND ANTHROPOLOGY

Before examining the specific causal models, it will be useful to examine the history of the causal toolkit in anthropology. As for the universal tripartite structure, the concept of universal patterns has a long history in anthropology. Both Clark Wissler (1926) and later George Murdock (1950) accepted the existence of universal or widespread components found in every culture, but they used the concept principally as a vehicle for organizing the description of ethnographic materials rather than for causal analysis. Though Murdock's classic work *Social Structure* (1949) pioneered cross-cultural statistical testing as a vehicle for formulating causal propositions, his *Outline of Cultural Materials* (1950) was designed principally as a tool for descriptive ethnographers, or as a tool for those coding ethnographies for comparative purposes.

Marvin Harris, particularly in his *Cultural Materialism* (1979a), though advocating a universalist paradigm, critiques the sporadic laundry-list character of Wissler's and Murdock's grids. Drawing heavily from formulations made by Karl Marx (1970) and later by Leslie White (1943), he proposed a tripartite scheme that disaggregates culture into technological, social, and ideological components or subsystems. Harris renamed these components as infrastructure, structure, and superstructure, discussed the items that would appropriately fit into each, and related the scheme to the issue of emics and etics (1979a,

51ff.). This three-layered pyramid, of course, could serve as a rough starting point for organizing the ethnographic description of a society. In proposing this schema, however, Harris was less interested in description and categorization than in the causal interactions among the three components. It is this tripartite scheme that will form the basis of my discussion of the hidden causal models that subtly impinge on development projects in the Third World.

But the issue of causality itself is controversial. Causality has had mixed reviews in cultural anthropology. Natural scientists battle with each other about the accuracy of this or that causal formulation; but there is no widespread dispute about the objective reality of cause and effect patterns and laws, about their discoverability, or about the desirability of manipulating them for human advantages. Science is inextricably predicated on the assumption that causality has not been *invented* by the human brain; it is objectively present and has been discovered. Whatever readiness to perceive cause and effect relations may be prewired into the human brain, the patterns operate in the real world, independently of our thoughts or wishes about them. Far from being a fictitious projection into reality of an arbitrary illusion wired into our brains, science treats cause and effect relations as an objective part of nature that every healthy human brain is prewired to discover.

The cerebral health of anthropology, however, has had its ups and downs, at least with respect to recognition of the objective reality of cause and effect relationships. Current emphasis in much of anthropology on the constructed nature of human knowledge, its reliance on preexisting structures (either born into the brain or lodged in a particular culture), could lead logically to a dismissal of cause and effect as an arbitrary fiction, which the human mind constructs and imposes on reality, and a rejection of science as an illusion. Such radical epistemological skepticism has, in fact, entered postmodern anthropology (Stephen Tyler 1987; Shanks and Tilley 1987, 1988). But intellectual nihilism has traditionally tended to be more the fare of philosophers than of anthropologists. A much more common stance among anthropologists has been to declare the existence of two equally valid but different ways of knowing: a scientific way of knowing applied to natural phenomena that obey external causal laws, and an ethnographic way of knowing that is appropriate to cultural phenomena whose flow is governed, in the view of many early American anthropologists, by dynamics internal to culture itself.

This distinction between two ways of knowing—a common-sense cause and effect approach for daily life, and a more interpretive approach for phenomena linked to human mind and spirit—goes back beyond the founding of anthropology into much more ancient religious traditions. But whereas religious traditions stay solidly lodged in a causal, explanatory framework by invoking the causal interventions of spirit agents, nineteenth-century German philosophers began positing a mental/spiritual domain in which the very concept of causal interactions was simply not operative or applicable (Dilthey 1883; Rickert 1896; Windelband 1912). There was no denial of the essential validity of causal analysis—as long as it was restricted to the domain of natural phenomena. Nor was science denigrated. On the contrary, even this ethereal form of knowledge was labeled by its advocates as science: *geisteswissenschaften* (sciences of the spirit) as contrasted with *naturwissenschaften* (sciences of nature). Phenomena of the mind and spirit were distinct from material objects; therefore, they had to be studied via another type of method.

Robert Lowie (1956, 1006), favorably, and Marvin Harris (1968a, 268ff.), critically, discuss the entry of this distinction into American anthropology via the person of Franz Boas, who successfully transmitted it to most of his students, including not only Robert Lowie but also Alfred Kroeber, Margaret Mead, Ruth Benedict, Edward Sapir, Paul Radin, and other foundational figures in American anthropology. Some of these students, particularly Kroeber, went even farther than Franz Boas in their rejection of causal laws. For whereas Boas always retained at least a vague hope for the eventual emergence of cross-cultural laws from accurate ethnographic description, Kroeber and others were to reject outright even the semblance of cross-cultural regularities (Marvin Harris 1968d). Each culture was characterized by its own internal logic.

Current deconstructionist and postmodernist hostility to scientific, causal approaches in anthropology cannot be viewed as a direct lineal descendant of these earlier trends. Boas, Kroeber, Lowie, and others, after all, were concerned with ethnographic accuracy, a goal that many Ph.D's today would dismiss as a self-deluding fiction. Furthermore, earlier skepticism concerning scientific approaches to culture was largely inspired by optimism concerning the freedom of cultures to devise their own sui generis configurations. Today's streams appear to flow less from cultural optimism than from epistemological pessimism concerning objectivity. That is, whereas the faces of yesterday's culturological scholars cast admiring gazes at other societies, those of today's postmodernists instead seem beclouded by a sneer at the intellectual traditions of their own. Though not responsible for the current state of affairs, however, those earlier scholars did pave the way by preparing an antiscientific

castle (or barn) in which later brands of antiempiricism could find a quite comfortable abode.

Despite these prestigious anticausal streams in anthropology, concern for cross-cultural order and causality was reimported back into American anthropology independently on several vehicles. Both Murdock (1949) and John Whiting (1953) used statistics to infer causes, the former using societies, the latter individuals as the unit of analysis. But the quest for causal explanations is particularly strong in evolutionary and Marxist anthropology. Whereas nineteenth-century evolutionism had been more concerned with identifying stages (and applying pejorative labels to preindustrial stages) than with consistent causal explanations, both the unilineal evolutionism of White (1959) and the multilineal evolution of Julian Steward (1955) were predicated on the operation of cause and effect in human life. Marvin Harris's *The Rise of Anthropological Theory* (1968d) and his *Cultural Materialism* (1979a) were defenses of scientific method in anthropology. Eric Wolf's *Europe and the People Without History* (1982) explores the causes and the anthropological consequences of the global expansion of capitalism. And Allen Johnson and Timothy Earle's *The Evolution of Human Societies* (1987) posits population growth as a major engine propelling societies into new adaptive modes. These are just a few examples of ambitious anthropological undertakings that not only assume the operation of causality in human life but set out to discover specific cause and effect sequences.

CAUSALITY IN APPLIED ANTHROPOLOGY

What is true of broad academic analysis is also true of specific applied analysis. Even a cursory glance at the now abundant literature on applied anthropology, some of which goes back to the turn of the century (for example, Brown and Hutt 1935; Evans-Pritchard 1946; Herskovits 1936; Hewett 1905; Hough 1907; Jenks 1921) suggests that in fact the operation of cause and effect sequences in human life has been uniformly assumed by practitioners. Both in these earlier writings and in the much more abundant body of writing that has come out since mid-century the causal impact that programs can exert on local life, and the impact that anthropologists in turn can exert on programs, is a central object of discussion. This is true of the numerous book-length monographs that have appeared on applied anthropology (for example, Arensberg and Niehoff 1964; Bastide 1974; Belshaw 1976; Foster 1969; van Willigen 1986). It is also true of the proliferating genre of edited volumes discussing individual case studies (for example, Chaiken and Fleuret 1990; Eddy and Partridge 1978; Green 1986; Partridge 1984; Skar 1985; Wulff and Fiske 1987).

Most of these edited volumes contain traditional anthropological articles of potential relevance to planners. But in the Robert Wulff and Shirley Fiske volume, in particular, all the articles were authored by anthropologists actively involved in action programs. Some analysts are now dealing with an even earlier link in the causal chain, looking at the impact of training programs on the ability of anthropologists to do applied work (van Willigen 1987; van Willigen and Dewalt 1985). But the bulk of writing in applied anthropology focuses on topics such as the impact that programs exert (or fail to exert) on local life, the impact that preexisting local variables (technology, attitudes, social organization, and others) exert on receptivity to project inputs, and the effect that anthropological input can (or should or does) exert on programs. Whatever the focus and whatever the language used, however, the existence of cause and effect relations is often implied and is in many cases central to the analyses done by applied anthropologists.

A few examples must suffice. George Foster observed Mexican women rejecting a town laundry installation because the washtubs were facing a wall, not only symbolizing punishment but also preventing conversation among the women. A culturally acceptable rearrangement achieved acceptance (Foster 1969). Here we see the analyst positing several causal chains: cultural values leading to rejection of a new technology, anthropological input leading to culturally sensitive modification of the technology, and piped water leading to expedited clothes washing (obviating trips to the river). The result: acceptance of the innovation by village women. I will not discuss here the appropriateness of the common tendency in the literature to treat culture as a potential barrier, nor the accuracy of the specific causal chains that Foster implicitly posits. The point here is simply that Foster's analysis was firmly based on implicit causal propositions.

A more recent example is also illustrative. The work of R. Werge (1977a, 1977b) and Robert Rhoads (1986), both of whom worked for the International Potato Center (CIP) in Peru, illustrates how applied anthropologists use common-sense causal insights effectively without explicit attention to formal causal models. CIP technicians were advocating a potato storage strategy based on separate structures; but Peruvian farmers used the home as the storage structure. Technicians defined postharvest losses as the major problem; for farmers the major

problems were problematically long sprouts, developed by new potato varieties during storage, which rendered difficult and time consuming their subsequent use as seed. Technologies of light diffusion reduced the sprouting, and the anthropologists argued for the feasibility of using this technology in the house-storage system of the farmers, rather than imposing on them the separate storage structures more characteristic of European and North American farms.

There was no formal discussion of causality as an issue in Rhoads' (1986) account, which focused rather on the ability of farmers from different world regions to creatively adapt the light-diffusion principle to their own storage traditions. Nonetheless, there were several implied causal chains in the account. The most obvious is the cause and effect relationship between light diffusion and improved potato storage. But there is a higher-level causal linkage between the introduction of a convincing new technology and a corresponding shift in farmer behavior. The shift does not occur as some technicians wish—in specialized structures—but rather in terms of local, preexisting storage habits. Farmers adopt light-diffusion techniques on their own terms. But a shift does occur that can be causally linked to the introduction of a new technology. Finally, Rhoads' account describes a third causal chain, one in which the input of anthropologists leads to a shift in the behavior of technicians. "Based on Werge's findings, Shaw [the expatriate potato specialist responsible for promoting new technologies] reoriented his technical efforts. . . . Included also were socioeconomic components: the equipment must be culturally acceptable and capable of being built by local craftsmen with local materials. These components can be clearly recognized as the products of 'anthropological thinking'" (Rhoads 1986, 44). The word "cause" does not appear. But the use of the word "product" clearly implies the attribution of some causal impact to anthropological input.

One final example will suffice. In the first chapter of his book *Applied Anthropology* (1986), John van Willigen elaborates on a methodology proposed by Pertti Pelto and Gretel Pelto (1978) and identifies three products of applied anthropology: information, policy, and action. He then discusses the interactions among these products. "The three products are related in the following way: information is obtained through research, information is used to formulate policy, and policy guides action. . . . The relationship also operates in the opposite direction. The needs of action and policy often result in information being collected through research. Typically, in fact, there is a cycling back and forth through research, policy making, and action" (van Willigen 1986, 10).

In this passage the author is restricting discussion to products of anthropology; but even here he is focusing on the phenomenon of mutual dynamic interactions among the different products.

Though they use it implicitly, however, applied anthropologists may be as uncomfortable with the concept of cause and effect analysis as is true of many more academically oriented colleagues. In fact, though the words such as "effect," "product," and "impact" occur frequently in the applied literature, one has to search far and wide to find the word "cause." Conrad Arensberg and Arthur Niehoff are exceptions when they explicitly distinguish between an economic cause for rejecting new cornseed—it costs too much—and a cultural cause—the woman of the house does not like its taste in cooking (Arensberg and Niehoff 1964, 67). But it is revealing concerning the anthropological caution toward causality that throughout this discussion the authors put the word "cause" in quotation marks. Quotes in such contexts can be sarcastic ("I'm impressed by that 'brilliant' idea of yours"). But here they are used as softeners. The authors recognize causal dynamics at work, but are reluctant to clothe it in the same blatant cause and effect language used for the more mechanistic causality that operates in nature, as when a rise in temperature mechanically causes a rise in the pressure of a confined gas.

The nervousness is valid; causality is certainly present in human life, but the complexity of causal interactions often renders difficult its identification. Furthermore, the causes may be multiple. The more common anthropological handling of this dilemma is to qualify the causal formulation with lexical softeners rather than quotation marks. For example, rather than saying "the transition to agriculture caused sedentism," anthropologists are more likely to say "led to" or "permitted" or "contributed to the emergence of." But whether softened or not, applied anthropologists find themselves operating not in a world of epistemological doubts concerning cause and effect, but rather in a very real world of hierarchically nested causal chains, the same world that they share with the people whose lives they study.

ALTERNATIVE CAUSAL MODELS FOR PROJECT DESIGN

To sum up this admittedly lengthy review: an examination of different bodies of literature indicates that concern with cause and effect sequences is not only widespread in general anthropology, it is central to

(even if only implicit in) the undertaking of applied anthropologists. It is one thing to state, however, that anthropologists are interested in causality. It is another matter to ask how accurate are these causal analyses. The introduction pointed out that applied anthropologists often find themselves hired by development agencies with preexisting causal models, some of them questionable. The introduction further suggested that the promoters of these models could usefully be lumped into three camps or causal sects, each one choosing a different locus to initiate change: change through new ideas, change through new forms of social organization, or change through new material options. Let us now examine each of these sects.

IDEATIONAL CAUSALITY

An idealist model of change has two features. Conceptually, it appeals to the "power of new ideas" to bring about transformations of society. Empirically, it assumes that specific historical transformations in this or that society can be causally attributed to the germination and spread of a new idea.

Even if we are skeptical about the power of ideas in society, one has to stand in awe of the power of this conceptual model in the world of development. I have observed numerous projects, even rural economic development projects, dominated or heavily swayed by an implicit model of ideational causality. When converted into a rural development program, at project level this model takes the form of an institutional commitment to the notion that knowledge transmission and attitudinal change are the first and foremost tasks to be achieved by development specialists. It is necessary to first change minds and hearts; the rest will fall in line. By no means is this model found only in school-building projects, where an emphasis on the power of education might be expected. On the contrary, it has invaded even economic development projects.

I have seen this model affect the channeling of development funds in Haiti (Gerald Murray 1987, 1991), in Guatemala (Gerald Murray 1988), and in Madagascar (Gerald Murray 1990). This model appears to be the frequent (but not exclusive) favorite of certain sectors of the Roman Catholic Church who have begun to involve themselves in matters of rural development. During the final years of his regime, the Roman Catholic Church was not only the major thorn in the side of Haitian dictator Jean-Claude Duvalier but also the most active promoter of certain types of change in the countryside.

One of the more active religious orders there, the Holy Cross Fathers (of Notre Dame fame), has utilized as a major strategy the construction

of educational centers for rural development. One of these centers, called IDEA, is in the north; the other, with the acronym ITECA, is in a village in the south about an hour from Port-au-Prince.

At least in their earliest years, these centers were founded heavily on assumptions of ideational causality as a vehicle of social change. The key material components in this development strategy were classrooms and quarters for sleeping and eating. The key human component was a multidisciplinary faculty—many of them part-time and on occasional contract. The student clientele were villagers recruited and invited from communities all over Haiti to come and spend anywhere from two weeks to several months (depending on the particular cycle) to receive various types of training. These trainees were generally young, generally from the sector that we would label the rural poor, generally literate, and generally selected, at least in theory, because of their leadership potential.

The training they received covered all three domains. There were lectures and demonstrations of technology: improved agricultural practices, poultry raising, soil conservation, reforestation, energy conservation through improved cooking stoves, and the like. Though the bulk of the lectures were technical in nature, there was treatment of topics that we would classify in the realm of social organization: community organization techniques, needs assessment techniques, cooperative strategies, and even analysis of the role of national political structures in perpetuating inequality. It struck me, in observing these training experiences, that they were similar in their breadth and in their tone to the generalist training, combining technical and organization skills, that the Peace Corps used to give to those volunteers who were to be sent out to implement rural community development. It is also to be noted that, in spite of the religious auspices under which the sessions were funded, the content of the training was totally secular and nondenominational. Roman Catholic developmental activities in the Caribbean and Central America differ on the whole from most Protestant activities, which tend to retain a heavier religious and denominational emphasis.

As the scheduled weeks or months come to a close, there will often be a graduation ceremony of some sort, a rite of passage in which the rural trainees are given a diploma and sent forth and commissioned to return to initiate the transformation of their villages by sharing with their kin and neighbors the knowledge that they have acquired. In the instances that I observed there was no organized structure of tasks or formal roles waiting for them back in the villages. Nor—to their great disappoint-

ment—was there a job and a salary. Instead, as the salt of the earth and the light of the world, they were to return home and themselves become the catalyst of the transformation of their communities.

I evaluated a similar project in Guatemala. Through a contract with the Inter-American Foundation, I did an evaluation of a rural development institution called CAPS (Center for Self-Training and Social Promotion), which was running a rural credit program enjoying great success in channeling funds to indigenous communities and in achieving a high recuperation rate on their loans. In eliciting its institutional history, however, I learned that it had started out with a similar philosophy to IDEA and ITECA in Haiti.

As part of my evaluation I attempted to reconstruct the anthropologically strange origins of CAPS. In the beginning it appeared to have been a group of Spanish Jesuits adapting the pedagogy-of-the-oppressed philosophy of Paulo Freire from Brazil, applying that ideology to indigenous villages in rural Guatemala, with the technical support of American interpersonal sensitivity experts and T-group trainers from a Southern U.S. college. This exercise in intellectual ecumenism, spanning three continents, was financed by The United States Agency for International Development (USAID).

Though the courses were less technical in content than the Haiti examples, the underlying philosophy and modus operandi evolved in a parallel direction. A physical infrastructure of classrooms, eating facilities, and dormitories was set up in a neighborhood of Guatemala City in the heart of the campus of the local Jesuit university. The trainees were not urban college students but young villagers, both male and female, mostly from indigenous communities scattered in the western highlands. Though CAPS had switched its program focus by the time of my evaluation in the late 1980s, it still retained these training sessions and I was able to observe them. The ethnic and linguistic diversity of these sessions made the Haiti sessions seem anthropologically homogeneous. Groups of twenty to thirty young Guatemalan Indians from a variety of ethnic groups, speaking a diversity of indigenous languages and wearing, in the case of the women, colorful clothing, were all bused in to Guatemala City to be trained in Spanish in community development philosophy. As in the case of the Haiti training, the content was nonreligious.

Training sessions lasted two weeks and the course inventory was quite different from the Haiti menu. It was the product of a marriage between the liberation theology-consciousness-raising theme of post–Vatican II

Latin American Catholicism and the 1970s T-group sensitivity training movement at that moment popular on American campuses. But the finale was the same: a graduation ceremony, the handing over of diplomas, and a commissioning of the trainees to return to their villages as *promotores sociales,* catalysts of local social change.

The content may have differed from the Haiti sessions, but the underlying ideational theory was very similar and even more clearly articulated than I had heard in Haiti. I discussed it at length with the Spanish Jesuit codirecting the organization at the time. The main purpose of the training sessions was to bring about an internal mental and psychological transformation of the trainees in order to heighten their personal, social, and political consciousness. This transformed consciousness and these new ideas would be brought back to their village and serve as a type of leaven to influence the minds of their fellow villagers. From there social change would come. In its earliest years, before governmental crackdowns on potential unrest, the content of the training, including the printed materials handed out to the students, emphasized the negative impact of unjust political structures. By the time I arrived in the 1980s such messages had become physically dangerous to both trainees and trainers, so the political content was radically toned down. But the power-of-ideas theme remained central.

In the summer of 1990 I took a six-week assignment in Madagascar and, no longer to my surprise, found a very similar type of developmental movement taking place in the town of Antsiranana, here also under the auspices of the local Catholic diocese. Compared to the Caribbean, developmental activities in rural Madagascar are embryonic in character, and the diocese was still formulating plans. But it was felt that the major need of the diocese was funding for the establishment of a training center. The search for this funding continues. I predict that if they are successful we will see an independent, parallel microevolutionary reenactment of the same developmental strategy that unfolded in Haiti and Guatemala: the opening of a training center with classrooms, eating facilities, and dormitories; the recruitment and transportation of villagers to this center; their exposure to diverse training experiences aimed at transforming their minds and hearts; the bestowing of diplomas; and the sending forth of the trainees, not with a salary and a developmental budget at their command but rather with the inspirational charge to transmit their new knowledge and ideas to their fellow villagers. It does not seem to matter whether the designers of these programs are foreigners, as in Guatemala, or locals, as in the case of Haiti and Madagascar: the same scenario emerges.

What unites all three of these cases is the adoption of a cause and effect theory that places a heavy emphasis on the causal impact of cognitive variables: specifically on the role of knowledge gaps and of faulty ideas in generating material stress. As a perfectly logical and consistent consequence, the programs built on this theory give high causal priority to the transmission of improved ideas as the proper way to alleviate that stress. What appears to be happening here is the emergence of a developmental strategy that is implicitly based on premises of philosophical idealism, often without apparent awareness on the part of the program designers that they are making a major, controversial causal assumption.

SOCIAL-STRUCTURAL CAUSALITY

I now move to the second developmental religion: that of salvation, not through new ideas but through new local group structures. This approach has a long history in Western social science, but I believe it has been camouflaged by the dichotomized distinction between materialist and idealist analysis. There is a third model operating in the planning rooms of development agencies. In Haiti, Guatemala, and Madagascar I came across articulate advocates of an approach to social change that relies, first and foremost, not on the transmission of improved ideas but on the *organization of new local social formations.* In this model the plea is for the creation of new groups, be they farmer groups, women's groups, or whatever. New groups, it is argued, must come first. These groups will be the context in which new ideas are generated and transmitted; and these groups will decide on the specific content of any technical innovations to be introduced.

The Inter-American Foundation (IAF), well known to many anthropologists who have worked in Latin America and the Caribbean, is currently a major advocate of a social-structural approach to change in both Haiti and Guatemala. IAF is a special foundation more akin in at least one way to USAID than to private foundations: it functions on public money. But it gets its yearly funds directly from the U.S. Congress. The organizational structure of IAF is one that permits institutional diversity. IAF programs in each country are under the supervision of a Washington-based staff member (the "country rep") who has substantial autonomy. Furthermore IAF, being more autonomous than USAID, is more insulated than USAID from the ups and downs of annual congressional budgetary debates.

Despite this, there is a general institutional philosophy that places a high premium not only on financing grass-roots programs but also on defining as the major criterion of success of any given IAF project the

presence of a self-sustaining, well-functioning local grass-roots organization. IAF's commitment is not to any particular technological content domain—I have seen it finance everything from weaving to apple marketing—nor to any specific cluster of messages. Rather, its commitment is to the formation of local grass-roots organizations that recruit the loyalties and activities of local village groups. The implicit assumption is that organizational change is the catalyst that should drive other changes.

I saw one classic variant of this in the town of Totonicapan, Guatemala, and in its surrounding villages, in the form of an indigenous organization called CDRO. This group is an organization aimed principally at bringing economic development to the Quiche-speaking cantons of Totonicapan. Both its leadership and membership are indigenous. When I evaluated it in 1989 for IAF, I was amazed to find that several dozen villages had been invited to organize themselves into hierarchically nested structures of committees and subcommittees, with the central coordinating committee based in the town. Many members of each village had a formal role as head of this or that committee. As an anthropological researcher I was amazed to find one of the most competently executed surveys I had ever seen done by the villagers themselves (with technical supervision from outside). This was a self study done by the villages as part of a preproject needs assessment made mandatory by CDRO. This organization's notion of its role was that it would use IAF funds to train people to organize themselves and to write proposals for concrete project funding. The CDRO theory was that unspecified other agencies would finance the actual projects (which had yet to materialize). CDRO's viewed its contribution as being strictly organizational in character, a definition that IAF had accepted. (Some changes were made after my evaluation.)

In Haiti as well there have been several projects launched following this social-structural model of change. The most impressive one is the *groupman* movement, the formation of thousands of small, acephalous groups in different parts of the country during the final decade of the Duvalier regime. As is true of much activity in rural Haiti, most of these groups had been formed under the auspices of one or another nongovernmental organization, mostly religious, functioning in the rural areas. Three projects stand out in this regard: (1) a rural program with the acronym DCCH in the southern peninsula, sponsored by the diocese of Les Cayes and managed until recently by a French priest from the St. Jacques Society; (2) the Peasant Movement of Papaye, located in the central plateau, started by the radical Flemish-speaking Scheuth Fa-

thers and spearheaded by a charismatic Haitian agronomist born in a local village; and (3) the Gros Morne project, sponsored by Catholic Relief Service and the diocese of Gonaive.

Each project differed from the others in many regards, but all of them shared a common philosophy: organize farmers into small selected groups of six or seven people that would meet each week to identify their problems and to plan solutions; there would also be occasional plenary meetings of all the farmers in the region. The organizers were firm in their refusal to provide material resources to these groups. The villagers first had to organize themselves and learn to function as groups. Only eventually, and in some projects, were material resources made available on a cautious, experimental basis. It was the process of organization itself that was supposed to lead to the generation of locally implemented solutions to problems.

VILLAGER RESPONSE

Before discussing the third religion of development, the cult of material causality, I wish to discuss villager reactions to programs based on ideational causality or social-structural causality. The reactions are in the short term enthusiastic and positive, but in the long term generally negative. Villagers take the risk—and often the risks are both political and economic—of involving themselves in development projects for pragmatic purposes. They view preliminary knowledge transmission and preliminary group formation as merely preludes to what they consider to be the real project, the material project. I have heard the now famous question, "Where's the beef?" posed in different ways by tolerant villagers around the world to project personnel. We've listened to your lectures and seen your slide shows. We've formed the committees you recommended. So when does the money for the project arrive? The professional changer-of-minds responds hotly that the slide show or training session *was* the beef. For the group-formation specialist, the substance of the project *was* the emergence of a new local organization. The money has been spent. We've given you the education. You have the committee. You have new ideas and a new group structure. Now go forth on your own to acquire the resources to implement the new ideas. The money is finished; this project is over.

The itinerant educator has all along been viewing the training sessions and slide shows as the project meat. From villagers' perspective, however, these rituals are viewed as time consuming and occasionally silly prerequisites to be tolerated and complied with in the hope that the real meal will materialize, be it agricultural credit, an irrigation canal,

machinery to improve the local feeder road, tree seedlings, or other such picayune material contributions. In contrast to the materialist perspective of villagers confronted with real-life problems, idealist and social-structural models of change produce budgets and projects that misdefine as "contributions" expenditures that villagers would classify as "project costs."

Under more honest budgetary labeling practices, money spent on the salaries of educators and organizers should be budgeted as "project costs" necessary to deliver the eventual project contributions. But planners operating from idealist and social-structuralist models will often mislabel these costs as though they were themselves the contributions. Distilling the reactions that I have personally observed among farmers and livestock raisers in the Caribbean, Central America, the Andes, the headwaters of Amazonia, Central Africa, and the Indian Ocean, I have found villagers around the world frustrated with so-called development projects that never deliver the material outputs that they either promised or hinted at. Villager protests will more often than not be dismissed as those of the uneducated or uninformed by representatives of a well-salaried development establishment that values ideational and organizational inputs to Third World villages as somehow having intrinsic value in themselves.

INFRASTRUCTURAL CAUSALITY

We can now examine projects designed by representatives of the third developmental sect, those who adhere to principles of material causality. An infrastructural approach to project design is one which takes its lead from principles of infrastructural causality in human history. The materialist contention is that the determining locus of evolutionary action has been at the level of material infrastructure. If this is true, then the logical program design corollary is that program designers should earmark and target project resources first and foremost toward modifications in local infrastructural alternatives, and only secondarily toward modifications of local idea sets or group structures. Such idea sets and group structures will, of course, be taken into account and included in any equation. But the bulk of resources will not be expended on those domains but placed in reserve and targeted to covering the expenses necessary to bring about genuine changes in the local material base. Stated differently, these principles determine there should be consistency between causal theory, project planning, and project budget. If

one's theory places primacy on changes in the material base, then one's budget should not be squandered on the preparation of slide shows or discussion groups.

To what then would a materialist project budget be allocated? Let me briefly give two examples of projects that I believe illustrate sound infrastructural approaches to program intervention.

GUATEMALAN CREDIT PROGRAM

I will return to Guatemala and the case of CAPS, the institution that started out as a promotor of transformed consciousness. Three processes occurred that triggered a radical shift in CAPS behavior in the rural areas and a movement away from ideational causality.

1. Frustration was expressed by those who had taken the training but had no resources or context to do anything; there was difficulty in recruiting new members to come and take the training sessions; and there was a general failure of the idealist approach to trigger any change in local communities. All of these constituted a cluster of factors that made CAPS leaders question the validity of what they were doing.
2. Sudden changes in the Guatemalan political situation made *concientizacion* programs dangerous for both clients and teachers.
3. CAPS was offered funding by the Inter-American Foundation, which had begun exploring the possibility of financing material projects through revolving credit funds.

The major breakthrough was an agreement by both the Guatemalan training center and its funder, the IAF, to embark on what for both of them (in Guatemala) was a fairly new undertaking. The training center had been changing ideas, and the Washington-based IAF had been emphasizing group formation. Both of these activities had left indigenous clients skeptical. Both the trainers and the funders, therefore, agreed to experiment with hitherto forbidden concrete material projects. The funder made the training center a grant of several hundred thousand dollars to be used as a revolving loan fund with which to finance concrete village-level activities. With this decision, both IAF and CAPS came down to the ground level where they could meet the needs of villagers.

To make this shift, CAPS had to reorganize itself in several ways:

1. Its field agents (*extencionistas*) would have to take on new tasks: assisting villages to write credit proposals, supervising the use of loan funds, and taking measures to ensure that loans were paid back on time.
2. CAPS had to develop central office procedures for evaluating and approving or rejecting loan requests, for disbursing the money, and for recovering the loans at the appropriate times.

The procedures developed by CAPS combined rigor with flexibility. The communities had the flexibility of financing any activity that they wished. But there were several rigorous criteria applied.

1. The activity had to generate sufficient income to realize a profit for the borrowers and, consequently, to permit payback.
2. The borrowers had to present a written feasibility study showing that profits could be expected. (They received help from the local CAPS extencionista on that.)
3. The borrowers had to organize themselves into a group. Loans were made not to individuals but to groups. However, once a group secured a loan, it had the option of allowing each of its member households to manage its portion individually, rather than financing a collective undertaking. Most groups opted for the domestic rather than the collective mode. Those projects done under a collective mode generally failed.
4. The group had to repay the money of any individual member family who defaulted.
5. The group had to sign a document permitting CAPS to resort to court action in the event that the loan was not paid.

The result of this shift was the fielding of a credit program that was highly successful in two ways. First, a high loan recuperation rate of over 90 percent was achieved. (Many rural credit projects are plagued with much lower recuperation rates.) Such high recuperation rates are possible because of the self-selection mechanisms underlying group formation. Villagers proved to be very careful in their selection of coborrowers and exerted pressure on their fellows to comply with the terms of the loan, or at least to avoid frivolous defaults. Secondly, an unprecedented diversity of profit-generating activities was financed—agricultural, livestock, marketing, and artisan projects. That is, the funds were not earmarked or limited to a specific type of project.

The response of the indigenous clientele has been overwhelmingly positive, and the CAPS program must be judged as highly effective. Whether through local invention or intraregional diffusion, similar credit programs can be found elsewhere now in Central America. The

point to be emphasized here, however, is that whatever its specific origin, this model focuses on the channeling of material resources as its major offering, and embeds organizational and ideational offerings in the context of these material resource flows.

Paradoxically, CAPS leadership had not yet fully made the ideological shift at the time of my contact with them. They were delighted at the new favor they had found among the people, but they were still uncomfortable at what they perceived as a demotion from the more dignified role of educator to that of rural banker. As is so often true in human social life, material shifts may occur more rapidly than ideational or attitudinal ones.

HAITIAN AGROFORESTRY OUTREACH PROJECT

Returning to Haiti, I will briefly describe a project that was designed and managed by anthropologists in the framework of a materialist paradigm and which I have described at length elsewhere (Gerald Murray 1987, 1991). Haiti has been deforested, and attempts to reforest it have met with little success. Projects designed in the 1960s and 1970s tended to build in several error factors that led to project failure:

1. An emphasis on ecology in approaching farmers. Institutions were interested in the long-range ecological benefits to Haiti of tree planting. Haitian farmers were interested in short-term economic flows of food and income.

2. A failure to clarify tree ownership relations. Farmers were not sure who were the owners of the trees that they were being asked to plant.

3. The necessity to use wage labor for tree planting. Because farmers were unsure about ownership of the trees, they would not plant them voluntarily, assuming that other social groups or the government would benefit from the trees. Projects thus had to resort to paying farmers to plant trees. Disbursals of wages in cash or U.S. surplus food did get trees planted. But since the trees had no secure owner, subsequent livestock depredation led to the death of most of the trees planted.

4. Governmental implementing channels were not adequate. Most funding agencies routinely turned their reforestation over to the Haitian government for management.

A group of anthropologists designed and managed a different type of tree-planting approach that was based on the following material principles:

1. Income-generating messages. The project goal was to link up two elements that already existed in the repertoire of the Haitian farmer: cash cropping and wood harvesting. Food crops were grown for sale. Nature's wood was harvested for sale as lumber for charcoal. The task was defined as linking the two behaviors and encouraging farmers to produce wood as an income-generating crop.

2. Incorporation of wood into the preexisting agrarian economy. Wood was to be planted not by wage laborers on state land or by village groups on communal land but by farmers on their own land as one more crop. Fast-growing species were chosen.

3. Ownership of wood and harvest rights was vested in farmers.

4. Implementation was to be nongovernmental.

All three functional domains—ideas, organization, and material inputs—were taken into account.

1. The material base. Prime budgetary and planning attention was given to the furnishing of seedlings to farmers who had been guaranteed ownership and harvest rights if they planted the tree as an income-generating crop on their own holdings.

2. Social-structural planning. Social organizational planning took the form of establishing contact with a network of NGOs. Each NGO would contract with village-based *animateurs* (animators) who would be paid a modest part-time salary. Each of these animateurs would then link up with a dozen or more farmers who would plant trees. Social organizational planning, in other words, geared itself directly to the material needs of tree planting. Whereas proponents of social-structural causality organize groups first and then decide on project content, this infrastructural approach began with a concrete material input. Social organizational decisions were subsequently made on the basis of infrastructural considerations.

3. Idea system. All educational inputs in the project were directly geared to the material task at hand. No free-floating educational messages about the need for trees were given. Above all, there was no attempt to change farmer attitudes through messages. The guiding assumption was that farmer attitudes were quite adequate in their current state to plant trees. Farmers knew the value of trees and would plant them if ownership arrangements were clarified. The educational messages concerned proper tree planting and managing techniques.

The results of this approach far exceeded anybody's initial expectations. The project was originally based on anthropological predictions

that Haitian peasants would plant trees if they were made available in the proper material context. But theories aside, we were unsure as to whether farmers would plant. The approach was so attractive, however, that the original 4-year goal of 3 million trees was exceeded 6-fold: the project planted 20 million trees. It continued for 10 years and over 50 million trees were planted on the land of some 200,000 Haitian farm families.

DISCUSSION

The central theme of this chapter has been the utilization for concrete problem-solving purposes of theoretical constructs originally invented for more abstract purposes. The constructs are, first, a disaggregation of culture into discrete universal components; secondly, an explicit interest in the causal forces linking these components; and thirdly, a sensitivity to the preeminent power exerted, over the long haul, by technoeconomic forces on the organizational and ideational components of culture. Explicit application of this latter hypothesis to the organization of development projects leads to projects quite different from those based on the competing causal models that have been considered here.

It has been fashionable in certain quarters to caricature the materialist research strategy as an intellectually vulgar denial of the relevance of ideas or of organizational forms. We can expect the same caricatures to be invoked against the use of these constructs in development projects. In its most vulgar form it would take the shape of a proposal to drop packets of money into villages from helicopters in the expectation that this sudden infusion of new material resources would lead mechanically to new social formations and idea systems. An examination of both the Guatemalan and Haitian projects discussed above should indicate emphatically that this helicopter model is not what is being recommended.

Before rejecting helicopters outright, however, we should briefly pause. If we examine many currently funded USAID projects whose sole beneficiaries are local bureaucrats and the U.S. companies lavishly paid to advise them, we note that virtually nothing of genuine value reaches villages. In this light we have to entertain the possibility that a fleet of well-stocked helicopters might produce more beneficial material effects at the village level than many currently funded projects. Nonetheless, I assume that most anthropologists would join me in recommending against this resource-bombardment paradigm, which

presupposes neither general wisdom nor specific local knowledge on the part of the outsider. All that is needed is money and a helicopter to deliver it.

In contrast, a well-designed infrastructural approach to development requires ethnographic knowledge about and anthropological sensitivity to all three domains of social life. One does not dismiss educational and organizational issues—structure and superstructure—as epiphenomenal afterthoughts that will mechanically fall into proper alignment in the wake of new material resources. On the contrary, as I have shown in discussing the agroforestry project, in a careful infrastructural approach all three domains of social life are taken into account in the planning process. Organizational variables are particularly important. In view of the financial rapacity of so many development agencies, creative and aggressive organizational measures must be taken to foresee and head off the predatory inroads that would otherwise siphon off project budgets into alien purposes.

MOTIVATIONAL UNDERPINNINGS OF MODEL CHOICE

This question of project budgets is perhaps the proper theme on which to end this analysis. Why are so many projects based on ideational or organizational causal models, rather than the materialist paradigm being promoted here? Some cases may be a product of ideological motivation, genuine ideological commitment to education or group formation. In other instances, however, one can perceive a heavy infusion of financial self-interest. The budgetary implications of an idealist or organizational strategy are quite different from those of a materialist one. In the latter substantial sums of money are set aside for inputs of direct interest to beneficiaries. In the former two, however, the bulk of inputs often go to the implementing agencies, who spend the money to finance their own employees.

In this light there is one universal recommendation that can be safely made to anthropologists invited to participate in project design and analysis and interested in applying infrastructural principles: begin scrutiny by skipping over the elegant statements of project purposes, goals, and objectives, and instead flip right to the budget page of the project being designed or evaluated. The analyst should examine closely the line items to learn where the money is being allocated. In a large number of cases the scrutiny will reveal that the bulk of the budget is

spent supporting educational or organizational activities, with nothing left over for village activities.

I will end with one sad example, again from Madagascar. USAID had just begun allocating funds to address conservation issues on this ecologically threatened island, but in a manner consistent with its development mandate. An American university, interested in financing its research on lemurs, informed itself of USAID's agenda and reached the ears of local USAID decisionmakers. They submitted a proposal for a $3 million project designed to test the hypothesis that development can be linked to conservation. A lemur-inhabited park was chosen, and a proposal was made to protect the lemurs in a manner that would increase the economic well-being of villagers in the surrounding buffer zone as well. The project description section of the proposal that I read was impeccably and elegantly phrased, both scientifically and humanistically, in that particular manner known to skilled academic proposal writers.

As is my habit, however, I skimmed through the prose and went right to the budget page to see what percentage of the $3 million budget the university would leave for local villagers. I was saddened, but frankly not surprised, to learn that of the $3 million, only $30,000 had been set aside for material support for the villagers. I protested to project personnel but learned that this extractive behavior had been conveniently redefined as an act of virtue. I was asked by an American student involved with the university and the park why there was this dangerous emphasis on flooding villages with money and new technology. "Aren't you aware of the potentially disruptive impact of a sudden infusion of outside resources?"

The student was paradoxically correct. There is little to worry about disruptive social effects from the money related to this project. The disruption has been headed off by siphoning off the money away from the villages to support professors, graduate students, and urban-based Malagasy employees who will manage much of the project. To protect the villagers from the potentially contaminating impact of exposure to money, the professors have channeled it to themselves, their own research agendas, and those of their graduate students. Furthermore, $800,000 of the $3 million was earmarked as overhead (administrative costs) to the university itself back home—and this in a project where the grand total of $30,000 was allocated to the purchase of concrete, pipes, and other inputs that might be of use in constructing local irrigation systems. In effect, the U.S. government was on the verge of authorizing the disbursement of $2,970,000 to pay agencies (mostly Americans) to deliver $30,000 worth of materials to Malagasy villagers. Though I have attended hundreds of voodoo ceremonies in rural Haiti, I can state with confidence that nothing in Haitian voodoo competes in ethnographic bizarreness with the normal fiscal decision-making procedures that an applied anthropologist will see on any ordinary day in an international development office. Furthermore, one conventional critique of cultural materialism accuses that materialism of a pedestrian fixation on proteins and cash. In actuality, the multimillion-dollar materialist foraging skills of the above-mentioned idealist professors would make a cultural materialist blush with shame.

Perhaps it would be more proper to discuss such predatory ripoffs in an academic idiom more consonant with the tone of this volume. Stated more abstractly, the budgetary consequences to implementing institutions are much more favorable if they are adopted through idealist or social-structural models of change; and in some instances these favorable fiscal payoffs may constitute at least a partial causal explanation of the institutional decision to go this route. Anthropological consultants rarely have the power to neutralize these preexisting structures of institutional predation; but they can at least identify and expose them.

It would not, however, serve the purpose of honest debate to dismiss the opposition as money-grubbing opportunists. Many promoters of ideational approaches to development—those who support education and consciousness raising as the first step—are leading dangerous, underfunded lives in Third World villages, motivating and organizing small farmer groups under threatening conditions of political repression. Though adhering to a similar model of ideational causality, they are not in the same league as the self-serving American academics discussed above. Their resistance to material contributions to villages stems not from a self-serving desire to channel budgets in their own directions but out of conviction that change must first begin with ideas, and that the proper contributions of development agencies are educational and organizational not material in content. They would, therefore, dismiss as an ideological contamination my insistence on the inclusion of access to material elements in their offerings to villagers.

The sincerity of a model, however, is no guarantee of its accuracy or effectiveness. I have argued that they may be undercutting their own desire to help by their promotion of a flawed causal model. And, in discussing alternatives, my intent has not been to promote the project strategies described here as the only—or even the best—model for the design of credit or tree-planting projects. But what can be recommended with no reservations is explicit attention to our causal assump-

tions. Though the cultural materialist perspective emerged around evolutionary debates concerning the distant past, its constructs and causal models are well worthy of consideration for inclusion in the conceptual inventory of applied anthropologists who deal with the present. In the final analysis our ability to make nontrivial, professional contributions to local change will be enhanced by improvement of the strength of the causal chains and the incisiveness of the causal arrows in our theoretical toolkit.

SCIENCE, MATERIALISM, AND THE STUDY OF CULTURE

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