INTRODUCTION

The Gods of the Countryside

felix qui potuit cognoscere causas. . . .
fortunatus et ille deos qui nouit agrestis
(Happy is one who has learned
the causes of things. . . .
Fortunate too is he who has found
the gods of the countryside)
(Virgil)

I FIRST became curious about water temples in the mid-1970s, when I was gathering materials for a study of the historical evolution of temples in Bali. One of the peculiarities of Balinese temples is their anonymity: most temples look exactly alike, and except for a few days each year when festivals are held, they are generally left empty and abandoned. The functions of the temple, and the identities of the gods worshiped within, are often known only to the temple's congregation. In a landscape dotted with hundreds of nearly identical temples, it is not a simple matter to work out their histories and purposes. The existence of a separate class of "water temples" is not mentioned in the scholarly literature on Bali, and I doubt that I would have become aware of the existence of the water temples but for the fact that my period of fieldwork happened to coincide with a phenomenon that seemed at first to have nothing whatever to do with temples: the onset of the "Green Revolution" in Balinese agriculture.

The term "Green Revolution" refers to the replacement of native rice with hybridized high-yielding varieties that require the use of chemical fertilizers and pesticides. The Green Revolution began in the laboratories of the International Rice Research Institute in the Philippines in the 1960s and spread swiftly across Asia, gaining a firm foothold in Indonesia by the early 1970s. In Bali, the Green Revolution was accompanied by new government agricultural policies that promoted continuous cropping of the new rice in an effort to boost rice production. Farmers were encouraged to plant rice as quickly as possible, without regard for traditional irrigation schedules. But the immediate gains in rice yields produced by this policy soon began to be offset by water shortages and unprecedented outbreaks of rice pests and diseases.

I learned of these concerns in conversations with farmers at Er Jeruk, a magnificent old temple located in the midst of the rice terraces near the sea at Sukawati. I had come to the temple to investigate the legends surrounding its creation. But the local farmers were much more interested in talking about the temple's current problems. I was told that in the time before the Green Revolution this temple had set a complicated rotational irrigation schedule for all the fields in its vicinity, in all nearly 500 hectares of rice terraces. But as a result of the new policy of continuous rice cropping, the temple had lost control of the irrigation schedule. Everyone was trying to grow rice as quickly as possible, so that as soon as one crop was harvested, another would be planted.

The idea of temples as irrigation managers was intriguing in light of the long controversy in Balinese studies over the historical role of Balinese kings in irrigation management. Both Marx and Wittfogel had proposed Bali as an example of their theories of "Oriental despotism": the idea that the power of Asian kings derived from their control over irrigation.[1] But the evidence from Bali had always been equivocal. Clifford Geertz had recently argued that Balinese kings had very little to do with irrigation.[2] Yet if the kings did not control irrigation, who did?

In 1983, I received support from the National Science Foundation for a study of the water temple system. En route to Bali, I spent a month at the International Rice Research Institute in the Philippines, trying to learn more about the Green Revolution and the technical aspects of growing paddy rice. A preliminary review of the literature on Balinese irrigation confirmed that little was known from an engineering standpoint about irrigation management in Bali. The studies that had been done concentrated on the smallest scale: the allocation of water between farmers in small water-user groups called *subak*s. Most *subak*s consist of about one hundred or so farmers who obtain their irrigation water from a common source, usually a main canal. The efficiency of the *subak*s as water-user groups had already made them famous in the irrigation literature. But as many as a hundred *subak*s might depend on a single river for irrigation. A microstudy of individual *subak*s might not detect higher-level systems of coordination, if indeed they existed.

Elsewhere in Asia, there was evidence that in earlier times temples had played an important role in ancient irrigation systems. In Cambodia, the work of Bernard Groslier showed that temples had been an important element in the grand irrigation systems of the Khmer.[3] In northern Thailand, Lando, Potter, and Moerman describe irrigation systems in which a pantheon of spirits are associated with irrigation control.[4] Nearer to Bali, Pigeaud's classic *Java in the Fourteenth Century* described sacred sources of power in the mountains and religious worship at the source of a river by the royal court.[5]

But was it really possible that a system of water temples was still functioning in Bali? When I arrived in Bali in 1983, I was surprised to learn that this question was under study, not by a fellow scholar, but by engineers in the Balinese Department of Public Works. Because the public works and agriculture departments in Bali are largely staffed by Balinese, it seemed strange that they should have been previously unaware of the significance of water temples. But it appeared that the Green Revolution had taken them by surprise, creating "chaos in the water scheduling system" and "an explosion of pests and diseases."[6] Formerly, these agencies had been occupied with taxes and engineering projects, not with the active management of irrigation. But the failures of the Green Revolution compelled them to take a much more active interest in irrigation, which ultimately led to the discovery of the water temple system. What the bureaucracy had discovered was not the existence of agricultural rituals or water temples, but the fact that the temples exerted a form of hierarchical control over irrigation. The Department of Public Works commissioned a study of water temples and irrigation by the agricultural school of Bali's Udayana University, which concluded that "the relationship between the hierarchical system of subak temples and their connections to inter-subak coordination of rituals and irrigation is not yet clearly understood. A deeper and more thorough investigation of these topics will greatly assist efforts to improve conditions."[7] Similarly, the head of the Irrigation Division of the Department of Public Works wrote in 1984 that "study of the role of large-scale coordination of irrigation by temples is urgently needed."[8]

Such reports confirmed that water temples exercised some forms of control over irrigation. But the precise nature of this control proved very difficult to define. Whether or not the authority of the temples overlapped with that of government bureaucracies depended on which aspects of irrigation were in question. For example, the government claimed the right to settle disputes over water rights and to grant permission for new irrigation systems. Were such rights called into question by the claim that all irrigation waters belonged to the Goddess of Waters? So long as the bureaucracy contented itself with collecting taxes and replacing earthen weirs with concrete structures, the temple system could easily be overlooked, as much a part of the natural landscape as the rivers and the terraces themselves.

RITUAL TECHNOLOGY

The starting-point for my research, from an analytical standpoint, was Georges Condominas's concept of "ritual technology." In *Nous avons*

mangé la forêt (We have eaten the forest) and subsequent essays, Condominas criticized the commonsensical distinction made by social scientists between ritual, particularly agricultural rituals, and the material technology of traditional farming. His fieldwork among the Mnong Gar, a Montagnard community in the central highlands of Vietnam, led Condominas to see ritual as an integral component of the technology of farming. Precise observation of the affairs of daily life (Lévi-Strauss calls him "the Proust of ethnology") persuaded Condominas that agricultural work is not merely a sequence of technical tasks; it is a meaningful series of interactions between social groups and the natural world. The field rituals that accompany each stage of agricultural labor form a kind of commentary on the productive process. Moreover, the rituals of work in the fields may be "performative," in that they call forth particular social groups to engage in activities such as planting or harvesting. Agriculture, in short, is a social as well as a technical process, which is structured by the sequence of agricultural rites.

Recently, Condominas has speculated that his concept of ritual technology might better be phrased in terms of a theory of work, and for several reasons I am inclined to agree. The word "technology" derives from *technē*, a Greek word that originally referred to the labors of the smith and other craftsmen. The analogous Greek word for the labors of the farmer is *erga* or "work," as in Hesiod's *Works and Days*. *Erga* could also mean farm lands: tilled fields, or lands that had been worked, but not virgin fields or forests. Thus fishing is the *erga* of the sea, while in another sense, honey is the *erga* of bees. This distinction between *technē* and *erga* is relevant to a theory of the special characteristics of agricultural rites.

For the Greeks, the smith was a solitary figure, whose *technē* was a jealously guarded secret connecting him to the powers of the underworld through the god Hephaestus. In contrast, the *erga*, or work, of the farmer was public, involving the whole of society and most of the gods. Both activities (smithing and farming) involved ritual, but in the case of *technē* the rituals were secret and individual, whereas *erga* are public and collective. Indeed, the calendar of agricultural rites is the master social calendar, for (as Condominas says of the Mnong Gar) "annual and agricultural cycles are one and the same."[9]

To the extent that the agricultural cycle of rites becomes the master calendar of social life, the analysis of one is equivalent to the analysis of the other. *We Have Eaten the Forest* describes the ritual cycle of a single village, which farms one small patch of forest after another. The major agricultural rituals are connected with transforming forest into agricultural land, a process that requires "welding into one collectivity all of the social beings of the Mnong Gar world," including the village, the spirits

of the ancestors and the forest, and the Rice Mother.[10] Here, the social universe consists of only a single village and its collective farmlands. But a similar pattern may also be found on a much larger scale elsewhere. For example, Valerio Valeri has recently analyzed the relationship between agricultural rituals and the politico-religious structure of kingship in the ancient kingdoms of Hawaii. The Hawaiian case is interesting, because it highlights the most puzzling aspects of agricultural rites in Bali. Consider this contrast:

When Captain Cook arrived in Hawaii, each of the major islands was a separate kingdom. Each island kingdom was subdivided into districts ruled by lesser chiefs. These districts were called *ahupuaa,* from the word for temple altar (*ahu*). Each district had an altar, where the inhabitants presented firstfruits offerings to their local overlord or chief. As Valeri explains, "each holder of a land title gives the firstfruits of his land to the individual from whom he holds his title. These presentations follow the hierarchical route until they reach the king, who consecrates them to the major gods."[11] Such offerings legitimized the rights of chiefs and people to the land. As head of the temple hierarchy, the king dedicated the fruits of the collective labors of his subjects to the gods. In this way, agricultural rites were absorbed into the rituals of kingship and the symbolic representation of society. Structurally, the power of chiefs to rule was bound up in their relationship to the productive process.

The first European visitors to Bali also described annual cycles of agricultural offerings. But the organization of these offerings differs in an interesting way from that of the Hawaiian kingdoms. The island of Bali is a little larger than the largest Hawaiian island. Before its conquest by the Dutch, Bali was fragmented into half a dozen or more major kingdoms. These kingdoms were often subdivided into tiny quasi-autonomous principalities, whose rulers add new shades of diminution to the term *princeling*. The political boundaries of Balinese kingdoms were constantly changing as a result of warfare, alliances, and dynastic politics. But the crucial point, for our present purposes, is that the rituals of the agricultural cult essentially ignored the boundaries of these kingdoms and principalities and followed instead the natural boundaries of rivers and watersheds. Because no single kingdom controlled an entire river, delegations of farmers journeyed across the boundaries of kingdoms to perform rituals in chains of temples extending from the mountain lakes to the seacoast.

The physical separation of the agricultural cult from the boundaries of kingdoms was mirrored on a symbolic level. The Balinese cult of kingship involves a special class of rituals, which are distinct from the rituals of the agricultural cult. Agricultural rites invoke an imagery of power that transcends kingship: a mandala of waters in the mountain lakes and a goddess

who dwells in them; gods who inhabit irrigation dams and springs; the Rice Mother and her sister goddess of the marketplace; and plague-bearing demons from the sea. Altogether, this is quite a different world from that of ancient Hawaii, one in which the *erga* of the farmers is not directly linked to the powers of kings.

It is not, perhaps, altogether astonishing that the Balinese contrived to organize their kingdoms, temples, and agricultural rituals differently from those of the ancient Hawaiians. But more fundamental issues are involved in these differences than may be apparent at first. In general, ethnographic analyses of non-Western societies like Bali or Hawaii have had little influence on mainstream social theory. Although this may be partly due to Orientalist prejudices, as some scholars have recently claimed, there are also deeper reasons. Social theory has been primarily concerned with the historical forces producing the modern secular and rational social universe. Jürgen Habermas puts it neatly: in premodern societies, the "lifeworld . . . is coextensive with society."[12] Where social formations are entirely embedded in the lifeworld, there is no historical subject. Ethnographic analyses of societies classed as premodern, therefore, have little bearing on mainstream social theory because by definition they lie outside the historical process. These societies enter history only as a result of European imperialism—a point originally made by Hegel and Marx, reiterated in Lévi-Strauss's distinction between *hot* and *cold* societies, and reaffirmed most recently by Eric Wolf in *Europe and the Peoples without History*.[13] From the standpoint of social theory as it is presently constituted, Balinese history begins with the arrival of the Dutch.

But the water temples of Bali do not fit easily into the Procrustean opposition between premodern and modern social formations for the very reasons we have been exploring. Basic to the definition of traditional society is the idea that social institutions are undifferentiated, that the domains of politics, religion, and economics form a unified whole. In contrast, modern or modernizing societies are characterized by structural differentiation. Yet here was a complex institutional system that transcended political boundaries.

Still, if this were the only distinguishing feature of the water temples, they would provide little more than an interesting footnote to the history of an exotic society. Of potentially greater significance is the observation that the water temples inhabit a world that is largely outside the domain of social theory as it is presently constituted. To define the water temple system, to bring the temples forward, will require us to broaden the perspective from which we view social institutions, and in this way to challenge the Eurocentric focus of Western social theory.

THE ENGINEERED LANDSCAPE

"The interaction of labor, techniques and resources proceeds at once by the laws of nature and the intentions of culture," according to Marshall Sahlins in *Culture and Practical Reason*. Sahlins seems to be following a reasoning similar to that of Condominas, stressing the symbolic significance of production in social life. But Sahlins also raises new questions concerning the relationship between symbolic structures and the logic of production, which are crucial for our analysis.

Sahlins is arguing against materialist or naturalistic theories of culture, for which "culture is organized in the final analysis by the material nature of things." From this perspective, the symbolic logic of culture is "subordinated to the instrumental, within production and therefore throughout society." But according to Sahlins, "there is no material logic apart from the practical interest, and the practical interest of men in production is symbolically constituted." The symbolic logic of culture is not a mere reflection or commentary on material-productive relationships, because "the material forces taken by themselves are lifeless" and acquire form and meaning only within the context of a symbolic system.[14] These points are well taken, and the reader who wishes to follow the complete exposition may be referred to *Culture and Practical Reason*.

But if we accept the argument that productive systems embody a cultural or symbolic logic, new questions appear when we move from theory to ethnography. The problem is a variant of the "excess of meaning" argument, which has often surfaced in cultural analysis. Simply put, the question is the relationship between symbolic systems, such as the agricultural rites of the water temples, and productive relationships. What is the match between practices and rites? Obviously, agricultural rites do not serve only to define productive relations, and Sahlins does not claim that material relations are the tertium quid of symbolic systems. But how are we to interpret the relationship between them?

Consider a simple ritual act, such as a farmer pouring a vial of holy water into his fields when the rice begins to flower, while he speaks a mantra naming half a dozen deities. What is the cultural logic or symbolic meaning of this act? Does the ritual define the meaning of the flowering of the rice, or the farmer's intentions?

There are several obvious solutions to this problem. We might choose to try to explicate the farmer's intentions or to trace the direct symbolic referents of the ritual. But these solutions—or others we might propose—lose coherence as soon as we accept the principle of the multivocality of ritual symbolism. The problem is magnified when we confront the true complexity of both the ritual and productive systems, for the productive

system is not a single field but a vast engineered landscape of rice terraces and irrigation systems, of markets and market shrines, irrigation tunnel builders, and threshing societies. And the symbolic system includes an even more dauntingly complex system of rites, whose symbolic referents include not only the fields and flowers but more immaterial or transcendental concepts.

The multivocality of symbols and the lack of strict boundaries to the symbolism of material production are fundamental obstacles to a structuralist analysis. Rather than postulating a totalizing cultural logic, a perfect link between symbolic systems and material practices, the task becomes a search for relationships, which can only be discovered by tracing the logic of particular symbols and practices. But what kinds of relationships ought we to look for? Does *erga* have intrinsic symbolic significance?

There is, of course, one theorist for whom the answer to this question is a clear affirmation. The German translation of *erga* is *Arbeit*, "work" or "labor." For Marx, *Arbeit* is "a condition of human existence that is independent of all forms of society, a perpetual necessity of nature in order to mediate the material exchange between man and nature."[15] Marx's analysis of labor provides a frame of reference for an analysis of *erga* in Bali and at the same time situates the Balinese materials within the context of classical social theory, for as Eric Wolf observes, "It has been said, with reason, that the social sciences constitute one long dialogue with the ghost of Marx."[16]

Fortunately, our present concern is not with the whole corpus of Marx's writings but only with his theory of the symbolic meaning of labor. This is a subject that Marx often addressed in passages that remain remarkably consistent from his early writings to the "mature Marx" of the *Grundrisse* and *Capital*. For Marx, labor is "above all a process between man and nature, a process in which man through his own actions mediates, regulates and controls his material exchange with nature."[17] This insight was the basis of Marx's concept of a "mode of production" *(Weisen der Produktion)*, which he defined as the "production of man through human labor . . . so that nature as it develops in industry, even if in alienated form, is true anthropological nature."[18] The natural world is the stage on which human history is enacted and also the storehouse of raw materials that society reshapes into a "humanized nature."[19] The argument is neatly summarized by Jürgen Habermas:

> Only in its process of production does the species first posit itself as a social subject. Production, that activity which Marx apostrophizes as continuous sensuous labor and production, gives rise simultaneously to the specific formations of nature with which the social subject finds itself confronted, and the forces of production that put the subject in a position to transform historically given nature in its turn, thereby forming its own identity.[20]

Thus for Marx, each succeeding generation acquires its concept of society through an awareness of historical process by observing the physical evidence of the labors of its predecessors. "It is as clear as noon-day," according to Marx, "that man, by his industry, changes the forms of materials furnished by Nature, in such a way as to make them useful to him."[21] External nature *(sinnliche Aussenwelt)*, or nature untouched by human society, exists today "nowhere except perhaps on a few Australian coral islands."[22] In reality, "nature" is the countryside of a civilization at a given epoch.[23] As Anthony Giddens explains, "In Marx, nature appears above all as the medium of the realisation of human social development. . . . Marx emphasizes that social development must be examined in terms of an active interplay between human beings and their material environment."[24]

Thus time becomes the medium through which societies define themselves, and nature the visible record of historical development. Like his contemporaries, what Marx saw in nature was evolution—a continuous linear process of growth. For Marx, the evolutionary progress of society was a scientific reality, which could be read from the social landscape just as Lyell could read geological history from the stratigraphy of Scotland.[25] Society was to be explained, not as the product of a fixed and unchanging human nature but as the end-product of a sequence of historical phases. Hence the importance of the distinction between historical societies, in which time means linear progress, and static cultures, where time is cyclical or even "reversible." Giddens summarizes: "By 'historicity' is meant a definite kind of time-consciousness, namely that human social energies can be actively controlled to promote progressive social change in a 'linear' fashion across time. This stands in strict contrast to what Lévi-Strauss calls 'reversible' time, characteristic of 'cold cultures.' "[26]

This argument leads to a seeming paradox, however, when we consider the Balinese case. On the one hand, there could scarcely be a better example of Marx's "humanized nature" than the engineered landscape of Balinese rice terraces. Although the gardens of Condominas's Mnong farmers are swallowed up by the forest in a year or two, the farmers of Bali look out on a landscape that has taken shape over the centuries through the carefully directed labor of generations of their predecessors. But on the other hand, the images of society that the Balinese see in their terraced valleys do not reflect the progressive linear order that Marx understood as "history." The Balinese have devised several mathematically sophisticated systems of time-reckoning that involve several different calendars that track both social and natural cycles. But what appears to be

missing from the Balinese representation of time is the Marxist (or modernist) conception of society as undergoing linear progressive growth. Instead, Balinese time-reckoning systems provide tools to record the duration of natural cycles, such as the lunar synodic period or the growth of a rice plant from germination to flowering. The Balinese, one might say, have a biological view of time, in contrast to an industrial one.[27]

Marx's concept of linear progress emerged in the context of the discovery of geological time and the techniques of stratigraphy in the nineteenth century. Just as each geological age laid down new deposits, so each stage of human society left its traces in the rubble of the past. Industrial society was simply the latest stratum, Lamarck's "spearpoint of evolution," the most recent phase in the evolution of life on earth. Marx's concept of linear historical time was essentially a projection into the future of a Lamarckian view of developmental change. Nature was at once a museum of the past, and a storehouse of raw materials to be fashioned by human industry.

But a nonindustrial society that depends for its very existence on managing the natural productivity of the landscape might be expected to have quite a different view of nature. For the Balinese, virtually the whole of nature is a perpetual resource, not merely a museum of the past. The productivity of nature, not industry, is the basic social resource. In such a world, the relationship between society and nature is not stratigraphic but interdependent. Although Balinese society depends upon the productivity of the rice terraces, the reverse is also true: the terraces are a social creation, an artificially constructed ecosystem, sustained by continuous human management.

It is possible, of course, to lump the Balinese with the Mnong Gar, as "cold" or static societies whose concepts of nature are based on the simple rhythms of the agricultural year rather than the awareness of historical progress. Yet there are fundamental differences between them. As Condominas shows, for a Mnong Gar village each new year is like the last. The pattern of shifting cultivation is endlessly repeated and does not lead to cumulative changes in either the forest or the village. Each new generation of farmers confronts the forest anew.

Balinese farmers, in contrast, labor on terraces and irrigation works inherited from their predecessors. In the vocabulary of Marxist theory, these engineered structures do not represent "nature" but the "congealed labor" of prior generations of farmers. Each new year is not identical to the last, for over the course of many generations the primeval landscape of forested hillsides has been transformed into a productive system of terraces, tunnels, and irrigation systems. Further, the requirements of managing this engineered landscape shape social relationships for each new generation. As we will see in this book, the need for effective cooperation

in the management of water links thousands of farmers in hierarchies of productive relationships that span entire watersheds.

Yet these productive relationships are simply invisible from within the horizons of classical Marxism. The distinguishing characteristic of Asian villages, according to Marx, is the absence of change. As Marx wrote in *Capital*, "The simplicity of the organization for production in these self-sufficing communities that constantly reproduce themselves in the same form, and when accidentally destroyed spring up again on the spot and with the same name—this simplicity supplies the key to the secret of the unchangeableness of Asiatic societies."[28]

In a letter to Engels, Marx actually referred to Bali as an example of the "stationary character of this part of Asia."[29] Marx's analysis was based on the idea that traditional Asian societies were divided into "villages . . . each of which possessed a completely separate organization and formed a little world in itself." Marx commented, "I do not think anyone could imagine a more solid foundation for stagnant Asiatic despotism." In India, these "stereotyped primitive forms" were broken up by British imperialism, but "in Bali, an island off the east coast of Java, this Hindoo organization, together with Hindoo religion, is still intact."[30]

Marx, of course, was not the first social theorist to emphasize the contrast between the timeless East and the progressive West. In his *Lectures on the Philosophy of History*, Hegel described the Orient as "a phenomenon antique as well as modern; one which has remained stationary and fixed."[31] Whereas Hegel merely commented on the unhistorical nature of Asiatic society, Marx attempted to provide an explanation. This explanation was based on two premises. First, Marx drew attention to the static and undialectical nature of farmer's labor. As the Marxist scholar Avineri notes, for Marx "history means man's process of changing his environment; where there is no change, there is no history."[32]

Second, Marx pointed to the concentration of power in the state, based on the control of irrigation, "This prime necessity of an economical and common use of water . . . necessitated in the Orient . . . the centralizing power of Government."[33] The result of this concentration of power in the state, coupled with the changelessness of village life, was a society lacking the internal dynamics to create historical change. From this analysis follows Marx's celebrated conclusion that European colonialism was the means by which Asiatic societies entered history. With colonialism came plantations, wage labor, the breakdown of the sealed and changeless village society. History begins when the labor process starts to shape new social relationships. Or as Avineri concludes, "Since Oriental society does not develop internally, it cannot evolve toward capitalism through the dialectics of internal change, [so Marx] necessarily arrives at the position

of having to endorse European colonial expansion as a brutal but necessary step."[34]

Marx's analysis rests on two premises: the power-centralizing effects of hydraulic irrigation and the unique failure of agricultural labor to create productive relationships that extend beyond the boundaries of the village. As I shall try to show in this book, both premises are challenged in Bali by the existence of a hierarchical system of water management controlled by farmers. The issue here is not merely that Marx failed to accurately describe the complexities of irrigation management in Asia, which is neither surprising nor particularly significant. Instead, the Balinese case shows us that agricultural labor can build up complex structures of productive relationships in ways unforeseen by Marx.

These structures of productive relationships are the subject of this book. To investigate them, we will be obliged to tack back and forth between different levels of the system: from ritual symbolism to social practices; from the imagery of agricultural deities to quarrels between villages. Yet the concept of productive relationships as *systematic* is not merely a rhetorical device or the author's invention: I learned this perspective from the priests of the Temple of the Crater Lake. Thousands of farmers come to this temple each year to seek assistance with agricultural rituals and also with practical questions about water rights and irrigation management. The priests described their role to me with diagrams of rivers and irrigation networks, with mandalas of power and interlocking ritual cycles. It is this integrated system of ritualized ecological management that I hope to convey in this book, both in terms of its own internal dynamics, and its relationship to the wider society.

PLAN OF THE BOOK

The book is organized around four themes or topics. The first is the relationship between the traditional system of water temples and the irrigation bureaucracies implanted by the Dutch after their conquest of Bali in the nineteenth century. A great deal of what we know about water temples comes from the colonial archives on Bali. But irrigation was not a neutral topic for colonial authors, and indeed it played an important role in Dutch concepts of sovereignty and colonial rule. The physical reconstruction of Balinese irrigation works was accompanied by a symbolic reconstruction of royal irrigation management in the journals of colonial scholarship. The symbolic reconstruction of Balinese irrigation by the Dutch is a vivid example of what has been called the "invention of tradition."[35] There are, in particular, interesting parallels between the colonial reconstruction of Balinese society and the reformation of kingship in

South India by the British, as recently analyzed by N. B. Dirks.[36] Although my account is mostly based on research in the Dutch archives, I also draw on the recent work of H. Schulte Nordholt and C. Geertz on Balinese kingship and J. Rush on the colonial opium monopoly.[37] As Ann Stohler recently observed, colonial capitalism "by turns destroyed, preserved, and froze traditional relations of power and production, and as frequently reinvented and conjured them up."[38] In this case, we must be concerned not only with what was created by colonial rule but also with what was effaced or submerged.

Second, there is the question of the dynamics of power in the water temple system, more particularly, the relationship between the social and technical aspects of terrace management. From an ethnographic point of view, this is the heart of the book, the result of nearly two years of fieldwork with farmers, temple priests, and irrigation engineers. For the technical aspects of the role of temples in irrigation and terrace ecology, my evidence is based on a collaborative investigation I have carried out since 1987 with Dr. James Kremer, a systems ecologist. Appendix B describes Kremer's simulation model of Balinese irrigation systems, which I draw from to analyze the ecological functions of water temple networks.

With regard to the social and ritual dimensions of water temples, I hope to add a further dimension to Clifford Geertz's analysis of agricultural rituals in *Negara: The Balinese Theatre State in the Nineteenth Century*. In Bali, Geertz wrote, "A complex ecological order was both reflected in and shaped by an equally complex ritual order, which at once grew out of it and was imposed upon it."[39] Geertz emphasized the performative functions of ritual, particularly the timing of the ceremonies of the rice cult, which he saw as "symbolically linked to cultivation in a way that locks the pace of that cultivation into a firm, explicit rhythm." While acknowledging (and I hope, enriching) Geertz's analysis of the performative significance of agricultural rites, my major emphasis is on another dimension of ritual symbolism, which might be called sociogenic: the ability of ritual to bring forth, define, and empower social relationships in the context of the productive process.

My analysis of the sociogenic aspects of temple rituals picks up themes from many recent studies of ritual and society. In particular, there appear to be close parallels between the world of the water temples and that of mountain villages in eastern Java as described in Robert Hefner's recent book *Hindu Javanese: Tengger Tradition and Islam*. Shared themes include the symbolism of mountains and lowlands, the ritual preoccupation with fertility and the flow of water, mandala ritual classification, and the construction of priestly authority. I have also drawn from Judith and Alton Becker's ideas about the cultural construction of time and much re-

cent work on Balinese ritual including Hobart, Guermonprez, Vickers, Stuart-Fox, Forge, Schulte Nordholt, Schaareman, Emigh, Duff Cooper, Howe, Hinzler, and Boon, as well as the classic works of Wirz, Korn, Goris, Grader, Hooykaas, Pigeaud, Moertono, van der Meij, Moojen, Zoetmulder and Liefrinck; along with recent studies of water temples by Balinese scholars including Ngurah Bagus, Putu Budiastra, and Sutawan.

A third theme is the relationship between the representation of power in the rituals of water temples and the royal cult of divine kingship. At the pinnacle of the water temple system, the Temple of the Crater Lake claims powers that intersect in various ways with the powers of kingship. Many scholars since Durkheim have shown that ritual reflects the social order. But I shall try to show that different ritual systems within a single society may construct competing images of the social universe. For this analysis, I draw primarily from my own fieldwork and the Dutch and Balinese archives.

Fourth, we return to the question of the contest of rationalities between water temples and the state, a contest brought to a head by the development plans of international agencies to "modernize" Balinese agriculture. Here I draw on the recent literature on the social and ecological effects of the Green Revolution, notably Zurbuchen and Poffenberger's analysis of the Green Revolution in Bali along with the work of Balinese scholars and administrators such as Jelantik Sushila and Nyoman Sutawan. This modern conflict has its origins in the colonial period, when the instrumental logic of Western bureaucracies was first brought into juxtaposition with the social and ecological constructions of the water temples.

The idea of a historical contest between modes of rationality I borrow from Foucault, who advises the human sciences to abandon Habermas's goal of a universal standard of rationality and "limit the sense of the word 'rationalisation' to an instrumental and relative use . . . and to see how forms of rationalisation become embodied in practices, or systems of practices."[40]

It is this contest with which the book begins.

CHAPTER ONE

"Income to Which No Tears Are Attached"

Now the kingdoms have been defeated, fated by
the All-Powerful.
There was a sign, the palace of the rajah of
Badung,
at the temple of Suaragiri was inundated by rains.
The shrine collapsed, and the place of the gods at
Uluwatu
likewise was destroyed by a thunderbolt.
The Hall of Audience at the palace of Pemetjutan,
blown apart by the winds.
The beautiful beringan tree of Tabanan enveloped
in spider's webs,
so that it turned white, a sign of great danger.
(Ida Pedanda Ngurah of Mengwi,
Bhuwana winasa, 1918)

IN THE YEAR 1938, on the date the Balinese call *Galungan* when the spirits of the ancestors are believed to descend into the temples, an unprecedented ceremony took place at the supreme temple of Besakih, under the auspices of the colonial government. Eight Balinese aristocrats, draped with Dutch medals and Balinese gold, were consecrated as rulers (*Zelfbestuurder*) of the territories that the Dutch recognized as the eight former kingdoms of precolonial Bali. Balinese kingship, which had been obliterated by naval gunfire a generation earlier, was thus reconstituted in a ceremony that mingled the ritual paraphernalia of Balinese kingship and high colonial office. The cosmological significance of this event for the Dutch officials who organized it is signaled by their choice of time and place. Nineteenth-century Balinese kings were not consecrated at Besakih, or in any temple, but in their own palaces. But the Balinese believe that on the feast of Galungan, the supreme gods and the deified spirits of ancient kings descend to the temple of Besakih. The spirits that had guided Bali in the past were thus called on to witness the restoration of an enlightened monarchy. It was a moment of profound self-definition for the colonial civil service, carried out in the invisible presence of the glorious kings of ancient Bali. The civil service itself was not left out of