

# The Ethnography of Maps: The Cultural and Social Contexts of Cartographic Representation in Peru

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## Introduction

IN this article,<sup>1</sup> I examine five maps which were drawn during the course of a dispute between some villages and government officials in Peru over the control of beds of reeds (quite productive in ecological and economic terms) which occupy hundreds of square kilometers in Lake Titicaca. Briefly, in 1978 the Peruvian government had declared these reeds to be an ecological reserve and attempted to regulate and limit their harvest. The peasants, who had customary use rights of long standing, opposed the creation of this reserve, and succeeded in retaining control of the reed beds. By the mid-1980s, the dispute had calmed down; the state retained weak authority only in one corner of one section of the reserve.

As is quite common to groups who disagree over the control of resources, state officials and peasants both produced maps in the course of this conflict and showed these maps to each other. Many cartographers and cultural geographers would be surprised neither by the general assertion that each side made maps that favored its claims to the areas under dispute, nor by the more specific suggestions of some of the means by which these maps favored such claims: inclusion or exclusion of features, exaggeration of the size or importance of features, or presentation of features in a manner suggesting that one side had a legitimate basis for controlling these areas. What might be surprising, though, is the apparent lack of concern by both sides for the discrepancies between these maps. By examining the question of why individuals on each side remained so untroubled when they received maps which opposed their views, further issues in the study of maps emerge. Radical differences appear between state and peasant traditions of making, displaying, viewing, and discussing maps. Such differences challenge fundamental assumptions underlying much of cartography and cultural geography: the notions that maps are a cultural universal and that maps, as depictions of an external reality, may be arrayed on a scale of greater or lesser accuracy. Phrased differently, these maps from the Lake Titicaca area make it more difficult to hold unquestioningly the belief that there are certain objects called maps, which most, if not all, human groups use to communicate information about the location of geographical features. This case calls at-

tention to the differences, rather than the similarities, among the ways in which people produce and look at representations of the earth's surface. In particular, the state officials and the peasants have distinct criteria by which they divide drawings into those which they would term 'maps' and those for which they would use other names, and they look at maps literally in different ways (i.e., whether they stand or sit, whether they come close to the maps or remain far from them, whether they direct their gaze at them for long periods, or whether they turn only briefly to them). Moreover, the use of maps as decorations or emblems of authority can become so dominant that their informational function is obscured or lost altogether. As a more detailed discussion of the case shows, these differences in the categorizations of drawings and in the ways of looking at maps allow each side to remain unaware of the challenges represented by their opponents' maps. This case shows that there is no neutral position in the Lake Titicaca area from which one can classify maps by their degree of accuracy, or even from which one can divide drawings into maps and non-maps. It therefore suggests the importance of examining the cultural and political elements which are integral to any specific approach to the study of cartographic representation.

To address these issues, I examine maps in two complementary ways, which I term 'analysis of form' and 'analysis of practice.' A map represents the world, or portions of it, as a set of features divided into a small number of recurring types (rivers, towns, national borders, etc., each indicated by a conventional symbol) that are related to one another by contiguity and distance. The analysis of form consists of an examination of the representation of these features using three characteristics: inclusion and exclusion of features, classification of features, and the relations of features. The broadness of these characteristics allows one to address general issues of representation through a discussion of maps, and perhaps for this reason much of the literature on maps focuses on this analysis of form (e.g., Harley 1988a, 1989; Pandolfo 1989; Robinson and Petchenik 1976; Wood and Fels 1986).

If the analysis of form is the study of the ways in which people draw maps, the analysis of practice focuses on the ways in which people draw on maps. Where the analysis

of form examines a map in relation to a particular landscape, the analysis of practice also includes the viewers, with their culturally specific ways of looking at maps. It includes the notion that people often turn to a map for a specific purpose: to guide them to a particular spot, to document ownership of a piece of land, to decorate a wall. The analysis of practice includes two components, the first of which I term 'the ethnography of viewing' and the second of which is the study of the grouping of maps into different classes. Perhaps because maps can be so easily divorced from their original context, relatively little of the literature on maps considers this analysis of practice, although there are some notable exceptions: Toulmin's (1953) distinction between route-maps and more general maps, Mukerji's (1983, 79-130) examination of the development of markets for maps, de Certeau's (1984, 115-30) account of maps as 'spatial stories,' Woodward's (1985) analysis of the medieval map category of *mappaemundi*, and discussions of the ways in which maritime navigators used maps in medieval Europe (Frake 1985) and twentieth-century Micronesia (Thomas 1987). Harley's (1983, 1988b) analyses of the connections between map-making and the diffusion of state power throughout society are also instances of this analysis of practice, as are Rundstrom's (1990, 1991) examinations of conflicting Western and indigenous mapmaking practices in North America.

There is some correspondence between the two types of analysis of maps and the two ways they will be used to examine the conflict in Lake Titicaca. The analysis of form helps uncover the ways in which the peasants and the state understand their relations to one another and to the landscape; the analysis of practice shows how the striking differences between their understandings remained unchallenged, allowing the conflict to continue without resolution.<sup>2</sup> The following section of this article presents contextual material on the region and summarizes the conflict. Later sections discuss the maps and examine them closely from the perspectives of analysis of form and analysis of practice. The final section discusses the more general questions this case raises for the study of maps.

### The Conflict

Any discussion of the conflict over the totora reeds must be based on some knowledge of the region and its economy. Lake Titicaca is high (3,808 meters above mean sea level) and big (8,128 square kilometers); it is located in a large flat basin known as the Altiplano, which is divided between Peru and Bolivia. The people who live in the densely settled portion of the Altiplano closest to the lake are organized into village communities of several hundred households each. The people have a strong commitment to agriculture, producing most of the food they consume. They earn additional income through migratory wage labor, small-scale commerce, crafts, and fishing. Thus they share a number of characteristics with peasant classes else-

where in the world, although the word 'Indian' is more likely to spring to the minds of many outsiders struck by the ethnic distinctiveness of local dress and customs, and by the dominance in the region of the indigenous Andean languages, Aymara and Quechua.

Many shallow portions of the lake contain beds of a tall reed, *Scirpus tatora*, known as *t'utura* in Aymara and Quechua, *tatora* in Spanish. Local peasants occasionally plant totora rhizomes on the bottom of the lake, thus extending the area where the reed grows. They use the stem of the totora for many purposes: thatching houses, making rafts and mats, and as cattle feed. Communities manage their own totora beds, usually dividing them into individual plots owned by men and women in the community. Since the abundance of reeds reflects specific environmental factors, some communities are self-sufficient in totora, others are lacking, and still others have a surplus. Individuals in regions deficient in totora often travel to communities with more abundant supplies and pay the community members for the right to harvest totora. Although the payment is often made in kind rather than in cash, it is not referred to as barter, a term reserved for the occasional exchange of goods for totora that has already been cut. Instead, peasants say they rent the totora beds, a term that acknowledges the labor of the owner in planting the crop and that of the cutter in traveling to the actual spot of harvest and separating the upper portions of the reeds from the roots.

### THE NATIONAL FORESTRY CENTER (CENFOR)

Three major events divide the conflicts over the reed beds into distinct periods. In 1975, the Peruvian government established the National Forestry Center (*Centro Nacional Forestal*), commonly known by its acronym CENFOR, a sub-ministerial branch within the Department of Forestry and Wildlife of the Ministry of Agriculture and Food. CENFOR was charged with regulating natural plant and wildlife resources through a system of national parks and reserves. In 1978, the Peruvian government established the Titicaca National Reserve (*Reserva Nacional Titicaca*) by promulgating Supreme Decree 185-78-AA. In 1980, CENFOR began to issue permits for totora cutting within the Reserve. I refer to the period 1975-78 as 'the mid-1970s,' 1978-80 as 'the late 1970s,' and 1980-84 as 'the early 1980s.' My discussion centers on three regions within the lake shown on map E1 (Figure 1): Puno Bay, the entire region to the west of Capachica and Chucuito Peninsulas; the Ramis Delta, corresponding roughly to the districts of Pusi, Taraco and Huanacán in the northern portions of the lake; and the western Ilave Delta, including the districts of Acora and Ilave. The most essential element of the story, which I have told in more detail elsewhere (Orlove 1991a), is that peasant opposition limited effective government control over the lake. In the western Ilave Delta in the mid-1970s, this activism led to that region being excluded from the Reserve altogether; in the Ramis Delta in the late 1970s

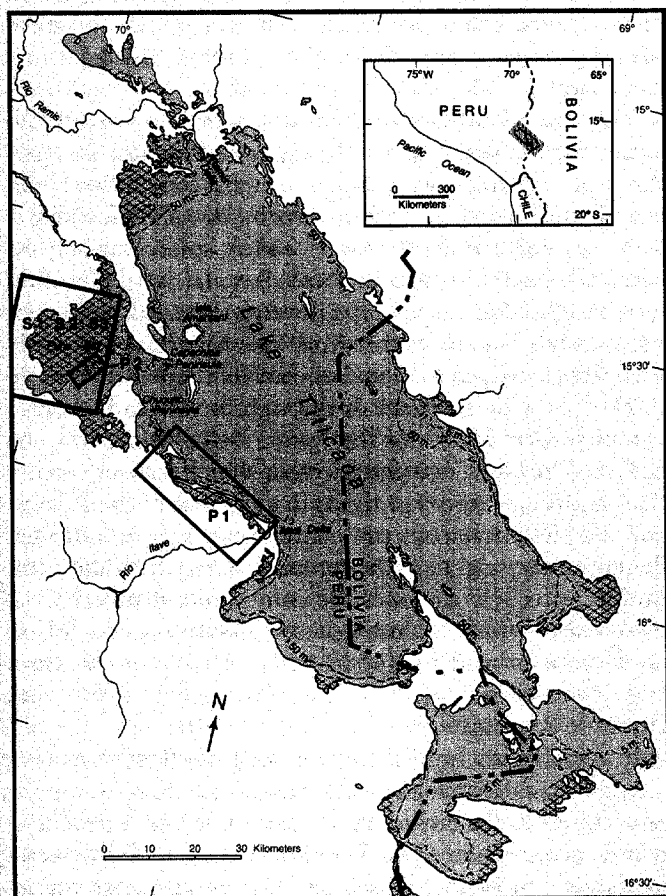


FIGURE 1. Map E1. The Lake Titicaca Region: major physical features, national boundaries, and index map.

and early 1980s, it prevented the government from attempting to administer that region; in Puno Bay in the early 1980s, it reduced the area under official control.

In 1976, the government opened the regional office of CENFOR in Puno, the city bearing the same name as the department of which it is the capital. Word of the law had spread from official circles to the countryside, creating great concern on the part of the peasants. Eighteen communities in the western Ilave Delta discussed the matter in assemblies in 1975 and 1976, and formed a Totora Defense League (*Liga de Defensa de la Totora*). Delegates from this League traveled to Puno and Lima, where they presented officials with documents (*memoriales*) arguing that CENFOR should not administer the totora beds; instead, the beds should be left in the hands of the communities. The delegates were largely successful: in early 1977, the Ministry of Agriculture and Food issued interim regulations guaranteeing the peasants in the western Ilave Delta the right to continue harvesting totora as they always had.

#### PEASANT COMMUNITIES AND THE SUPREME

##### DECREE OF 1978

The Supreme Decree of 1978 states that the government had decided to act on the basis of 'studies' that CENFOR

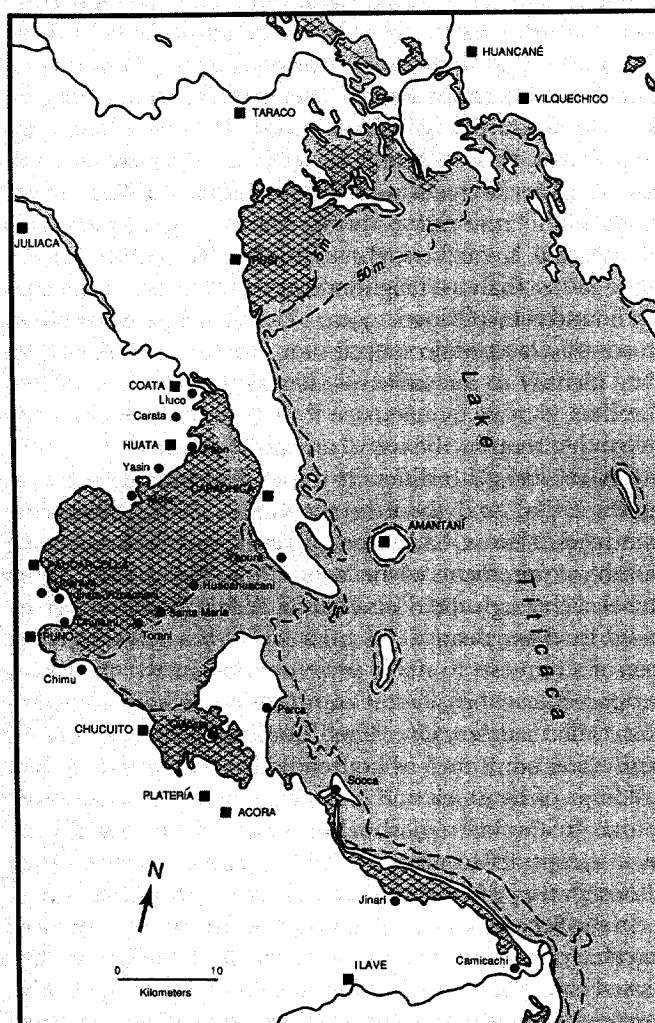


FIGURE 2. Map E2. Western portions of Lake Titicaca: physical features and settlements.

and the Ministry of Agriculture and Food offices in Puno had conducted, and decrees the formation of the Titicaca National Reserve "in order to guarantee the conservation of natural resources and landscapes and the socio-economic development of neighboring populations through the rational utilization of the flora and wildlife and the promotion of local tourism." The first and longest article indicates the boundaries of the Reserve in its two portions,<sup>3</sup> the first and smaller "Sector Ramis" in the Ramis Delta, and the second, larger "Sector Puno" in Puno Bay. The next four articles charge CENFOR and the regional office of the Ministry of Agriculture and Food with the 'development' and 'administration' of the Reserve. They outline the collaboration of other ministries. In addition, they stipulate the right of the inhabitants of the "floating islands" in Puno Bay to maintain their "customary agricultural activities and livestock raising" in the Reserve as long as they respect the management rules of the Ministry of Agriculture and Food.

An explanation of these floating islands entails a di-

gression. The term, as a geographical reference, is correct: some peasants cut reeds in the large totora beds in Puno Bay and make them into enormous mats, hundreds of square meters in area and a meter thick, which float on the southeastern edge of these beds (Leviel *et al.* 1989, 164). Their houses, built of totora, are located on these islands. The Decree Law that established the Reserve accords island residents a special status, since, in the eyes of national lawmakers, they actually live within the Reserve rather than as 'neighboring populations' on or near its boundaries (Orlove 1991a). The local shore-dwellers, in contrast, accord no special status to these people, whom they identify in the same manner as they do other shore-dwellers, that is, by reference to the places in which they live rather than by the use of an ethnic label.

CENFOR met with different responses from the peasants in Puno Bay and those in the Ramis Delta during the late 1970s. CENFOR had some apparent success in carrying out the requirements of the law in Puno Bay. Its employees traveled through the Sector Puno. A few communities refused to allow them to have meetings, but most accepted CENFOR's requests to make presentations, in which CENFOR proposed that the peasant communities submit to a process called *calificación*. This 'qualification' consisted of registering adult men as household heads and listing their holdings of livestock and craft items that they made from totora. In the late 1970s, CENFOR claimed they would not issue a contract to members of unqualified communities, although they did not enforce this requirement later on.

In the Sector Ramis, peasants opposed the Reserve more forcefully. Some communities established the Totora Defense Front (*Frente de Defensa de la Totora*) in 1978. This organization, like the Totora Defense League, pressured the government to annul the Reserve. In addition, peasants maintained a consistently antagonistic stance to CENFOR and other branches of the ministry to which it belongs. On a number of occasions in 1979, 1980, 1982, and 1983, crowds of peasants drove government officials out of the communities by threatening to beat them and, in some cases, by surrounding their vehicles and throwing stones at them. CENFOR has not attempted to enforce its jurisdiction over this region.

By 1980, Puno Bay was the only portion of the Reserve in which CENFOR exercised control. In that year, it began issuing permits for totora cutting in the Sector Puno by granting annual contracts, which stipulated that an 'extractor' was permitted to cut a specific amount of totora in a specific portion of the Reserve in a specific year in exchange for a fee payment. The application procedure was simple: each community had to present the national identification documents of several members and indicate the areas of reeds they sought to 'extract.' The government also required them to present a sketch map (*croquis*) of the requested areas in which they wished to cut reeds. The peasants were troubled by these requirements, not only because of the fees that they would have to pay if they obtained contracts, and the fines that would be imposed

if they did not, but also because the law challenged one of the fundamental principles of the social and political life of peasant communities: their right to manage their territories.

The lists of extraction contracts, which I was able to obtain for the years 1980 and 1984, are of interest. In 1980, thirty-one contracts were issued; in 1984, only thirteen. An examination of their spatial distribution shows contraction after 1980, when they were widely spread among the eight lakeshore districts in Puno Bay. In 1984, contracts were restricted to the area the government could supervise most easily – namely, the three lakeshore districts easily accessible by paved road and open water, rather than those reached only by dirt road or through the totora beds. (No contracts were issued for the Ramis Delta.) Moreover, the 1984 list includes two instances in which CENFOR, rather than granting extraction rights to a portion of the Reserve at some distance from the community, simply affirmed the customary rights to the *totorales* adjacent to the community, precisely the ones the community claimed as its own and to which it already had customary access. These cases, both located in the district of Puno, are Huaraya and Jirata-Vizcachuni, which appear as contracts 1 and 2 in Map S3 (Figure 7).

In sum, by the mid-1980s, the area of effective CENFOR control was reduced to a nucleus of the Reserve in the area closest to the city of Puno. CENFOR issued 'extraction' contracts only in one portion of one sector of the Reserve, in the district of Puno itself and the two districts immediately adjacent to it on the main highway, but these contracts did not lead to any significant changes in cutting practices. In the other portions of the lake, peasant communities maintained customary control of the totora beds that bordered their lands, and obtained totora in the large beds in Puno Bay and the Ramis Delta through customary 'rental' arrangements.

These events may not seem very surprising, and the following would be a plausible summary of this account: after decades, if not centuries, of managing totora on their own, peasant communities were faced with a challenge from a small state agency seeking to regulate this resource of major economic importance to the peasants and minor administrative significance to the state. Because of their concerns and large numbers, the peasants mobilized themselves effectively. Their organization was largely spontaneous because the limited involvement of left-wing groups followed rather than preceded the community assemblies and the Totora League. The state took a number of steps to accommodate their pressures, although it did not withdraw completely from the area.

### The Peasant and State Maps

This section shifts attention from an ethnographic reconstruction of the events in the conflict over the totora beds to an examination of the maps of the totora beds prepared by both sides in the conflict. I include five maps drawn between the mid-1970s and the early 1980s. I refer to three



as 'state maps' and the other two as 'peasant maps,' which I label S1, S2, S3 and P1, P2, respectively; I use the labels E1 and E2 ('ethnographic maps') for maps prepared for me by a North American cartographer, Mary Beth Cunha. All maps include some reed beds and some portions of open water; with one exception, they also contain some lands on the lake's shores.

Maps P1 (Figure 3) and S1 (Figure 4) both depict totora beds. The former depicts a section of the western Ilave Delta, and the latter shows the western portion of Puno Bay. The Totora Defense League included Map P1 in a *memorial* it presented to the regional office of the Ministry of Agriculture and Food in Puno in 1976 or 1977. The roughness of the drawing and the lettering indicate that it was almost certainly prepared by peasants. Map S1 was published in an eight-page document, "Reserva Nacional del Titicaca," issued in Puno by CENFOR in 1979, which summarizes the Supreme Decree that established the Reserve and includes a list of aquatic plants, waterfowl, and tourist attractions.

Unlike some more radically different non-Western maps, these maps, and the others discussed later in this section, are readily recognizable to a Western eye as maps, and they are generally intelligible. They follow certain basic conventions of the Western tradition of mapmaking that peasants and government officials share: they are rectangular, land and water are distinguished, places have their names written near them, and north is, to some extent, at the top margin. Map P1 is a bigger sheet than Map S1, between three and four times as large. The depth and evenness of the creases suggest that it has been folded, opened, and refolded with some care. It seems very likely that it served as the topic of discussion at meetings of the Totora League. In contrast, Map S1 was prepared for inclusion in a document. It was drawn on a mimeograph stencil. Portions of the map are incompletely inked because they were printed by old and poorly maintained mimeograph machines on low-quality paper, an inexpensive grade, known in Peru as *papel bulky*, of such rough texture, uneven thickness, and yellowish color that it is ordinarily used in wealthier countries only for wrapping and packaging. Although both maps have some lines that are drawn with rulers and others drawn freehand, Map P1 is rougher. Map S1 seems more polished, since it includes a title and a legend, and place-names that are typed, rather than hand-lettered. Like the other government maps, it is drawn to scale: in this case, one inch equals two miles. Map S1 is oriented so that north is exactly at the top; the north-south axis on Map P1 is rotated over sixty degrees counter-clockwise from due north. The detail on the shore and the location of the channels on Map S1 indicate that government maps served as a base for it; Map P1 was drawn freehand.

These maps differ in their depictions of the totora beds and in the relations they establish between social groups, land, and the lake. Map P1 emphasizes the communities along the shore of the lake. There are no gaps in the string

of communities that follow the shores. The communities, depicted as triangles<sup>4</sup> composed of three black lines against a white background, are roughly equidistant from one another in each portion of the shore, somewhat closer to one another in the hillier section of the upper part of the map, and more widely separated on the flat areas near the Río Ilave at the bottom. The mapmaker located the communities in relation to natural features. The ridge close to shore, though in fact quite low, is depicted as a series of peaks, presumably in order to follow the well-established Andean practice of using mountains to indicate the boundaries of communities; these peaks have cultural rather than orographic significance. In the less hilly portion below, there is still some association of communities with natural features, particularly bays and smaller ponds in the Ilave Delta. In this sense, communities are associated with a flat area surrounded by higher edges (Rappaport 1985), whether it is the bays and their shorelands separated from one another by small promontories, or the ponds and lands immediately adjacent to them that are separated by stretches of dry land a meter or two higher than the ponds.

Map P1 is not limited to natural features and communities, however. The roads depicted by two parallel lines, and the associated single-line trails, form a network linking communities. The absence of towns is striking; if the mapmaker had included only slightly more territory to the left, he (it is very unlikely that any of the peasant or state maps were drawn by women) would have depicted the territory in which two towns are located, the district capitals of Ilave and Acora that he had undoubtedly visited on many occasions. The presence of the towns also would be suggested by the roads connecting them with the lake-shore communities. Thus the mapmaker would have been strongly constrained to include the towns. And since the map is not to scale, it would have been quite simple to include this extension. As drawn, the map may imply a conscious effort to exclude urban centers, and thus to offer an entirely rural, peasant-oriented depiction of this area. Whether the result was deliberate or not, the map would have been quite different if towns had been included. In this portion of the Altiplano, every town is a capital of something, more specifically of some administrative unit, either a department, a province, or a district, and in virtually every case the town bears the same name as the unit it administers. Thus the presence of towns would not merely dilute peasant control, but transform it, by locating the countryside in relation to the centers from which state control is exercised.

The map refers to the national government through the inclusion of flags, depicted by rectangles with dark sections at the right and left edges. These rectangles bear a direct resemblance to the national flag, which is composed of two vertical red stripes separated by a white stripe. These flags mark communities that participate in the Totora League; thirteen of the fourteen communities with flags appear among the set of eighteen communities in the To-



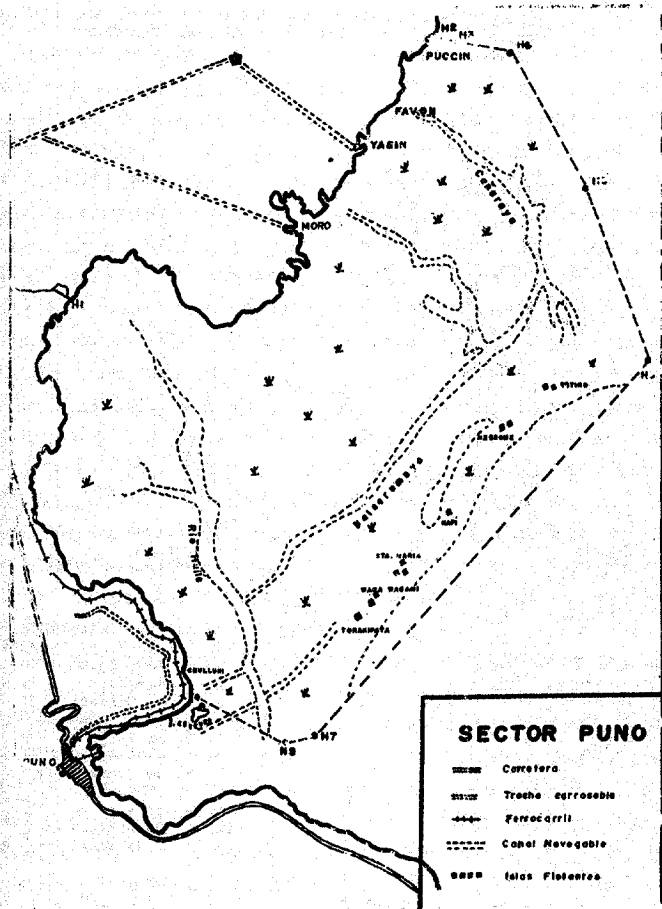


FIGURE 4. Map S1. State map of Sector Puno of the Titicaca National Reserve.

tora League that a peasant from Socca, one of the League's communities, mentioned to me in 1979.<sup>5</sup> For the peasants, the flags probably bring to mind communal assemblies like the ones in which each community voted to join the Totor League. Community leaders raise a flag to call members to the spot where an assembly will be held, and often leave the flag up during the meeting. Aside from the practical purpose of gaining attention effectively, the flag also indicates the community's belief that the state sees as legitimate the community itself, the assembly, and the decisions of the assembly.<sup>6</sup> The line of crosses near the bottom of the map separates the communities of the Totor League from others.

Map S1 shows the boundary points, called *hitos* in Spanish, that mark the boundaries of the Reserve. The mapmaker abbreviated the word *hito* to its initial letter. The use of a conventional symbol for 'reeds' implies that totora is found only inside the Reserve, and that the Reserve is one continuous totora bed, with the exception of certain navigable channels.<sup>7</sup> The only inhabitants of the Reserve are the people who dwell on the floating islands. The rest of the lake is a featureless surface, with the exception of Isla Esteves, quite close to the city of Puno and the site of a new government-run tourist hotel. The peasants

MAPA DE ZONIFICACION DE LA RESERVA NACIONAL DEL TITICACA  
SECTOR PUNO

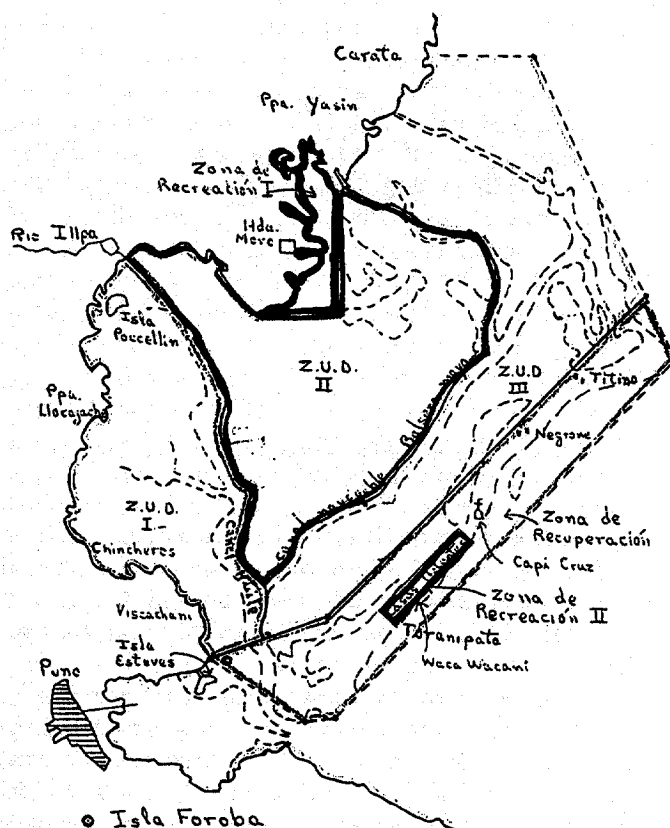


FIGURE 5. Map S2. State map of zones within the Sector Puno of the Titicaca National Reserve.

are almost invisible in this map. Although the mapmaker included the names of a few communities along the shore, he did not indicate their presence by any mark.

The Reserve is located in relation to towns, roads, and railroads. Map S1 explicitly distinguishes different types of roads. Many government maps, including most of the ones that the mapmaker likely used as a basis for this one, include this distinction, so it is difficult to decide how much significance to attribute to a detail that might simply be the outcome of routine copying. However, this contrast is important to tourists and the staff of government agencies who are singled out as intended users of the Reserve by the Supreme Decree that established it, since many of them drive their own vehicles or use chauffeurs. The mapmaker may have wanted to alert prospective visitors, whether government officials or tourists, to the difficulties of driving on roads other than the main highway. These matters are of less concern for peasants, who travel on foot, bicycle, or by truck.

Map S2 (Figure 5), the second CENFOR map in this set, was made sometime between 1979 and 1981, with 1980 as its most probable date. It was included in reports the CENFOR staff in Puno submitted to their superiors in Lima. Based on Map S1, Map S2 is actually smaller in scale

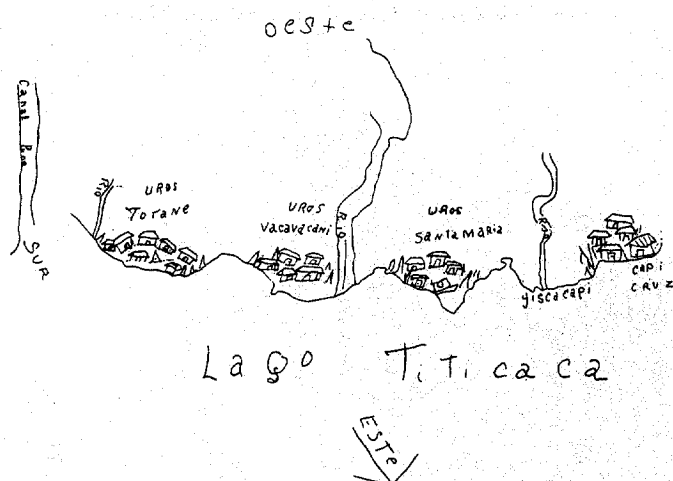


FIGURE 6. Map P2. Peasant map accompanying the totora extraction contract request from the community of Quipata.

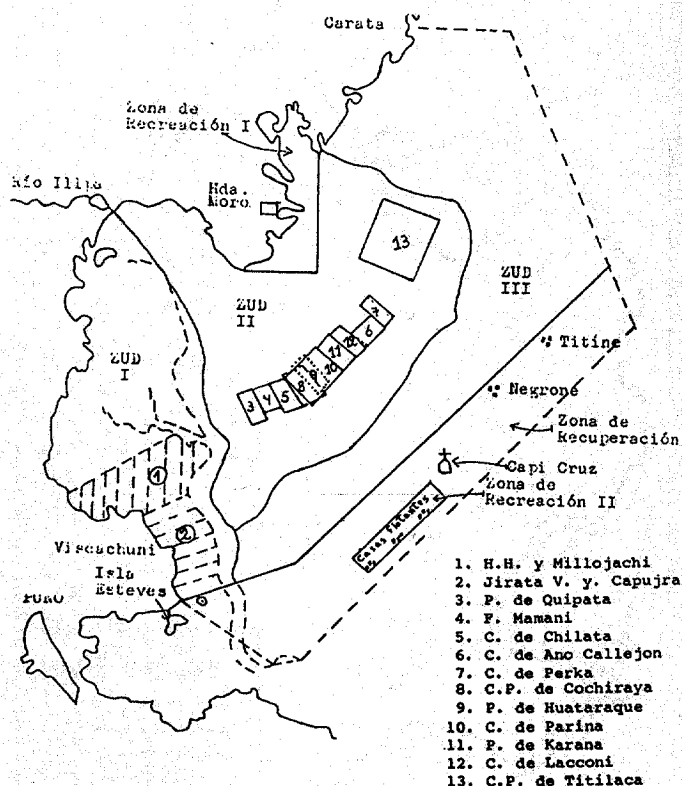
(1:150,000), includes the Reserve's administrative division (zonificación) in its title, and omits some details external to the Reserve, such as roads, railroads, and the town of Huata. The boundaries of the Reserve are slightly simplified.

In this map, CENFOR has classified the Reserve into three types of zones according to the density of totora and tourism. There are three ZUDs (Zonas de Utilización Directa) in which totora may be cut. A fourth region, bearing the name *zona de recuperación*, is a section where the state decided the totora was too thin to permit cutting.<sup>8</sup> The two remaining sections are *zonas de recreación*, with such potential tourist attractions as floating houses (*casas flotantes*) and an old hacienda.

Maps P2 (Figure 6) and S3 (Figure 7), both made in 1984, depict portions of the totora beds within the Reserve. They bear much closer relation to one another than do P1 and S1. Map P2 is the sketch (*croquis*) that the community of Quipata (located on Map E2) included with its request (*solicitud*) to CENFOR for an extraction contract. Map S3 was filed in a folder labeled *Empadronamiento de las Comunidades Solicitando contratos de extracción de totora de la Reserva Nacional del Titicaca* ("Census of communities requesting totora extraction contracts from the Titicaca National Reserve"); the map itself was labelled *Mapa de ubicación de las áreas de extracción de totora otorgadas por el Cenfor X - a las comunidades solicitantes* ("Location map of the areas of totora extraction granted by the Tenth [Regional Office of] CENFOR to the communities [that have] requested [them]").

Map P2 contains references to the cardinal directions; the words East ('este') and South ('sur') are clear. The open waters of the lake beyond the edge of the totora are labelled 'Lago Titicaca.' Arranged across the map are four nucleated settlements on the floating islands, each of which is represented as an open-centered, roughly circular cluster of five to seven houses with its community name written

UBICACION DE AREAS DE EXTRACCION DE TOTORA EN EL SECTOR PUNO DE LA RESERVA NACIONAL DEL TITICACA (SEPTIEMBRE, 1984).



Fuente: CENFOR X-PUNO  
Proyecto Reserva Nacional del Titicaca.

FIGURE 7. Map S3. State map of the location of totora extraction areas in the Sector Puno of the Titicaca National Reserve.

to the side. With the exception of the one at the extreme right, the community names are legible: Uros Torane, Uros Vacavacani, and Uros Santa Maria. (Though these places are also included on Maps S1 and S2, their names are different in spelling and form, suggesting that the maker of Map P2 did not use the state maps as direct models.) The mapmaker also included channels in the totorales: the one on the left is labelled 'Canal Puno,' the other two are listed as 'rio,' and there also may be a fourth channel indicated at the right edge of the map.

The map locates the communities and the channels in relation to one another. It nucleates the floating houses into clusters, leaving out the large percentage of isolated houses that are dispersed along the edge of the reed beds. It also presents these nucleated centers as roughly equidistant, omitting an unpopulated stretch several kilometers wide that divides the floating islands into two groups. Moreover, it greatly exaggerates the unevenness of the edge of the totora beds. In sum, Map P2 depicts the totora beds as containing a continuous set of communities, each with a well-defined center, separated from other communities by rivers, channels, or bays. The map also suggests the resemblance between the floating islands and the terrestrial communities on the shores of the lake by emphasizing



the sharpness of the outer boundary of the reed beds, and by labelling the open channels in the reed beds as rivers.

CENFOR prepared Map S<sub>3</sub> as part of its efforts to summarize its activities for the year 1984. This map, drawn at the same scale as Map S<sub>2</sub>, assigns a portion of the reed beds within the rectangular area marked '3' as the section to which the residents of Quipata have permission to travel for the purpose of cutting reeds. This rectangle differs from the area in Map P<sub>2</sub> in many ways, only one of which is the contrast between the precision of the straight lines and the roughness of the sketch. Map S<sub>3</sub> shows the floating islands to be a *zona de recreación* contained within a *zona de recuperación* in which no cutting is permitted. The area depicted in Map P<sub>2</sub> is thus at some distance from any portion of the Reserve in which CENFOR would permit extraction. A comparison of Maps S<sub>1</sub>, P<sub>2</sub> and S<sub>3</sub> shows that the communities in Map P<sub>2</sub> whose names are legible are the same as the ones in the Zona de Recreación II in Map S<sub>3</sub>, so that Map P<sub>2</sub>, at best, suggests an intention to cut totora somewhere in the areas marked by rectangles 3 through 5 and 8 through 11 or 12.

Since the community of Quipata submitted Map P<sub>2</sub> to CENFOR as part of a formal request for an extraction contract, it seems reasonable to assume they mapped the portion of the Reserve for which they requested extraction rights. The map could be taken to represent either the actual place where peasants hope to cut totora or the portion of the outer edge of the vast totora bed in the Reserve to which they plan to travel for this purpose. Given the history of relations between the inhabitants of the floating islands and those of lakeshore communities such as Quipata, Map P<sub>2</sub> strongly suggests the intention of the *comuneros* to travel to some portion of this wide band of communities, request permission to cut totora, and to travel along the 'canal' and 'ríos' to the areas indicated by local community members. Map P<sub>2</sub> thus fails to recognize the claim that state agencies have replaced local communities as reed bed administrators; moreover, the map is organized around principles contradictory to the state's claim. The following sections will address how *both* the government and the peasants, who had been involved in overt conflict only a few years before these maps were made, could fail to note the directness of this challenge.

#### ANALYSIS OF FORM

As the previous section has suggested, peasant and state maps depict Lake Titicaca and its shores in quite different terms. I first examine these differences through the analysis of form: a study of the inclusion and exclusion of features, classification of features, and relations of features. Some comparisons can be made on the first two aspects alone: the selection of a limited number and types of human and natural elements with some present in both sets of maps, others being included in one set but omitted from the other, and different emphases in each set. Such comparisons focus on the absence of towns in the peasant maps and the paucity of communities in the state maps, and

the differences between these sets of maps in their depiction of roads. Both examples suggest that the peasants depict the Altiplano as rural and self-contained, whereas the state presents it as urbanized and linked to other regions. Fuller treatment rests on the third aspect, the relations of features. The difference between the two sets of maps is more basic than a mere question of emphasis because they are organized on very distinct principles, both as individual representations and as a series of representations. They reveal different presumptions about the making and reading of maps, differences that are congruent with different understandings of political authority in general and the conflict over the reeds in particular.

The peasant maps depict a series of communities, each consisting of a focal place with a building or set of buildings located at the center of a territory enclosed by well-defined boundaries. The focal places appear to contain plazas surrounded by buildings because they are depicted as open triangles in Map P<sub>1</sub> and roughly circular clusters of houses in Map P<sub>2</sub>. All of the mapped (or, more accurately, self-mapped) communities border on Lake Titicaca; their other boundaries consist of high points (mountain peaks surrounding a valley, peninsulas enclosing a bay) or channels of water (streams and inlets bordering a promontory). These communities share two major features: equivalence and contiguity. They are equivalent, in the size and composition of their centers and in their areal extent, because the variable distances between them were made uniform. (Because of this regular spacing of communities, the maps are not what Western cartographers call 'to scale': a fixed linear distance on a map does not correspond to any fixed linear distance on the land or water, just as the depicted heights of mountains on map P<sub>1</sub> do not correspond to the elevation of their peaks above sea level, or in this case, above lake level.) In addition, the communities appear contiguous because no unoccupied space is left between them. Maps P<sub>1</sub> and P<sub>2</sub> suggest that each community controls a specific territory and that the communities jointly control the entire region.

#### *The State's Proleptic Narrative*

The state maps emphasize a different dimension, that of time. To be more specific, I propose that Maps S<sub>1</sub>, S<sub>2</sub>, and S<sub>3</sub> be read in sequence. The first state map separates the Reserve (or, more strictly speaking, Sector Puno within the Reserve) from the rest of the lake; the second divides the Reserve into different types of zones; the third allocates portions of certain zones to users under year-long extraction contracts. These three maps, then, correspond to the three activities mentioned in the law that created the Reserve: the 'studies' to determine its border, the 'development' of the Reserve, and its 'administration.' The order in which these activities are mentioned is not a casual presentation of items - as might be found in a shopping list - but rather the presentation of the stages of the enactment of the law. The administrative decisions added in each map are duplicated in succeeding maps. The bound-

TABLE 1. A SUMMARY OF STATE MAPS AS PROLEPTIC NARRATIVE.

Map	Date	Title of map	Activity of CENFOR as specified in Supreme Decree 185-78-AA of 1978	Boundaries that are indicated
S1 S2	1979 1980	Sector Puno Zonification	Studies Development	Reserve Reserve; Zones
S3	1984	Location of areas of totora extraction	Administration	Reserve; Zones; Contract areas

ary of the Reserve remains unchanged, a series of straight lines connecting a portion of the shore with a set of points within the lake. The gradual loss of any distinct marking of these points is the only erosion of detail in the series of three maps. Map S1 contains all the *hitos*, and Map S2 includes some of them, now reduced to dots; by Map S3, they have disappeared.

These maps thus constitute a narrative: they tell a story of an actor with a set of purposes carrying out a series of activities over time. They have a narrative structure which is as strong as the one that Wood (1987) has found in school atlases, though perhaps a less immediately evident one. To borrow a term from the study of rhetoric, the narrative type that characterizes the state maps is *prolepsis*, the assumption that future acts are preordained. (A common proleptic feature in Western literature is foreshadowing, the prefiguring of future events.) In this case, the maps visually depict the notion, explicit in the text of the law and implicit in interviews with government officials, that the state anticipates its own future actions. The state moves from general to specific, adding detail to its previous actions but not undoing any of them. The titles of the maps correspond closely to the activities that the Supreme Decree ordered CENFOR to carry out (Table 1). The title of Map S1, 'Sector Puno,' indicates that CENFOR has completed the task of the basic 'studies' to define the Reserve, just as the title of Map S2, 'zonification,' corresponds to 'development' of the Reserve, and 'location of granted areas' in the title of Map S3 refers to the 'administration' of the Reserve. The later maps show that CENFOR carried out all the aims assigned to it in the Supreme Decree of 1978 without adding any new ones on its own: the divisions into 'direct utilization zones' and 'recuperation zones' demonstrate the 'conservation of natural resources' and, in conjunction with the 'granted areas,' the 'development of neighboring populations through the rational utilization of flora'; the 'recreation zones' correspond to the 'promotion of local tourism.'

These three maps share an important omission: the Sector Ramis that is also missing in the oral accounts of state officials. Its presence may be noted obliquely in the legend describing the area as 'Sector Puno' rather than 'Reserva Nacional Titicaca.' The CENFOR staff, who had remained

largely silent in conversations about the problematic Sector Ramis, left it invisible and virtually undetectable in their maps - a cartographic silence, as Harley (1983) termed it.

The fact that these three maps, though not explicitly numbered, can be read as a series reflects their origin under a single institutional mapmaker, CENFOR. (A close examination of certain details strongly suggests that several different individuals drew the maps. The dashed lines vary in their evenness and thickness and in the relative lengths of the lines and the gaps between them. Also, the arrows on Map S2 have larger heads than those on Map S3.) In contrast, Maps P1 and P2 have different makers, as do the other maps submitted with extraction contracts.

#### *Mutual Recognition and Cartographic Control of the Reeds*

Although peasant maps include no towns and the state maps omit the Sector Ramis, the peasants and the state do not ignore each other by erasing the other from their maps. They indicate mutual recognition through structured and limited inclusions, carried out in ways which do not undercut their claim to sovereignty. On the peasant maps, the sole sign of the state are the flags in Map P1 marking the centers of communities which held assemblies to join the Totora Defense League. It is difficult to interpret nuances of political legitimacy from the maps alone. However, it seems likely that the peasants view these flags as indications that the state ratifies their autonomous rights to own and manage their territories, rather than as suggestions that the state delegates these rights to them, rights that could potentially be removed (Orlove 1982). These assemblies were not called by state officials but by members of the communities, some of which have official recognition from the state through the Ministry of Agriculture and Food.

The CENFOR maps recognize peasants only when the state charters them into existence. All three maps include the Uros, whom the Supreme Decree distinguishes from all other peasants because they live within, rather than adjacent to, the Reserve. The other peasants appear only on the third map, after CENFOR has established an appropriate structure for administration of the Reserve; these

peasants are ones who may be presumed to acknowledge the authority of the state, because they come from 'communities [that] request' (*comunidades solicitantes*) extraction contracts. The maps thus include some of the distinctions by which the state divides peasants but which the peasants themselves do not admit. These include divisions among Uros, shoredwellers, and others, between recognized and unrecognized communities, and between qualified and unqualified communities.

The maps indicate no movement toward resolution of a fundamental difference between the peasants and the state: each believes that it controls the reed beds. The disparity of their views remained as great in 1984 as it was in the mid-1970s, despite the changes in the intervening years. The peasant communities do not acknowledge that the state has gained some measure of control over the reed beds, at least in portions of Puno Bay. Peasants on the shores of the lake still speak of traveling to Capi, the wide band of communities on Map P2, to 'rent' totora from the local community members, rather than receiving contracts from the state to 'extract' it from the Reserve. Thus Map P2 depicts the reed beds as part of the communities in Capi and makes no overt reference to the Reserve. This peasant emphasis on the spatial continuity of their control over their territory excludes the state as a political competitor. The maps also hint at a theme expressed more clearly in oral accounts of the history of the reeds: peasant understanding of their control as being ancient, unchanging, and legitimate. The maps also depict the sources of this legitimacy: the realms of agriculture (the maps indicate the use of lands at different elevations), politics (the maps show the location of assemblies and possibly of plazas, denoting authority), and ritual (Map P2 includes boundary mountains at which ceremonies are held on certain occasions of the year).

In contrast, the state maps represent CENFOR as controlling the reed beds of the lake without acknowledging the decline of CENFOR's power. The exclusion of the region of Totora League activity from the Reserve around 1977-78 pre-dates the formation of the Reserve. Not surprisingly, the area of League activity does not appear on any state map; the Sector Ramis, over which CENFOR failed to exercise authority in 1978-84, is not depicted on maps; and the maps prepared annually of totora extraction contract areas do not show the cessation of contracts in several districts of the Sector Puno in 1980-84. The proleptic narrative of the state, by requiring compromises by the state to be presented as prefigured in laws, turns the compromises into acts that the state alone had planned; hence, they are not real compromises at all. This rhetorical device also severely limits the scope of independent peasant action. Map S3, for example, does not answer the possible question of whether the state refused to grant extraction contracts to any 'communities [that] request' them.

These differences in the spatial, temporal, and social patterning of the maps suggest that the irresolution of the

two accounts is not merely the result of deliberate obstinance; instead, it stems in part from a more fundamental *incommensurability* of their viewpoints, in two senses of the word. Literally, there is no ratio or formula that can convert a distance on a state map into the equivalent distance on a peasant map or vice versa. Secondly, and more metaphorically, the two sets of maps portray the relations between human and natural features of the landscape - or, phrased more abstractly, the relations between social groups and the natural environment - in ways that are so radically different as to be incompatible (Platt 1978). Each group presented a set of maps congruent with their claims for legitimate control of the reed beds.

This lack of resolution is troubling, because it violates the expectation of closure at the end of narratives. It raises the question of how this incommensurability has been preserved, and thus entails an examination of the social activities and cultural conceptions surrounding the circumstances in which the maps pass from the individuals who drew them to those who look at them - in other words, it requires an analysis of practice as well as form. Particularly puzzling in this case is the use of maps by peasants and officials in apparently normal channels of political and routine bureaucratic activities, such as in the bargaining over the boundaries and status of the Reserve before its opening, and the peasants' partial compliance with government procedures for licensing afterwards.

#### ANALYSIS OF PRACTICE

##### *An Ethnography of Viewing*

The analysis of practice consists of two parts, an ethnography of viewing (Orlove 1991a) and an examination of the social and cultural categories into which peasants and officials place maps. Before taking them up in turn, it is worthwhile considering how an analysis of form can lead to an analysis of practice. The key links are the concepts of 'implied viewer' and 'actual viewer,' a direct borrowing of the notions of 'implied reader' and 'actual reader' developed by Iser (1974, 1978), who adopted the term 'literary anthropology' for his work (Iser 1989). An analysis of form provides many clues to the identity of implied viewers, whose nature may be more fully understood through an analysis of practice. The peasant maps clearly have state agencies as implied viewers, the Ministry of Agriculture and Food, to whom Map P1 was submitted, or CENFOR, which required Map P2. Nonetheless, the state agencies did not scrutinize the maps with care, as an examination of practice will reveal. It seems the peasants were the actual viewers who studied the maps with more attention. The size of Map P1, large enough to be displayed at meetings, and the detail with which the maker of Map P2 depicted specific communities suggest this internal viewing.

The implied viewers of the state maps seem to be the general public of all Peruvian citizens to whom the state addresses its discourses. The use of reflexive verbs in official

documents obscures the identity of both author and reader of the laws, making the author an implied singular rather than plural person, and the reader an indirect rather than direct object; thus the Supreme Decree, which announced the formation of the Reserve, begins "*se ha expedido el siguiente*" (literally, "the following [text] has issued itself"). Like the laws, the state maps do not directly address the issue of their implied audience, but they contain some clues. For example, state mapmakers included certain details referring to legal terms and categories, such as the abbreviation 'h' for *hito* ('boundary point') and the phrase '*zona de recuperación*.' The inclusion of details unfamiliar to most Peruvians emphasizes the position of the state as the source of the discourse and reduces the importance of the recipients of this discourse. If all Peruvians are the implied viewers, the actual viewers are other officials of state agencies to whom CENFOR employees in Puno sent reports.

These identifications of implied and actual viewers are borne out by a description of the actual practices of viewing, or, in other words, an ethnography of viewing. On some occasions, both peasant and state maps were open for viewing at the same time and place. When delegations from peasant communities came to the CENFOR offices on Calle Moquegua in Puno in the early 1980s, they walked through a gate, crossed a narrow courtyard, and entered a large room that had been the living room of a private residence before the owners rented the building to the government. This room contained a few desks, chairs, and filing cabinets; taped on the walls were maps of Lake Titicaca on which were indicated the Reserve boundaries and the zones into which the Reserve was divided. These maps, quite similar to Maps S2 and S3 but larger in scale, were made by a process similar to the diazo process used for blueprints, yielding products with a light purple-blue background tone and slightly fuzzy lines and lettering in a darker shade of the same color. They were large maps, well over a meter on a side, created at a scale of 1:100,000 so that they showed a larger portion of the lake than the state maps included in this article. They were in sight when the peasants stood in front of a desk and presented, to the official seated behind it, the various documents, including the maps of the proposed totora cutting sites, that were required to request a totora extraction permit.

There are several reasons for the discrepancies between the sets of maps not to come to attention. The two sets of maps appeared quite different, in straightforward visual terms, to the individuals who viewed them. The state's wall maps, though large, had the same range of type sizes as the smaller maps S1, S2, and S3, so that the names of places and physical features could not be read from the distance at which the peasant delegations viewed them; the peasants were too cautious, or at least too deferential, to wander from the desk and examine the material on the office walls in order to compare them to the maps they had drawn. The CENFOR officials also sat at some distance from the wall maps, and would have had to walk over

to collate the two. This ethnography of viewing shows that analysis of form may rest in part on analysis of practice; in this case, the legibility, and hence the intelligibility, of place-names depends on the distance from which they are viewed.

#### *Different Cultural Categories of Maps*

The social activities of viewing draw on the cultural categories of maps, the second component of the analysis of practice. The state has two well-defined categories of maps with clearly established relations; peasants have three more loosely defined categories of maps without specified relations among them. These categories rest on the use and appearance of the maps. Visual representations that ordinarily would not be classified as maps by cartographers and geographers are included in peasant categories, although they are excluded from state categories.

CENFOR officials reserved the term *mapa* ('map') for the state maps, employing for the peasant maps the term *croquis*, a word which is often translated as 'sketch' but also includes the sense of 'rough draft.'<sup>9</sup> This distinction between *mapa* and *croquis* allowed them to present any difference between peasant maps and state maps as the result of peasant errors so numerous and severe as to place their maps in another category altogether. The term *croquis* also has a narrative implication: it suggests that the peasant maps will serve as the basis for a later corrected map, drawn by state officials, just as Map P2 is transformed into rectangle 3 on Map S3. Indeed, a *croquis* need not be crudely drawn, just as some *mapas*, such as S2, can be rough. The sharpness of this distinction rests on the centrality of official documents to state discourse. In this case, the contrast between *mapa* and *croquis* is supported by the government's use of the latter term in the 1975 law that established CENFOR, which stipulates the inclusion of such a *croquis* as one of the conditions for the issuing of extraction contracts for all forest products, whether timber or non-timber products such as totora.

For peasants, cultural categories also blocked the comparison of the maps. Peasants have a looser set of map types, rather than having two simple named categories of maps; in this domain as in many others, peasant discourses are less systematized than those of the state, in part because written documents and centralized institutions have lesser importance in their internal affairs. Nonetheless, peasants are accustomed to several types of maps.<sup>10</sup> Some could be called vernacular maps, for which peasants may use a stick to scratch a few lines in the earth, usually to indicate the location of some particular place. These are fairly uncommon since peasants more often give oral directions by describing a route based on references to landmarks. Peasants occasionally draw other maps, which might be termed bureaucratic maps, for official proceedings like lawsuits or loan applications. These tend to resemble the peasant maps of the reed beds in the manner of river, road, and village depictions, while typically indicating boundaries of some fields, pastures, or other lands. Such



maps are drawn infrequently; in local disputes, peasants often walk to the boundaries of fields or communities and inspect the boundary-stones, and in submitting documents to officials, a written list of boundary points often substitutes for a hand-drawn map. A third map type, official maps, depict a whole composed of parts. The conventional political maps of Peru that adorn classroom walls are a good example. Drawn at a scale of one to several million, they make Peru look something like a jigsaw puzzle, with the departments into which the country is divided being irregularly shaped pieces, each uniformly painted with one of four or five bright colors. In the minds of peasant children who copy such maps as school exercises, and in the minds of adults who see the copies, these maps may bear little more direct relation to a natural and social landscape than do the national shield and flag, emblems that schoolchildren are also assigned to copy neatly. The peasants probably classified the maps in the CENFOR building as the official type.

In his discussion of state-sponsored nationalism in Southeast Asia, Anderson (1991, 175) developed the term 'logo-map' to refer to the way in which national maps can be used on "posters, official seals, letterheads, magazine and textbook covers, tablecloths, and hotel walls." The peasant category I have termed 'official maps' comes close to Anderson's notion of logo, but in his view the state creates and diffuses this logoization of the map. He does not examine the formal categories the state uses in its discussion of such images. The situation in Peru is somewhat different, in part, because of a discrepancy between peasant and state interpretations of symbols. The Peruvian state has an official discourse regarding representations of the nation. It applies the term *símbolo pátrio* ('homeland symbol') to only four objects: the flag, the shield, the national anthem, and the *escarapela* or cockade, a small ornamental rosette made of ribbons. Several grounds could be offered for the exclusion of maps from this list: the multiplicity of maps which contrasts with the unity of the nation, the excessive and non-symbolic directness of the relation of maps to that which they represent, and the many changes in maps following post-independence shifts in boundaries brought on by wars and treaties. Like the contrast between *mapa* and *croquis*, the state's notion of *símbolo pátrio* is sharply defined and rendered permanent by its inclusion in official documents. The peasants' association of the national maps with the flag and the shield may simply reflect their spatial proximity to each other and to government representatives in schools, police stations, and administrative offices, or it might be a tactic, in de Certeau's (1984) sense of the term, for evading the state's claim to power. The imputation that the maps, flags, and shields are alike is potentially a serious one. As Anderson points out, the precise delimitation of national borders is an important basis for state legitimacy and centralized rule. Peru is no exception, given the extreme care taken in drawing national borders, including the one dividing the Altiplano into its Peruvian

and Bolivian sections (Toppin 1916). The erasure of the difference between purportedly objective maps and more arbitrary symbols undercuts the state's claim to govern, denying the success of its closely related topographic, cadastral, administrative, and policing missions (de Certeau 1984, Helgerson 1986).

This analysis of practice leads back to an analysis of form. There are two additional and related ways in which the state maps differ from the peasant maps. The former adopt more fully the plan view convention of depicting all features as they would appear from the air. In addition, the three state maps all connect spatially with one another and with other state maps, so that, for example, the Sector Puno could be precisely located on state maps of the region or on maps of all Peru, maps such as those placed on the walls of the CENFOR office in Puno. The existence of only one state category of *mapas* is congruent with this connectivity among all state maps and the application of the conventional plan view. Only the state sees Peru as a unity. In contrast, the peasant maps contain several repeated violations of the plan view convention: the flags and the mountains in P1, and the houses in P2. These are depicted as they would be seen from the ground, the houses and flags from nearby and the mountains as peaks on the horizon. Features at the centers of communities are drawn relatively large, whereas those on the boundaries are relatively small, creating a viewpoint that is literally community-centered. Consistent with this duality of perspectives – from the air and from the ground – are several features of the peasant maps: the multiplicity of peasant map categories, the inclusion of other representations alongside maps in each category, and the fact that different peasant maps do not immediately form pieces of other, larger maps.<sup>12</sup>

To review this conflict, I will draw on Gudeman and Rivera's (1990) emphasis on the central notion of conversation in the field of anthropology, and their portrayal of anthropologists as both listeners and participants in conversations in the field. Since the implied viewers of the peasant maps are state officials, and those of the state maps the entire Peruvian citizenry, including the peasants, the maps jointly imply an exchange between peasants and the state, a conversation in which two parties alternate the roles of speaker and listener. On closer inspection, this conversation is more apparent than real, and far less important than the two distinct, incompletely linked conversations among peasants and among state officials, the former consisting of a network of speakers whose different conversational contexts are loosely tied, whereas the latter are composed of a centrally organized system of speakers whose different conversational contexts are hierarchically integrated. The separation of these two conversations corresponds to the irresolution of their differences. The lack of conversational exchanges between the two presumed interlocutors allows their highly discrepant positions to be compatible, where compatibility implies an existing together without disagreement, discord, or disharmony, and

without the conflict that would make association impossible or incongruous (Merriam 1973, 181). It is even difficult to decide whether or not a conversation – in this case, a dispute – has taken place.<sup>13</sup>

### Implications for Cartography

As an anthropologist, I have sought to bring this situation of two partially linked conversations into still other conversations. I have written one account in an English-language scholarly journal that tries to bring this situation into the academic exchanges of my own field of anthropology (Orlove 1991a), and another in Spanish (Orlove 1991b), published in a journal in Cusco, a departmental capital in southern highland Peru; the largely Peruvian readers of this journal are concerned with, and often involved in, local political and cultural affairs. In a third account (Orlove 1991c), also written in Spanish, I sought to reach a broad audience of Latin American social scientists interested more generally in issues of political conflict and violence. These efforts have brought home to me the fact that it is impossible to reach a significant number of readers in Aymara or Quechua; they have also underscored for me the ways in which my privileges – an American passport, language classes, research grants – have allowed me access to the different social contexts that I have described here. Finally, this work has also led me to see the specificities of what can be called the 'cartographic gaze': the special cultural and political circumstances under which researchers are able to remove maps from their original contexts, to xerox them at varying scales and with varying levels of contrast, to sit quietly at a desk and compare them to other maps, to transfer them to transparencies that can be displayed in classrooms and at scholarly meetings, and to photograph copies suitable for publication. In this final section, I write to cartographers, a set of colleagues with many similarities to anthropologists, though with a few differences as well.

I begin with a review: the five maps in question all depict similar areas, shallow portions of Lake Titicaca and, in most cases, the adjacent shores. However, they represent them in different terms. State officials drew maps that lay out a narrative of their conception and enactment of a detailed plan for a specific territory. The ones made by peasants tell a different story: of the control of the territory by a set of communities, all equal to one other; of the continuity of this control; of the ratification of this control by a remote state. Analyses of form and practice have explained the fact that neither peasants nor state officials have challenged the discrepancies between the sets of maps or even commented on their incommensurability.

These maps of Lake Titicaca have implications for the study of maps more generally. They warn against the habit, common to cartographers and geographers, of taking maps as isolated, autonomous objects that can be read in their own terms, most often as a transcription of the knowledge and categorizations that individuals carry in

their minds. These maps bring to light an assumption that often remains hidden: many cartographers and geographers apparently believe that maps radically desocialize the world, or, phrased in behavioral terms, that maps are intended to allow individuals to obtain information without face-to-face contact with each other. The Titicaca maps, in contrast, indicate the importance of resocializing maps by examining them in their cultural and political context. More specifically, these maps indicate that different people have quite distinct ways of looking at maps, speaking of maps, and acting on the basis of maps; most striking, they do not serve only informational or decorative purposes, but are incorporated into social life in many other ways as well. At a more fundamental level, the Titicaca maps suggest there are no objective universal criteria by which maps can be judged, distinguished from non-maps, or even distinguished from each other; these categorizations emerge from culturally specific understandings of images and from socially specific habits of viewing.

Despite my efforts at being neutral and objective, there are at least two ways in which I have shaped my own account of the maps by the sorts of inclusions, exclusions, framings, and emphases that mapmakers themselves use. First, I have juxtaposed two different sets of maps. In contrast to some other map researchers, I have neither limited myself to the more culturally distinct maps made by indigenous or native people, nor emphasized the maps drawn by national governments as the most complete and accurate representations available. Second, I have used the terms 'peasant' and 'state' to describe the maps. I could have used terms emphasizing cultural difference even more strongly if I had replaced 'peasant' with 'indigenous,' 'Indian,' or 'Andean,' or substituted 'Western' for 'state.' Had I used these alternative terms, the general outline of the incommensurability of the two mapmaking traditions would have been much the same, but there would have been differences in emphasis, which, even if they are relatively small, are worth considering. The use of cultural labels might simply be taken to imply that cultures develop autonomously from one another. The words 'state' and 'peasant,' however, suggest that they have unfolded in a series of encounters with each other. The use of cultural terms also would indicate one of two things: either a dichotomy in which all maps could be divided into 'Western' on the one hand and 'native' or 'indigenous' on the other, or a large number of individual cultural traditions, no two of which would necessarily be linked in a single type. 'State' and 'peasant' indicate two types of maps, leaving open the possibility for other institutional or class distinctions among map types. This implicit typology might also suggest that certain social and political characteristics of the mapmakers and map viewers could influence map forms and practices; note that certain characteristics in the state maps (e.g., proleptic narratives, emphases on transportation routes and towns, exclusive reliance on the plan

view convention, sharply defined legal categorization of map types) do not appear in the peasant maps, and others in the peasant maps (e.g., narratives of settlement permanence, emphases on subsistence food production, a multiplicity of perspectives, a looser categorization of map types) are not evident in the state maps. Terms such as 'native sketch maps' and 'modern administrative maps' would have implied a progression from poor or crude maps to better, more sophisticated ones. The cultural terms, 'indigenous' and 'Western,' especially when taken as a dichotomy, could connote a similar large-scale process in which European modes of perception and representation have conquered and replaced non-European modes. When faced with two incommensurable sets of maps, the views emanating from these broad trends tend to present one set of maps as more advanced, and hence better, than the other. Moreover, such views imply that encounters among incommensurable maps will become less frequent in the future, as more modern or scientific or Western maps replace the earlier ones. In contrast, 'peasant' and 'state' suggest that these incommensurabilities are likely to remain because they are linked to more enduring differences in power and organization.

The prospect that the world of mapmakers and map users will continue to be characterized by pluralism and incommensurabilities, rather than by steady progress, has several implications for research on maps. Cartographers, so often concerned with teaching people how to make their maps better, have not always learned how to study maps well. Most importantly, if maps are deeply embedded in distinct cultural and political systems, then the study of maps becomes a complex task of translation (Orlove 1993). Such translations are facilitated by considering other visual representations and texts that are not taken to be maps, and by studying other sorts of negotiations; examples of the former include the flags, shields, laws, and boundary-stones discussed here, whereas village assemblies and the routine functioning of bureaucratic agencies are instances of the latter.

Such efforts have been undertaken by a few cartographers and cultural geographers (e.g., Rundstrom 1990), and by scholars in other fields of the social sciences and humanities. Alpers's (1983) study of Dutch Renaissance art includes a chapter on maps, demonstrating that, to seventeenth-century Dutch painters and art collectors and twentieth-century art historians, the line separating landscape painting from maps is a difficult one to trace, just as similar lines between maps and other drawings have been hard to locate in the Lake Titicaca area. Helgersson's (1992) recent study of Elizabethan England similarly includes one chapter on maps. He joins maps not with other visual representations as Alpers does, but with other texts such as plays, essays, and chronicles; the author sees the rise of map-collecting and the new popularity of historical plays as connected elements in a transformation of English national identity. The parallel effort by cartographers and

cultural geographers - well represented in the other articles in this collection - holds much promise. There is considerable uncharted terrain, well-known to the locals but often unrepresented on official depictions of the current state of knowledge.

### Notes

<sup>1</sup> I first visited the Lake Titicaca region in 1972, travelled there for short periods in 1974 and 1976, and spent a total of eighteen months in the region in 1979-81, when I was funded by the U.S. National Science Foundation grant BNS-78-15409. In addition, I made brief trips to the Altiplano in 1982, 1983, and 1986, the latter with support from NSF grant BNS-83-07728. I have also drawn on the field notes of Dominique Leveil, a fisheries economist and planner who worked in the Altiplano in collaboration with the United Nations Food and Agriculture Organization in 1980-81 and who conducted dissertation fieldwork around Lake Titicaca in 1984 (Leveil 1987). The overlap in our interests and inquiries has led us to write jointly four articles (Leveil and Orlove 1990, 1991; Orlove and Leveil 1989; Orlove, Leveil, and Treviño 1991). Because of our extensive discussions and exchanges of field notes, documents, and other materials, there are many points of information and interpretation for which it is difficult for me to attribute one or the other of us as the source. Leveil's contribution to this article is particularly important, since he drew my attention to the question of communal control of reeds, although he interprets this matter from the perspective of economic efficiency and resource management.

An article based on related material was published in the *American Ethnologist* 18/1, February 1991. Although there is some overlap between that article and this one, the two differ substantially in that this one focuses centrally on cartographic themes of the production, circulation, and reception of maps, whereas the other emphasizes ethnological issues of cross-cultural communication more generally.

<sup>2</sup> These two types of analysis resemble the approach of Bruno Latour, who is often described as a practitioner of the history, philosophy, or sociology of science but who labels his work as part of an 'anthropology of science' (Latour and Woolgar 1986, 253). He studies in detail what he calls 'inscriptions.' This term, which he claims (1986, 253) to have adopted from Derrida (1977), appears in his ethnographic account of a biochemistry laboratory (1986, 51):

... a number of ... pieces of apparatus, which we shall call 'inscription devices,' transform pieces of matter into written documents. More exactly, an inscription device is any item of apparatus or particular configuration of such items which can transform a material substance into a figure or diagram which is directly usable by one of the members of [the research group and other individuals interested in their work].

<sup>3</sup> These boundaries include the largest totora beds in the lake. The communities within the Totora League, exempted by the 1977 regulations, had smaller beds than those in the Reserve, and thus could have been excluded on solely ecological criteria. In the case of the southern end of Puno Bay, which is larger and closer to the rest of the Reserve, it is more difficult to discover

an ecological basis for the exclusion of this area of reeds. In this instance, political factors may well be implicated by the activities of the second section of the League, which operated in the districts of Platería and Chucuito, though at a lower level of activity than the first section of the League located nearby.

<sup>4</sup> Two communities at the bottom of the map, outside the area of the League, are shown as open circles with dots in their centers; the rectangle to their left also corresponds to a community, Camicachi, whose name is written along the road that leads to it.

<sup>5</sup> Jinari, the only one of the fourteen missing from the peasant's inventory, is relatively far from Socca. The additional five communities in his list may have joined the Totorá League after the map was made.

<sup>6</sup> It is for similar reasons that peasants carry flags when they invade haciendas or cooperatives, much as the urban poor do when occupying land to set up a squatter settlement. These cases, though, are much more direct confrontations than the community assemblies, and the use of the flag is in part a conscious tactic designed to prevent repression by state forces (de Certeau 1984).

<sup>7</sup> The long narrow blank region shown on Map S1 along the southeastern edge of the Reserve contains open waters of the lake; the 'floating islands' next to it are located where these waters and the totora beds meet. Because this region is not labelled as such, and since the symbols indicating the reeds are so widely spaced, the map leaves the region unexplained.

<sup>8</sup> This classification bears only weak relation to the findings of the major study of aquatic vegetation in the region, which shows that only about one-quarter of the totora in Puno Bay is of 'low density' rather than 'high density,' and that this low density section is found mostly in the areas classified by CENFOR as ZUDS I and II, with some in ZUD III and almost none in the recuperation zone. The low-density totora is found principally in waters either too shallow or too deep to support optimal growth (Collot 1981).

<sup>9</sup> I have no record of CENFOR officials using other Spanish words for map, such as *plano* ('plan,' often used for built structures such as houses and cities) and *carta* ('map,' a word which, like its English cognate 'chart,' is used less frequently now than it was in the past).

<sup>10</sup> I will exclude here, somewhat arbitrarily, other objects that seem further from the conventional cartographic notion of maps, particularly some three-dimensional representations of the earth's surface, most of which are used for ritual purposes. There are some examples familiar to Andean specialists, such as the arrangements of pebbles depicting houses and corrals (Allen n.d.) and the alabaster carvings of fields and houses best known from Ayacucho, but also found near Puno (Tschopik 1951, 237); a less well-known instance would be the heaps of dark stones surmounted with light stones in Santiago de Huata in the province of Omasuyos, department of La Paz. These piles resemble the snow-capped peaks of the Bolivian Cordillera Real, and peasants use the same Aymara term for both, *hanq'o p'eqe achachila*, or 'white-headed grandfather.'

<sup>11</sup> The only possible violation of this convention in the state maps

is the depiction of the church in Capicruz on Maps S2 and S3 as it might appear from in front - a building with a gable roof topped by a cross. It appears only once on each map and, in any case, a representation more pictorial than usual might be expected for this church, the one tourist attraction singled out for attention within the recreation zones.

<sup>12</sup> Rough, hand-drawn maps can preserve the plan view convention and the assumption of connectivity, even if they are not of consistent scale; good examples of such maps from the present-day United States can be found in the xeroxed sketches inserted in invitations to parties, dinners, weddings, and so on. They maintain connectivity by referring to transportation networks.

<sup>13</sup> This dilemma is particularly acute in this instance due to the increasing political violence in the Altiplano in the second half of the 1980s, as the Sendero Luminoso and military activities that have developed elsewhere in Peru have expanded in the region (Taylor 1987). It would now be virtually impossible for me to travel through the villages on the Peruvian shores of Lake Titicaca. The theme of the gap between the state and rural people has taken on a new urgency.

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**Abstract** An examination of five contemporary maps of Lake Titicaca, Peru, three drawn by government officials and two by peasants, reveals profound differences in the depiction of the natural landscape and social groups. To understand these differences, and to explain why neither government officials nor peasants are conscious of them, two techniques of map study are presented: the analysis of form and the analysis of practice, the latter consisting of an 'ethnography of viewing' and an examination of culturally specific map categories. The general implications of such incommensurabilities of mapmaking and map-viewing traditions are discussed.

**Résumé** Un examen de cinq cartes contemporaines du Lac Titicaca, au Pérou, dont trois ont été dressées par les officiels du gouvernement et deux par des paysans, révèle des différences profondes dans la représentation du paysage naturel et des groupes sociaux. Pour comprendre ces différences et pour expliquer pourquoi ni les officiels du gouvernement ni les paysans n'en sont conscients, on présente deux techniques d'étude cartographique : l'analyse de la forme et l'analyse de la pratique, cette dernière consistant en une 'ethnographie du visionnement' et un examen de catégories cartographiques spécifiques à la culture. On discute

des implications générales de telles incommensurabilités que représentent les traditions de fabrication et de visionnement de cartes.

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