ANDEAN CARAVANS: 
AN ETHNOARCHAEOLOGY 
by 
Axel Emil Nielsen

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A Dissertation Submitted to the Faculty of the 
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# TABLE OF CONTENTS

LIST OF ILLUSTRATIONS .................................................................................................................. 11

LIST OF TABLES ............................................................................................................................... 13

ABSTRACT ........................................................................................................................................ 14

CHAPTER 1: INTRODUCTION ........................................................................................................... 16

WHY CARAVANS? ............................................................................................................................. 16

Foreign Goods and Complementarity Models .................................................................................. 16

Focusing on Caravans ...................................................................................................................... 23

Previous Research .......................................................................................................................... 26

ON THIS STUDY ............................................................................................................................... 28

The Project Community – Research Activities .............................................................................. 28

Research Scope and Orientation ..................................................................................................... 30

The Organization of this Dissertation ............................................................................................. 34

ENDNOTES ....................................................................................................................................... 36

CHAPTER 2: ECONOMIC COMPLEMENTARITY AMONG PASTORALISTS .................................... 37

PASTORAL PRODUCTIVE FORCES ................................................................................................. 40

Ability to Exploit Marginal Environments ....................................................................................... 41

Fragility of Pastoral Wealth ............................................................................................................ 42

Limited Potential for Intensification ............................................................................................... 43

High Productivity of Labor ............................................................................................................. 44

Lack of Autarky ............................................................................................................................... 45

PASTORAL SOCIAL SYSTEMS .......................................................................................................... 46

INTEGRATION WITH OTHER PRODUCTIVE SYSTEMS ................................................................ 51

Diversification .................................................................................................................................. 52

Articulation ....................................................................................................................................... 53

SUMMARY ....................................................................................................................................... 56

ENDNOTES ....................................................................................................................................... 59

CHAPTER 3: CARAVANS IN ANDEAN POLITICIANAL ECONOMY ................................................. 60

THE ORGANIZATION AND IMPACT OF CARAVAN TRAFFIC .................................................... 62

Pastoral Specialization of Caravanners ............................................................................................ 63

Transported Goods .......................................................................................................................... 65

Relationship with Elites .................................................................................................................... 68

Ethnic Affiliation and Identity ........................................................................................................ 69

Geopolitical Context ....................................................................................................................... 72

Network Configuration .................................................................................................................... 73

On the Nature of Transactions ....................................................................................................... 74

CARAVANS IN COMPLEMENTARITY MODELS ........................................................................... 77

Vertical Archipelagoes ...................................................................................................................... 78
# TABLE OF CONTENTS – Continued

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic Economies</td>
<td>80</td>
</tr>
<tr>
<td>State Archipelagoes</td>
<td>82</td>
</tr>
<tr>
<td>Altiplano Mode</td>
<td>83</td>
</tr>
<tr>
<td>Caravans and Clients</td>
<td>85</td>
</tr>
<tr>
<td>Circuit Mobility</td>
<td>88</td>
</tr>
<tr>
<td>Llamero Trade</td>
<td>92</td>
</tr>
<tr>
<td>Complementarity without Caravans</td>
<td>93</td>
</tr>
<tr>
<td><strong>ENDNOTES</strong></td>
<td>95</td>
</tr>
</tbody>
</table>

## CHAPTER 4: THE ETHNOARCHAEOLOGICAL APPROACH

<table>
<thead>
<tr>
<th>ETHNOARCHAEOLOGY</th>
<th>97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>97</td>
</tr>
<tr>
<td>Realist Ethnoarchaeology</td>
<td>104</td>
</tr>
</tbody>
</table>

### ANALYTIC FRAMEWORK

<table>
<thead>
<tr>
<th>The Need for a Behavioral Approach</th>
<th>113</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic Context</td>
<td>119</td>
</tr>
<tr>
<td><strong>Social Units</strong></td>
<td>119</td>
</tr>
<tr>
<td><strong>Activities and Artifacts</strong></td>
<td>122</td>
</tr>
<tr>
<td><strong>Places</strong></td>
<td>125</td>
</tr>
<tr>
<td><strong>Time Scales</strong></td>
<td>126</td>
</tr>
<tr>
<td>Archaeological Context</td>
<td>127</td>
</tr>
</tbody>
</table>

**ENDNOTES**                                                        | 131  |

## CHAPTER 5: THE NATURAL SETTING

<table>
<thead>
<tr>
<th>THE SOUTHERN ALTIPLANO</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERREGIONAL CONTEXT: THE CIRCUMPUNA AREA</td>
<td>142</td>
</tr>
<tr>
<td>SPACE AND RESOURCES IN CERRILLOS</td>
<td>145</td>
</tr>
<tr>
<td>DISCUSSION: ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES</td>
<td>149</td>
</tr>
</tbody>
</table>

## CHAPTER 6: PASTORALISM AND SOCIETY IN CERRILLOS

<table>
<thead>
<tr>
<th>HOUSEHOLD ORGANIZATION</th>
<th>155</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerrillos’ Households</td>
<td>155</td>
</tr>
<tr>
<td>Residence and Inheritance</td>
<td>159</td>
</tr>
<tr>
<td>Household Cycle</td>
<td>162</td>
</tr>
<tr>
<td><strong>PASTORAL PRODUCTION</strong></td>
<td>165</td>
</tr>
<tr>
<td>Herd Composition</td>
<td>166</td>
</tr>
<tr>
<td>Herd Management</td>
<td>172</td>
</tr>
<tr>
<td>The Annual Cycle</td>
<td>177</td>
</tr>
<tr>
<td>Other Productive Activities</td>
<td>182</td>
</tr>
<tr>
<td><strong>COMMUNITY ORGANIZATION</strong></td>
<td>183</td>
</tr>
<tr>
<td>State-Related Authorities</td>
<td>184</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS – Continued

Ethnic Authorities ................................................................. 186
DISCUSSION: PASTORALISM AND SOCIETY IN CERRILLOS .... 192
Dynamics of Economic Wealth ..................................... 192
“Llamitas are Like Snow” ........................................ 194
Household Composition and Developmental Cycle .......... 196
Gifts and Inheritance .................................................. 197
Access to Money and Other External Resources .......... 198
Size of Grazing Areas ................................................. 200
Dynamics of Non-Economic Wealth ................................ 206
Social Networks ......................................................... 209
Christianity and Tradition ...................................... 211
Prestige ................................................................. 215
Conclusion .............................................................. 216
ENDNOTES ............................................................ 219

CHAPTER 7: PASTORALISTS IN THEIR TERRITORY .......... 220
MAIN RESIDENCES (CASAS) ........................................... 220
Location ................................................................. 224
Artifact Content .......................................................... 228
Activity Areas .............................................................. 234
Courtyard ................................................................. 234
Outdoor Kitchen ...................................................... 238
Indoor Kitchen .......................................................... 240
“Kawildu” or “Mesawasi” ........................................... 241
Storage Areas ............................................................ 242
Sleeping Areas ............................................................ 243
Discard Areas .............................................................. 244
Ritual Areas ................................................................. 246
Animal Enclosures and Sleeping Areas ......................... 248
Other Activity Areas .................................................... 249
The Lifecycle of Main Residences .................................. 251
HERDING POSTS (ESTANCIAS) ..................................... 264
Location ................................................................. 269
Structure and Content .................................................. 271
GRAZING AREAS ............................................................. 280
THE TOWN OF CERRILLOS ........................................... 287
OTHER LOCATIONS .................................................... 292
THE SETTLEMENT SYSTEM ........................................... 293
A Short-Term Perspective ................................................ 296
Settlement Distribution .................................................. 296
Mobility ................................................................. 298
Functional Differentiation among Locations .................. 300
TABLE OF CONTENTS – Continued

Structure and Content of Locations .......................................................... 305
Medium-Term Processes ............................................................................. 308
Settlement Lifecycles .................................................................................. 309
Settlement Life Span ...................................................................................... 310
Spatial Redundancy ......................................................................................... 313
Long-Term Transformations ......................................................................... 315
ENDNOTES ....................................................................................................... 320

CHAPTER 8: PRACTICAL LOGIC AND RITUAL ACTION ............................ 322
PRACTICAL LOGIC AND HABITUS ............................................................ 322
DOMESTIC RITES ......................................................................................... 327
Inflorada ......................................................................................................... 327
Slaughtering .................................................................................................. 332
Funeral ........................................................................................................... 335
COMMUNAL CEREMONIES: ESPRITU ...................................................... 336
The Altars ....................................................................................................... 338
The Espiritu Ceremony .................................................................................... 341
SPACE, RITUAL GESTURE, AND PRACTICAL LOGIC ......................... 348
The Logic of Space .......................................................................................... 349
The Logic of Social Relations ...................................................................... 355
The Logic of Economic Production ............................................................... 360
Ritualizing Gestures ...................................................................................... 365
CONCLUSION: RITUAL, IDENTITY, AND ARCHAEOLOGY ...................... 368
ENDNOTES ....................................................................................................... 370

CHAPTER 9: ECONOMIC COMPLEMENTARITY IN CERRILLOS ................ 372
COMPLEMENTARITY MECHANISMS ............................................................ 374
Farming in the Valleys .................................................................................... 374
Temporary Migration ....................................................................................... 375
Reciprocity with Relatives Living Outside .................................................... 378
Caravan Trade and Other Forms of Exchange ............................................. 381
Lending Animals to Others for Caravan Trips ........................................... 387
Salaried Work ................................................................................................. 388
COMPLEMENTARITY STRATEGIES ............................................................... 388
Strategy A: Migration and Trade ................................................................. 389
Strategy B: Caravan Specialization ............................................................... 390
Strategy C: Direct Control of Farmland ....................................................... 390
Strategy D: Reciprocity with Households Living Outside ......................... 391
Strategy E: Salary and Full Market Integration .......................................... 391
THE COMPLEMENTARITY SYSTEM ............................................................. 392
Internal Organization ...................................................................................... 392
External Factors ............................................................................................. 399
## TABLE OF CONTENTS – Continued

**CONCLUSION** ................................................................................................................. 405
**ENDNOTES** .................................................................................................................. 407

**CHAPTER 10: CARAVANS ON THE MOVE** .................................................................. 408

A CARAVAN JOURNEY TO THE EASTERN ANDEAN VALLEYS ........................................ 409
- The Members of the Caravan ..................................................................................... 409
- Preparing the Load ..................................................................................................... 412
- The Departure ............................................................................................................ 415
- The Routes ................................................................................................................ 418
- The Caravan Day ...................................................................................................... 423
- Ritual Practices along the Journey .......................................................................... 428
  - Major K’owaco ..................................................................................................... 429
  - Minor K’owacos ................................................................................................. 434
  - Apachetas ............................................................................................................ 435
- The Exchange ............................................................................................................ 435
  - Primary Exchange ............................................................................................... 435
  - Secondary Exchange ......................................................................................... 438
  - Daily Swapping ................................................................................................... 439
- The Way Back ......................................................................................................... 439
- Caravans at Fairs .................................................................................................... 440

**MATERIAL CULTURE AND SETTLEMENT SYSTEMS** ................................................. 443
- Caravanner’s Main Residence .................................................................................. 444
- Routes ....................................................................................................................... 446
- Overnight Camps .................................................................................................... 448
- Rest Places ............................................................................................................... 461
- Articulation Points .................................................................................................. 465
- Medium-Term Processes ....................................................................................... 469
**ENDNOTES** .................................................................................................................. 474

**CHAPTER 11: TOWARD AN ARCHAEOLOGY OF CARAVANS** ....................................... 476

**PASTORALISM** .......................................................................................................... 476
**CARAVANS** .............................................................................................................. 483
- Caravanner’s Residence ......................................................................................... 486
- Routes ....................................................................................................................... 488
- Overnight Stops ...................................................................................................... 489
- Rest Places ............................................................................................................... 500
- Articulation Points .................................................................................................. 504
- Extractive Loci ........................................................................................................ 507

**THE ARCHAEOLOGICAL RECORD OF CARAVANS AND THE**
**POLITICAL ECONOMY OF TRAFFIC** ........................................................................ 509
- Pastoral Specialization of Caravanners .................................................................... 510
- Transported Goods .................................................................................................. 513
# TABLE OF CONTENTS – Continued

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship with Elites</td>
<td>517</td>
</tr>
<tr>
<td>Ethnic Affiliation and Identity</td>
<td>521</td>
</tr>
<tr>
<td>Geopolitical Context</td>
<td>526</td>
</tr>
<tr>
<td>Network Configuration</td>
<td>527</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>530</td>
</tr>
<tr>
<td>ENDNOTES</td>
<td>532</td>
</tr>
<tr>
<td>REFERENCES CITED</td>
<td>533</td>
</tr>
</tbody>
</table>
### LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Location of the project community in the Circumpuna Area</td>
<td>32</td>
</tr>
<tr>
<td>5.1</td>
<td>Location of the study region</td>
<td>133</td>
</tr>
<tr>
<td>5.2</td>
<td>The Altiplano of López</td>
<td>135</td>
</tr>
<tr>
<td>5.3</td>
<td>The three life zones of López</td>
<td>137</td>
</tr>
<tr>
<td>5.4</td>
<td>Main life zones of the Circumpuna Area</td>
<td>143</td>
</tr>
<tr>
<td>5.5</td>
<td>Cantón Cerrillos, geographical features</td>
<td>146</td>
</tr>
<tr>
<td>7.1</td>
<td>Main residence of household 12</td>
<td>222</td>
</tr>
<tr>
<td>7.2</td>
<td>Distribution of settlements in Cerrillos</td>
<td>225</td>
</tr>
<tr>
<td>7.3</td>
<td>Terrain aspect at main residences and herding posts</td>
<td>229</td>
</tr>
<tr>
<td>7.4</td>
<td>Cooking vessels used daily</td>
<td>232</td>
</tr>
<tr>
<td>7.5</td>
<td>Vessels used for <em>chicha</em> and feasts</td>
<td>233</td>
</tr>
<tr>
<td>7.6</td>
<td>Main residence of household 6</td>
<td>253</td>
</tr>
<tr>
<td>7.7</td>
<td>Main residence of household 31</td>
<td>253</td>
</tr>
<tr>
<td>7.8</td>
<td>Main residence of household 22</td>
<td>254</td>
</tr>
<tr>
<td>7.9</td>
<td>Main residence of household 10</td>
<td>255</td>
</tr>
<tr>
<td>7.10</td>
<td>Main residences of households 27 and 28</td>
<td>255</td>
</tr>
<tr>
<td>7.11</td>
<td>Main residence of household 37</td>
<td>256</td>
</tr>
<tr>
<td>7.12</td>
<td>Main residence of household 15</td>
<td>256</td>
</tr>
<tr>
<td>7.13</td>
<td>Main residence of household 13</td>
<td>257</td>
</tr>
<tr>
<td>7.14</td>
<td>Main residence of household 8</td>
<td>257</td>
</tr>
<tr>
<td>7.15</td>
<td>Main residence of household 23</td>
<td>258</td>
</tr>
<tr>
<td>7.16</td>
<td>Main residence of household 29</td>
<td>258</td>
</tr>
<tr>
<td>7.17</td>
<td>Main residence of household 3</td>
<td>259</td>
</tr>
<tr>
<td>7.18</td>
<td>Main residence of household 16</td>
<td>260</td>
</tr>
<tr>
<td>7.19</td>
<td>Main residence of household 7</td>
<td>261</td>
</tr>
<tr>
<td>7.20</td>
<td>Main residence of household 25</td>
<td>261</td>
</tr>
<tr>
<td>7.21</td>
<td>Herding post of household 30</td>
<td>266</td>
</tr>
<tr>
<td>7.22</td>
<td>Herding post of household 22. Detail of semi-subterranean structure</td>
<td>268</td>
</tr>
<tr>
<td>7.23</td>
<td>Herding post of household 34</td>
<td>274</td>
</tr>
<tr>
<td>7.24</td>
<td>Herding post of household 25</td>
<td>274</td>
</tr>
<tr>
<td>7.25</td>
<td>Herding post of household 29</td>
<td>275</td>
</tr>
<tr>
<td>7.26</td>
<td>Herding post of household 1</td>
<td>275</td>
</tr>
<tr>
<td>7.27</td>
<td>Herding post of household 28</td>
<td>276</td>
</tr>
<tr>
<td>7.28</td>
<td>Herding post of household 11</td>
<td>277</td>
</tr>
<tr>
<td>7.29</td>
<td>Herd-monitoring windbreak (Cerrillos)</td>
<td>283</td>
</tr>
<tr>
<td>7.30</td>
<td>The town of Cerrillos</td>
<td>288</td>
</tr>
<tr>
<td>7.31</td>
<td>Main residences and herding posts by lineage</td>
<td>297</td>
</tr>
<tr>
<td>8.1</td>
<td>Location of the altars of <em>Espíritu</em> at Tres Cerrillos</td>
<td>339</td>
</tr>
<tr>
<td>8.2</td>
<td>Communal altar used for the ceremony of <em>Espíritu</em> at Tres Cerrillos</td>
<td>340</td>
</tr>
<tr>
<td>8.3</td>
<td>The practical compass</td>
<td>352</td>
</tr>
<tr>
<td>8.4</td>
<td>The exchange model in <em>Espíritu</em></td>
<td>357</td>
</tr>
<tr>
<td>8.5</td>
<td>The ritual model of pastoral production</td>
<td>363</td>
</tr>
</tbody>
</table>
Figure 9.1, Main destinations of Cerrillos' caravans .................................................. 382
Figure 9.2, Complementarity strategies, herd size and age of household head .......... 393
Figure 9.3, Age of household head by complementarity strategies .......................... 394
Figure 9.4, Herd size by complementarity strategy .................................................. 394
Figure 9.5, Internal articulation of strategies in the complementarity system .......... 396
Figure 10.1, Ignacio's main residence during the ceremony of caravan departure ... 416
Figure 10.2, Main caravan routes between Lípez and Tarija Valley .......................... 419
Figure 10.3, Overnight camp at Churquis Jara ...................................................... 426
Figure 10.4, The Yuraj Cruz Area ........................................................................ 430
Figure 10.5, Mountaintop altars at Yuraj Cruz ...................................................... 431
Figure 10.6, Reusing an abandoned corral for shelter at Sique Jara ..................... 453
Figure 10.7, Distribution of residues in a repeatedly used area at Vaquerías Jara ...... 472
Figure 11.1, Sites structures at repeatedly occupied campsites .............................. 493
Figure 11.2, Plans of two Inka way stations along the Inkañan in Southwest Lípez .... 496
Figure 11.3, Evdir Han (AD 1210-1219) in Anatolia ............................................. 499
Figure 11.4, The settlement system of caravans and its expected archaeological consequences ........................................................................................................... 508
LIST OF TABLES

Table 3.1, The organization of caravans according to some Andean complementarity models ................................................................. 91
Table 6.1, Cerrillos' household data .................................................................................................................................................. 156
Table 6.2, Herd composition by household .................................................................................................................................. 167
Table 6.3, Economic-ritual cycle in Cerrillos ................................................................. 178
Table 7.1, Locational attributes of main residences ................................................................. 226
Table 7.2, Consumable and durable elements present at main residences ..................... 230
Table 7.3, Activity area composition of main residences ................................................................. 235
Table 7.4, Life cycle of main residences ............................................................................. 252
Table 7.5, Locational attributes of herding posts ................................................................. 265
Table 7.6, Activity area composition of herding posts ................................................................. 272
Table 7.7, The architecture of main residences and herding posts ................................. 279
Table 7.8, Herd-monitoring windbreaks and associated refuse ........................................... 285
Table 7.9, Public and domestic architecture in the town of Cerrillos ............................. 290
Table 9.1, Complementarity mechanisms by household ................................................................. 376
Table 9.2, Cerrillos' population compared to total community members (1993 data) .................... 379
Table 9.4, Trade schedule .................................................................................................. 384
Table 10.1, Jaranas along the three main routes to the eastern valleys
used by llameros from Lipez ................................................................................................. 421
Table 10.2, Location and characteristics of campsites occupied during our
journey to Tarija (1995) ........................................................................................................ 422
Table 10.3, Twenty eight campsites between Cerrillos and the eastern valleys .......... 456
ABSTRACT

This dissertation reports on ethnoarchaeological research conducted among present-day llama pastoralists (or llameros) in the community of Cerrillos (Province Sud Lípez, Department of Potosí, Bolivia). Using a theoretical framework that combines elements of Marxism and Practice Theory, it aims at defining archaeological correlates for Andean pastoralism and caravan traffic, identifying ways in which the material remains of these activities can be used to explore aspects of the political economy in which they were immersed.

Pastoral settlement systems include a minimum of four settings where traces of this activity could potentially be found: these are termed main residences, herding posts, grazing areas, and gathering places. Caravan settlement systems involve six, i.e., caravanners’ residences, routes, overnight stops, rest places, articulation points, and extractive loci. Each one of these settings is analyzed in terms of activities, location, artifact content, internal organization, and medium-term processes that condition the relative redundancy in their use. The principles that regulate the organization of behavior and their material residues in these contexts are discussed, extracting several general propositions that could serve to identify the archaeological record of prehistoric pastoralism and caravan traffic.

These remains could also provide important information regarding six variables that are crucial to understand the role of caravan trade in broader social and economic processes: degree of pastoral specialization of caravanners; goods transported; elites’
involvement in traffic; ethnic context of trade; geopolitical context of trade; and network configuration.
WHY CARAVANS?

Foreign Goods and Complementarity Models

Evidences of medium and long-distance movement of goods are ubiquitous in the archaeological record of the Circumpuna Area or Andes of southwestern Bolivia, northern Chile, and northwest Argentina. Wooden artifacts, tropical birds or their feathers, nuts (Juglans australis), reeds, calabashes, hallucinogenic plants (Anadenanthera colubrina) or indirect evidences of their consumption, coca (Erythroxylum coca), marine shell (Pecten sp., Concholepas sp.), tropical terrestrial shell (Sthrophocheilus sp.), obsidian, chert, basalt, semiprecious stones (malachite, turquoise), and metals (gold, silver, copper, tin) are regularly found in both funerary and domestic contexts throughout the area, even when these elements are available or can be produced only in certain limited places, such as the eastern Andean valleys, the coast of the Pacific Ocean, or localized sources in the Western Cordillera and Atacama Desert. In addition to these, foreign ceramics are relatively frequent everywhere in the region and indirect evidence strongly indicates that many populations, specially those living at high altitude, had regular access to products from lower elevations, such as maize and wood. These evidences are already present since Archaic times (Aguerre et al. 1973).

Archaeologists have been aware of this phenomenon since the beginnings of research in the area (e.g., Boman 1991 [1908]), but only during the past two or three decades
they have begun to think systematically about its implications for understanding prehistoric society. This shift is closely related to the importance that the notion of "complementarity" has acquired in Andean anthropology after the pioneering ethnohistorical work of John Murra (1967, 1972, 1975). Salomon summarizes the basis of this concept in a simple axiom: "For geographical reasons, the Andean peoples must achieve the levels of consumption defined by their cultures as adequate through the articulation of complementary productive zones at varied altitudes and distances." (1985:511) Murra's "verticality" or "archipelago" model (1972, 1985), that emphasized the tendency of highland groups to obtain these resources directly by placing ethnic colonies in lower ecozones, was just the first of a series of formulations that attempted to capture the variety of practices through which Andean groups in different times and places responded to this basic adaptive imperative (e.g., Browman 1980; Brush 1976; Harris 1982; Núñez and Dillehay 1979; Rostworowski 1989 [1977]).

Despite a number of differences among them, complementarity models can be divided in two broad classes. Direct complementarity refers to systems in which members of a single polity or ethnic group are directly involved in the production or extraction of different resources, whether this involves the control of dispersed productive "islands" (Murra 1972), continuous territorial strips across the environmental gradient (Brush 1976; Harris 1982; Webster 1973), or migration (Martínez 1992). Put another way, the social units in charge of various productive activities (in contiguous or non contiguous places) are bound by ethnic, political, and other social obligations, so the flow of goods among them takes place in a context of balanced reciprocity. In indirect systems people obtain
complementary resources mainly through trade. As Browman (1980:108) puts it, they are based on the manipulation of economic rather than political factors; the flow of goods takes place between social units who are not necessarily bound by political, ethnic, or kinship. This can take the form of direct exchange between producers (e.g., Condarco 1971: Duviols 1973) or through the intervention of groups who are relatively specialized in traffic, like the chinchero and other merchants that operated on the coasts of Perú and Ecuador (Murra 1975:255-267: Rostworowski 1989:213-238) or the llama caravanners of the Altiplano (Browman 1980; Núñez and Dillehay 1979). Some authors envision these transactions as "commerce" (Browman 1981: Kolata 1993a), while others see them as embedded in a number of social and ritual obligations that bring them closer to symmetrical reciprocity (Llagostera 1996; Núñez 1996: nd).

These differences partially reflect the diversity of complementarity mechanisms that may have been utilized by south Andean peoples in different regions and time periods. But they also reveal the methodological problems that archaeologists face when applying to their record historical and ethnographic models, whose key categories and organizational features do not have clear material or even behavioral referents (Stanish 1992:5). Thus, when facing a particular set of archaeological evidence, it is often difficult to decide whether it supports one model or the other, parts of them, or none. For the same reason, it is not infrequent to find different interpretations argued with the same kind of evidence. Let me illustrate this problem through an example.

El Durazno is a small valley in the eastern Andes of Jujuy (NW Argentina). Interposed between the arid valley of Humahuaca (and beyond that the Puna or Altiplano) to the west and the subtropical forest to the east, it can serve as a natural corridor for the movement of people and goods across the eastern Andean environmental gradient. In 1953, Eduardo Casanova excavated a series of cave tombs (a common burial form in the Altiplano) in this valley. The resulting collection, that was deposited in the Tilcara Museum but not published, included among other things late prehistoric ceramics from Quebrada de Humahuaca, marine shells, malachite beads, and a number of artifacts belonging to the "Puna Complex" (Bennett et al. 1948). i.e., decorated calabashes, weaving tools, ropes, buckles (used in the past for securing loads on llamas' backs), and several weavings. Madrazo (1966) visited the area a few years later; he excavated two more tombs where he found artifacts similar to those in Casanova's collection, and reported the existence of a
settlement with circular dwellings (like those commonly found in the altiplano) and a shelter with rock paintings that included camelid motifs.

Madrazo considered that the site and related contexts attested to the migration of a group of people from the Puna to this fertile valley, motivated by demographic pressures in the highlands (1966:23). Pérez (1976) classified it as a "colony" devoted to the exploitation of subtropical resources for a Puna-based archipelago (also Yacobaccio 1979:398). In their classic monograph on "circuit mobility," Núñez and Dillehay (1979:121) include El Durazno among their examples of caravan trade between the highlands and the eastern valleys. Olivera and Palma (1986:88) cite the same data as evidence of the eastward expansion of Humahuaca groups during the Late Period, who either migrated in response to demographic pressure in the main valley or where engaged in the exploitation of the eastern forests as part of a "vertical" economy *sensu* Murra (1972). Later, I had the chance of mapping the settlement and relying mostly on architectural evidence. I proposed that it was an enclave established by the Inkas to protect the eastern frontier of the Humahuaca Province (Nielsen 1989:56). Finally, Fernández Distel and Geronazzo (1992) excavated in a rock shelter nearby and found artifacts that resemble those collected by Casanova and Madrazo, but obtained a C_{14} date of 120±50 BP. They offer several alternative interpretations of the data, e.g., they could be Puna groups moved there by the Spanish to serve their needs or descendants of a highland "colony" established in this valley since prehistoric times (*ibid*:226).

At this point, the clearest thing about El Durazno is that we do not have the elements to establish the social and economic implications of the (apparently) foreign objects and
traits that have been repeatedly found there. By their very nature, all forms of complementarity will result in the presence of foreign objects in the settlements occupied by those who were involved in these practices. The differences among existing models—and others yet to be formulated—are not so much in the goods they move or in the fact that people in certain habitats may have needed them (the kinds of evidence most frequently cited in their archaeological applications), but in the specific mechanisms—i.e., behavioral patterns—responsible for the circulation of goods and in the broader social context in which they were immersed. To go from foreign objects to the processes behind them, we need to develop unambiguous archaeological correlates of these activities and of their various organizational forms.

The aim of this monograph is to contribute to this endeavour through an ethnoarchaeological study of llama caravan traffic, a mechanism that is frequently invoked as responsible for the medium and long-distance movement of goods in discussions of Andean complementarity. This activity tends to be associated with "indirect models," like Núñez and Dillehay's (1979) and Browman's (1981), who argued that the particularities of the South-Central Andean environment and demographic patterns resulted in distinctive forms of socioeconomic organization in which the regular contact between distant populations through caravan traffic played a central role. It should be stressed, however, that the llama caravan as a mechanism for the transport of goods is present in most applications of the complementarity concept to the South-Central Andes, including "direct control" systems (e.g., Harris 1982; Murra 1965), which is hardly surprising since the vast
llama (*Lama glama*) herds that characterize this area offer obvious advantages for the transport of goods.\(^2\)

The compatibility of this practice with multiple organizational scenarios has led Llagostera to conclude with skepticism that caravans "cannot be questioned as mechanisms for moving objects from one point to another in the Circumpuna ambit, but they do not interpret the socio-political reality in which this traffic was developed" (1996:20, my translation). This is certainly true if we limit ourselves to the commonplace that llamas were used as pack animals; as in the case of foreign goods, just demonstrating the llamas where used to transport burdens in certain contexts does not say much about the social significance of this activity. It is the *organization* of this practice what should vary in response to changing "socio-political realities." In this monograph, I would like to explore the possibility of relating aspects of the organization of caravan traffic as a behavioral system and the archaeological records it generates with the political economy (Roseberry 1988) in which this practice is immersed. By organization I mean the patterned articulation among actors (drovers, trade partners, those living along the routes, elite, producers), pack animals, places (permanent settlements, campsites, routes, territories), resources (goods traded, pastures, water, weather), and activities (trading, extracting, camping, consuming, storing) that characterizes traffic in a given period and area.
Focusing on Caravans

The word *caravan* (*karawan* [Persian] = drove of pack animals)\(^3\) is not used by indigenous Andean people, who currently refer to the activity of travelling with pack animals (sometimes called *tropa*) as *arriería* (Spanish), and to those who practice it as *arreros, llaneros, fleteros, troperos* (Spanish) or *garwiru* (Aymara). Instead, the term *caravan* and related ones (e.g., *caravanero, caravaneo*) have been introduced and popularized in relatively recent times in the literature by scholars, mainly in the context of discussing various models of prehispanic Andean political economy, where it has been applied to anything from a full-time specialized activity and social sector, to the simple act of carrying burdens on animals.

I will refer to *caravan traffic* or *caravanning as the specialized activity of transporting goods at medium and long distances using pack animal trains.* By specialized, I mean that caravanner households fulfill at least part of their basic needs through their involvement in this trade, thus differentiating this activity from the use of pack animals in other contexts, e.g., the movement of produce between holdings simultaneously exploited by a single agropastoral household (e.g., Webster 1973:121) or the transport of domestic equipment during migration among nomads. This also implies that caravans always connect different social units, i.e., households, communities or entire polities, regardless of the nature of the transactions established between them (reciprocity, administered trade, market exchange, etc.). Minimally, they involve the caravanner household and those who demand the transported goods; in many cases,
however, they bring together a number of social actors into a complex interaction network (e.g., various specialized productive units, elite sectors, patrons, different communities and ethnic groups, polities of different scale).

Distance is clearly a relative notion; in this context, I will refer to distances that range between approximately 40-50 and 80-120 kilometers as "medium" and those larger than this as "long." Under normal conditions, 40-45 km is the maximum stretch that a loaded llama can cover in a day (usually they cover just 20 km): when travelling farther than this pack trains need to stop for the night, so overnight campsites become a necessary component of caravan's settlement system. During these trips, llamas only have a few hours in the afternoon for grazing; this means that after four to six days of march, the drove needs to spend one or two whole days grazing and resting to recover: these rest campsites then, are necessary in the settlement system of long-distance caravans. Short distance traffic (< 40 km) has a different archaeological expression and will not be considered, although it is recognized that it may be very significant for the political economy.

Cross-culturally, driving caravans is an adult male activity. In all cases I know, however, these men belong to households who are involved to some extent — at least on a part-time basis — in breeding the pack animals, an activity in which women, children, and old people usually play a key role. When discussing the relationship between caravanners and the rest of society, then, pastoralist-caravanner households rather than drovers, will be taken as the units of analysis. This is also pertinent from the archaeological standpoint, since discrete domestic units, the material referents of households, can be
identified in many archaeological situations (Wilk and Rathje 1982). From this perspective, caravan trade can be considered as part of the reproductive strategy of pastoral households, which may also include some participation in agriculture and the specialized production of goods for exchange. Through this practice, however, they move systematically resources of varying economic and cultural significance, bringing together otherwise separate social and territorial units into large networks, influencing interaction and social trajectories at a large scale.

Focusing on caravan traffic as a particular set of activities tied to a distinctive lifeway – pastoralism – offers some archaeological advantages because they should both leave distinctive material traces. Since these activities largely develop in different locations from those that characterize agricultural, sedentary village life, the material signatures of pastoralists-caravanners may frequently form discrete deposits, spatially segregated from other remains. If we determine what these signatures are and how are they affected by specific aspects of the macro-organization of traffic, their investigation could contribute to test alternative models of political economy. Needless to say, I do not believe that this kind of evidence is intrinsically better or can replace that found in domestic and funerary contexts at large settlements (e.g., Morris 1978; Stanish 1992). but I do think that by looking at all these independent lines of evidence together, it may be feasible to overcome situations of equifinality as those referred to at the beginning of this chapter.

Focusing on pastoralists-caravanners as one of the many actors involved in complementarity practices, has theoretical advantages as well. Given their functionalist
origins (Van Buren 1996). Complementarity models have usually adopted a structural or systemic perspective, emphasizing how the behavior of individuals, households, or entire communities contributes to the adaptive success of the system as a whole. This approach tends to overlook the different and often conflicting interests that motivated the actions of the various sectors involved in these practices. As a result, strategies pursued only by certain groups, power differences, and conflicts that undoubtedly characterized these systems, tend to be masked under vague notions of "group success" or generalized "social harmony." The emphasis on stability and internal homogeneity, in turn, creates a static view of complementarity systems that makes it difficult to explain their origins, changes, and variability. Instead, if we focus on the different interests, constraints, and strategies that characterized individual groups (e.g., ethnic elites, artisans, common farmers, fishers, pastoralists) and the changing conditions in which they interacted, we may be in a better position to understand their relationships and the transformations they experienced in connection with other processes (political conquest, economic intensification, demography, climatic change, etc.).

Previous Research

Several scholars have addressed aspects of the organization and practice of contemporary and historical caravan traffic in the Andes (Browman 1990:339-344, 1994; Casaverde 1977; Custred 1974; Flores Ochoa 1977b; Lecoq 1997; Molina 1987; Platt 1987; Rabey et al. 1986; Sanhueza 1992). Some of them have actually participated in caravan journeys or provide detailed ethnographic accounts of them (e.g., Cipolletti 1984;
Concha Contreras 1975: Flores Ochoa 1995: Göbel 1998: Lecoq 1987, 1988: Molina y Ovando 1985: West 1981). These studies are very useful, since they provide valuable data for assessing variability in the behavior of caravans. However, even when some of these authors describe in detail the material aspects of Andean caravanning (notably Lecoq), none of them have elaborated on the ethnoarchaeological implications of these observations or attempted to model the archaeological consequences of these practices and their potential variations in alternative organizational scenarios. Rather, it has been archaeologists interested in the study of prehistoric caravans who have taken advantage of some of this information for the interpretation of archaeological remains (e.g., Berenguer 1994; Núñez and Dillehay 1979).

Since the pioneering work of Flores Ochoa (1979 [1968]), the literature on Andean pastoralism has grown enormously (useful syntheses are Browman 1974, 1990; Flores Ochoa 1983, 1995; Gundermann 1984; Orlove 1981). Ethnoarchaeological studies among these groups are more limited (e.g., Kuznar 1990; Nasti 1993; Yacobaccio et al. 1998): several have focused on zooarchaeological evidence and its possibilities for investigating herd management and settlement patterns among prehistoric pastoralists (Haber et al. 1991; Miller 1979; Yacobaccio and Madero 1995). The only ethnoarchaeological study in the southern Bolivian altiplano or Lípez is Tomka's (1993, 1994) detailed research among the agropastoralists of Alota-Copacabana (Nor Lípez), 100 km west of our project community.

I cannot conclude this section without mentioning the work of several archaeologists that following the lead of Núñez (1976, 1985; Núñez et al. 1997), have
been striving to identify and interpret the material remains of prehistoric caravans (Berenguer 1994, 1995, 1999; Korstanje 1998; Nielsen 1997b; Sincliffe 1994; Yacobaccio 1979).

ON THIS STUDY

The Project Community – Research Activities

My ethnoarchaeological research was conducted in Cerrillos, a pastoral community of the southern Bolivian altiplano (Sud Lípez, Potosí). Cerrillos was chosen over other communities from the Central Altiplano or Northwest Argentina, for a number of reasons. Given the rigorous environmental conditions that prevail in the area, its inhabitants have become specialized pastoralists who strongly depend on their articulation with other groups in order to access necessary goods they cannot produce in their own territory. To obtain these resources, they resort to several mechanisms. caravan trade with llamas being still prominent among them until the late 1990s. The importance of this activity for the populations of Lípez can be traced back continuously to the 16th century (Lozano Machuca 1885[1581]; Martínez 1998; Platt 1987; Sanhueza 1992:171) and probably to late prehistoric times as well (Nielsen 1998a). By contrast, llama caravans have been rare among agropastoral communities north of Salar de Uyuni since at least the 1970s (West 1981:63). Long-distance trade among pastoralists of northwest Argentina declined strongly after the 1930s, with the establishment of large mining centers in the highlands (Madrazo 1981:219), and has been using donkeys rather than llamas for at least a century (e.g., Boman 1991 [1908]:459).
The high degree of specialization of Cerrillos' pastoralists was another reason for selecting them as a case study. The lack of other significant productive activities, reduced considerably the complexity of their productive and land-use systems, giving at the same time an opportunity to evaluate some of our expectations regarding the social dynamics of specialized pastoral systems and to explore some of their archaeological consequences. This was a relevant boundary condition since, given their extreme dependency from the "outside world" (Khazanov 1984), this kind of communities (if they actually existed as independent social units during the prehistoric era) must have been among the main actors of caravan traffic.

The choice of Cerrillos among other communities in the area that met the same criteria just outlined (e.g., Cocani, Polulos, Pozo Cavado) was at first purely accidental. One night during a first exploratory trip to the area in 1991, my truck got stuck in a sand dune in Cerrillos. As the project progressed, I discovered that this had been a fortunate coincidence: a number of ceremonies still practiced by these llameros — both in their homeland and during their caravan journeys — offered the possibility of exploring some material implications of ritual practices, an issue that would have passed unnoticed if I had been working with other, less conservative people.

A total of 10 months of ethnoarchaeological fieldwork was carried out between November of 1991 and July of 1995. Data collection techniques involved participant observation in all the activities that constitute the regular annual pastoral-ritual cycle of the community, non-structured interviews, and mapping of the main activity loci in the canton, including the village and all currently used residential bases and grazing posts.
With the help of informants. I also recorded some formerly used settlements. Data gathering focused on caravan traffic involved participant observation during one of the regular winter journeys to Tarija Valley in search for maize (winter of 1995. 20 days, one way only), in Santa Catalina's fair (1995 and 1997), interviews with most adult men in the community and a few former caravanners from other communities of Lipez and northwest Argentina, and informant-assisted surveys of the main caravan routes between Cerrillos and Tupiza and between the altiplano and San Pedro de Atacama (SW Lipez and Vilama basin). All interviews were held with men, partially because many women are monolingual quechua—a language I do not speak. It should be emphasized, however, that even when women may occasionally participate in journeys, caravanning is a male activity.

**Research Scope and Orientation**

Although the focus of my research was on caravans, attention will be paid to pastoralism as well. Firstly, because the internal demands of pastoral systems are a fundamental constrain on the emergence and organization of caravans. Secondly, because there are a number of homologies between the activities of *llameros* during their trade journeys and those they conduct in their home territory which only become apparent when both contexts are compared. These homologies, that could help to understand some actions of drovers as expressions of a pastoral "practical logic." might also offer a way of tracing the origins of caravanners. or at least of differentiating their remains from those left by local groups. Secondly, since both caravan journeys and
pastoralism involve the interaction between large groups of animals and people during considerable periods of time, they share a number of activities (e.g., in both situations animals have to graze and herders have to eat and rest) and resource demands (e.g., pastures, water, firewood). Potentially, this could lead to the spatial overlap of both behaviors and to ambiguities (*sensu* Binford 1987) in the interpretation of their archaeological consequences, at least in some of the locations they involve. One way of clearing out these alternatives is to focus on the organizational differences between these two behavioral systems.

My regional frame of reference is the northern part of what is known as Circumpuna Subarea, or southernmost division of the South-Central Andes (Aldunate and Castro 1981; cf. Martínez 1998:188). This is a strip that runs from the Pacific coastline, across the Andes, all the way to the eastern lowlands or yungas, between Salar de Uyuni on the north and the city of San Salvador de Jujuy on the south (ca. 20°-24° south latitude). This space is currently divided among three countries (Figure 1.1): Bolivia (Department Potosí), Chile (II Región), and Argentina (Jujuy Province). Although it comprises a number of highly contrasting environmental units, the peoples that inhabited them have been closely related throughout their history, specially in the pre-republican era, before the establishment of current political divisions. It also corresponds approximately to the maximum area that pastoralists from Cerrillos reach or visited in the past according to their oral tradition. For simplicity, in this monograph I will refer to this space as the "Circumpuna Area." although I am aware that the archaeological "subarea" known by this name extends further south. I should stress.
Figure 1.1: Location of the project community in the Circumpuna Area.
however, that my research is mostly concerned with caravan traffic toward the eastern Andes; natural and social (both past and present) conditions in the western flanks are very different and may have lead to other forms of organization and archaeological consequences for this activity.

Before closing this introduction, I would like to make explicit some of the theoretical biases with which this study was approached. This will be a sketchy statement only, since specific theoretical issues will be treated in more detail at various points of this study. I believe that a combination of Marxism with Practice Theory provides a powerful framework for understanding human action. The former offers a model for analysis that, while taking into account the ecological demands of herding, puts emphasis on the mechanisms that regulate the appropriation of key resources among pastoralists, resulting in characteristic tensions and properties of their social structure. When applied to complex regional systems (i.e., political economy), it serves to look at complementarity not only as an adaptive system that brings useful resources to all who need them, but also as a particular arena where various groups and social sectors struggle over the control of surplus and power. By emphasizing the interplay between action and structure, practice theory overcomes the critique of "structural determination" that has been raised against Marxism, defining a useful standpoint for analyzing processes of historical change. At the same time, the notions of "economy of practices" and "field theory" coined by Bourdieu (1977), allows the application of Marx's method — with its emphasis on appropriation — to the analysis of non economic domains, thus overcoming the critique of "economicism."

Finally, the emphasis put by this author on the direct
interaction between behavior and the built environment as the locus of social reproduction. brings close to archaeology these complex processes usually construed in mentalistic terms (e.g., through the concept of "ideology"). Finally, I embrace a realist approach to ethnoarchaeology that, without the syllogistic elegance of extreme deductivist perspectives, depicts more closely (for me) what researchers actually do and the contributions they can make, without leading into sterile intellectual gymnastics (David 1992:331).

The Organization of this Dissertation

This monograph is divided in two major parts. The first one is a general introduction to the ethnoarchaeological study. Chapter two looks at pastoralists, discussing the causes of their universal tendency to integrate with other productive systems, and the main forms in which this integration is achieved. Other properties of their social structure pointed out in this chapter will later serve to account for various aspects of llameros' practices and material culture. Chapter three proposes some variables that are relevant to define the role of caravans in the political economy; then, I review the main complementarity models, using this framework to contrast the role each one of them attributes to caravan traffic. In Chapter four I make explicit my understanding of ethnoarchaeology and define some important units of analysis to be used in the study. Specifically, I argue for the possibility of integrating a realist view of scientific knowledge, with behavioral archaeology's insights on the methodological condition of archaeology and practice theory's understanding of social action.
The second part reports on my ethnoarchaeological research among *llameros* in Cerrillos. Chapter five characterizes the natural setting at regional, interregional, and local scales, putting emphasis on the possibilities and constrains that the environment poses on their actions. Chapter six is conceived as a brief ethnography of Cerrillos that serves as background for the more specific ethnoarchaeological analysis. Chapter seven looks at *llameros'* land use practices from a functional perspective, i.e., emphasizing how the organization of their settlement system allows them to cope successfully with the demands and constrains imposed by the reproduction of their social-productive system in this environment. Chapter eight begins describing several rites; then, combining this information with data on the organization of other social and productive activities, it identifies a series of schemes that seem to underlie the actions of *llameros* in multiple settings, as expressions of a culturally-specific practical logic. Chapter nine presents Cerrillos' complementarity system, viewing caravan trade as one among several alterantive mechanisms used by pastoralists to access complementary resources. Chapter ten focuses on caravanning as a behavioral system, considering the activities and locations involved, and discussing the principles that account for their organization. Chapter eleven summarizes the result of the investigation through a series of expectations regarding the archaeological correlates of pastoralism and caravanning, proposing some indicators that may be useful for monitoring the role of caravan traffic in the political economy.
ENDNOTES

1. Even when Núñez, Browman, and Dillehay are archaeologists and apply their ideas to archaeological contexts, their models are still inspired by the observation of present day caravan traffic and, more importantly, they are formulated in "ethnographic" terms, without developing explicitly their distinctive archaeological implications beyond the exotic items themselves. The main exception to this generalization are Núñez' hypotheses on the connections between caravans and geoglyphs and rock art (1976, 1985; Núñez et al. 1997).

2. Certainly, Andean complementarity does not by itself imply the existence of caravans. In many places people may have been preferred to camelids for transporting burdens. Adult men can carry 40-50 kg and walk up to 40 km per day (Villa Rojas 1969:209) and as Murra puts it, "could be made to carry more and farther and in collaboration with one another, and...were more sensitive to fulfilling the requirements of ideology, as well as to the wip." (1965:185) Humans were extensively used to carry goods in llama-scarce areas, while an important portion of coastal traffic made use of rafts (Rostworowski 1989).

3. Webster's dictionary (1981:335) defines caravan as "a company of travelers, pilgrims, or merchants on a long journey through desert or hostile regions: a train of pack animals." Note that the use of the term in the Andean literature is more restricted.
CHAPTER 2:

ECONOMIC COMPLEMENTARITY AMONG PASTORALISTS

Characterizing pastoralism as a social production system involves a distinction between two dialectically related domains (Southall 1988): the productive forces, which include natural resources, tools, knowledge, labor and the ways in which they are organized in relation to technological demands, and the social relations of production, i.e., the participation of individuals in the work process, their control over the means of production, and the appropriation of the products. From the "dialectical materialist" perspective, these two operate as relatively autonomous structures, even when they impose functional limits on each other that may lead to contradictions between them. The social relations of production define the specific rationality and dynamics of an economic system (Friedman 1974:447; Marx 1971[1858]). In our own society, their are sanctioned through definitions of value, property, legal codes, and institutions that enforce them, but in non-stratified societies they are usually regulated through religious, ethnic, kinship, gender, and age-related practices (Godelier 1977). Following this approach, pastoralism can be defined as a subsistence system based on the exploitation of animals held as private property (Chang and Koster 1986:99; Galaty and Johnson 1990:1; Ingold 1980, 1984).

There are a number of structural properties that characterize all pastoralists. Andean ones included, generating several regularities in their social practices. These
regularities are both a consequence of the ecological and technological characteristics of pastoral production, and of the forms of appropriation of the critical resources that define these social systems. Prominent among them is their universal tendency to integrate with other forms of production. To achieve this goal, many pastoralists have taken advantage of the capacity of their animals to carry burdens. Camels, yaks, goats, sheep, horses, donkeys, mules, and llamas have been used by pastoralists around the world, not only to carry their personal belongings during their frequent migrations or transhumant movements, but also to transport a variety of products for exchange with other groups.

To understand the emergence and organization of caravans, then, it seems appropriate to start by discussing these internal factors that make pastoralists everywhere dependent on "the outside world" (Khazanov 1984).

It should be emphasized that, since the properties I will consider are functionally derived from the material and social conditions of reproduction of pastoralism, they strictly apply only to specialized pastoral communities, like the one chosen for this ethnoarchaeological study. Certainly, Andean caravans were also organized by agropastoralists who combined herding with tuber and grain agriculture (for ethnographic examples see Lecoq 1988; West 1981). These productive systems, however, include other productive forces and forms of tenure (e.g., private ownership of farmland, corporate administration of irrigation works), introducing further complexities and alternatives that may qualify, even neutralize, some of the tendencies inherent to the herding sector. I will point out some of these differences toward the end of this chapter.
when analyzing productive diversification as a way of overcoming the limitations of herding systems.

Relying mostly on 16th century administrative records from the Central Andes (Diez de San Miguel 1964; Ortiz de Zuñiga 1967-72). decades ago Murra ruled out the existence of specialized pastoral communities in this part of the world during the pre-Hispanic era:

"It should be noted that no separate pastoral economy or nomadism, away from tuber agriculture, had developed anywhere in the Andes... Herding was thought of in age-grade terms... Where the herds were sizable, or where the range was distant from the village, the herders would be assigned to their chores on an adult, full-time basis." (1965:188-189)

This opinion, that has become common in the literature (e.g., Bonte 1981; Fonseca Martel 1973), cannot be accepted at present. Firstly, if it refers to the existence of specialized pastoral communities, several ethnographic studies published during the last three decades have demonstrated that they are widespread in Peru (Concha Contreras 1975; Custred 1974; Flores Ochoa 1975, 1979; Palacios 1977, 1988a; Tomoeda 1985). Bolivia (Nielsen 1998a). Chile (Gundermann 1984). and Argentina (Göebel 1994; Merlino and Rabey 1983). We do not know how common were they in the 16th century, or in prehistoric times, but the Chupaychu herding colony described by Murra in his first
case of verticality (1975:66-67). for example, was a specialized pastoral community as I have just defined them, i.e., a group of "domestic units devoted exclusively to the herding of camelids in the puna" (Murra 1976:143). If "separate pastoral economy" refers to self-sufficiency, the lack of autarky is a characteristic of all pastoralists of the world (Khazanov 1984), so there is nothing singular about the need of Andean pastoralists to articulate economically with agriculturalists. Finally, if it means that all Andean pastoralists have always been integrated with other productive units through political, ethnic, or kinship ties, it should be questioned either. To what extent vertical archipelagoes and other forms of "direct control" were present throughout the Andes in the 16th century or even existed before the Inkas, is not something to assume a priori, but something that needs empirical investigation, mainly through archaeological data. Therefore, the possibility that autonomous and/or ethnically differentiated pastoralists existed in the past needs to be considered (cf. Flores Ochoa 1979:117; Webster 1973:115).

PASTORAL PRODUCTIVE FORCES

There are five general properties of pastoral productive forces that are directly or indirectly relevant to understand their universal tendency to articulate with other productive systems. These are: (1) ability to exploit marginal environments; (2) instability; (3) limited potential for intensification; (4) high productivity of labour; and
(5) lack of autarky. These could be conceived as ecological and technological preconditions of the relations of pastoralists with other groups.

Ability to Exploit Marginal Environments

Other (political) factors being constant, pastoralism has developed in areas where it has offered economic advantages over other productive systems (Khazanov 1984:69). Since one of the distinctive characteristic of herds is their ability to cope rather effectively with adverse environmental conditions, pastoral systems have tended to localize in regions which are too dry or too cold (due to latitude or elevation) for agriculture, like the Arctic, North and East Africa, the Near and Middle East, North Eurasia or the Andean Highlands. In addition to very low absolute and average temperatures and rainfall, all these environments are typified by low overall productivity, with high spatial and/or temporal (seasonal and interannual) variation and unpredictability (Bonte 1981:36; Brush 1976; Guillet 1981b:20; Gómez Molina and Little 1981). The integration of pastoralists with other productive systems, then, can be conceived as a way of minimizing the risks derived from these characteristics of the environments where they tend to live.

The capacity of South American camelids to convert the sparse and shrubby native vegetation of the Andean highlands into forms of energy that humans can take advantage of is a common statement in the literature (e.g., Browman 1974:188; Fernandez Baca 1978:511; Thomas and Winterhalder 1976:58; Troll 1980:32). This is
not to say that camelids were not kept at lower elevations; in fact, it is well-established that in prehistoric times, llamas were bred in mid-elevation valleys or *k'eshwas*, the prime agricultural zone, and even in the fertile river valleys of the Peruvian coast (Rostworowski 1989:230; Shimada and Shimada 1985). Herding at these lower altitudes, however, was a complementary or diversifying strategy within primarily agricultural economies. Pastoral and agropastoral systems developed above 3,500 m.a.s.l., in the high valleys and Altiplano/Puna, the coldest and less predictable inhabited zone in the area.

**Fragility of Pastoral Wealth**

There is a consensus in the literature regarding the extreme instability of herding systems (e.g., Bates 1973:149; Bonte 1977:186; Bradburd 1982; Irons 1994; Khazanov 1984:156; Salzman 1999:43, for Andean examples see Browman 1974:189; 1987; Flannery et al. 1989; Gebel 1994; Nielsen 1996a:74; Palacios 1988a:93). Drought, disease, parasites, accidents, and predators can cause losses of over 50% of individual herds in just one year. In the same way, flocks can expand very rapidly, although growth rates seem to be considerably smaller (Bradburd 1982). As a result, it is relatively common for domestic units to experience marked fluctuations in the size of their herds during their life cycle. Those whose herds fall below the minimum necessary for subsistence must leave the system (sometimes only partially or temporarily) or work for wealthy pastoralists in order to obtain the animals needed to recuperate their own flock. To cope with this problem, some groups develop redistributive mechanisms that allow
poor herders to access additional animals in critical moments – usually at the expense of acquiring a considerable symbolic debt – as illustrated by the Andean sunay studied by Flannery et al. (1989). Again, diversifying production and developing reciprocal economic obligations with other groups seem effective ways of coping with this instability.

Limited Potential for Intensification

If herding relies primarily on native range and fodder is not stored, the total size of the animal population is limited by the carrying capacity of the pastures during the least productive season. In other words, the overall productivity of the pastoral economy cannot be increased once this limit has been reached (Khazanov 1984:76). This limitation, coupled with the fact that in every pastoral system there are minimum herd sizes which are needed for the material reproduction of households, explains why the population of pastoral areas remains relatively stable over time (ibid:71-74; Barth 1961:124). If the organization of production does not change (e.g., intensifying the interaction with other economies, introducing cultivated forage, or directly controlling farmland in other areas), excess population is expelled, a process that usually takes the form of poor pastoralists leaving the system, settling in marginal land, or incorporating themselves into other productive units (e.g., Ingold 1980:202). In the Andes, these limitations are more severe in the southern Altiplano of Bolivia, Chile, and Argentina, where mean annual precipitation drops as low as <100 mm and some grasslands can
support only one medium-size animal for each 20 ha during the dry season. (Browman 1983:243) In fact, with less than one person/km², the specialized pastoral area of Sud Lípez, where our project community is located, has the lowest population density of all Bolivia (Instituto Nacional de Estadística 1982).

**High Productivity of Labor**

The high productivity of pastoral labor refers to the ability of a single herder to tend, most of the time, either a small or a large number of animals with a similar amount of effort, a property of pastoral productive forces that marks an important difference with agriculture. As a consequence, among pastoralists there is no direct or simple correlation between the size of the herd and the amount of labor necessary to keep it. A skilled herder can manage up to 200-300 (Browman 1974:192) or 500 (Palacios 1988a:90) llamas or alpacas on a daily basis. Certainly, some tasks like butchering, shearing, earmarking, or the elaboration of secondary animal products need more labor than daily grazing and may create additional labor demands at certain points of the pastoral cycle. Usually, however, these "bottle-necks" can be handled through various forms of reciprocal assistance among households. This property gives pastoral households the possibility of diverting part of their labor pool to undertake other productive activities or engage in various articulation strategies without threatening the continuity of the herding sector.
It should be noted that pastoral labor is most productive (i.e., animals/person) under conditions of high specialization, when other demands do not interfere with herding schedules. In fact, this phenomenon has been considered one of the main causes of the emergence of specialized pastoralists. (Bonte 1977, 1981). The more specialized, however, the less autarkic pastoral systems are.

**Lack of Autarky**

Lastly and most importantly, herding systems are not autarkic because all human populations need to consume on a regular basis an important amount of vegetal (cultivated or gathered) and/or other non-animal products (Khazanov 1984). Some of them can be directly gathered or extracted by pastoralists themselves through activities which are relatively embedded in the herding work process, a phenomenon that is exemplified in the case of South Andean herders by the collection of *sich'a* (*Juelia subteranea*) and other edible wild roots (Calla 1995). The bulk of these non-pastoral items, however, need to be obtained through the integration of herding with other forms of production, particularly agriculture.

Whether it takes the form of productive diversification at the household level or articulation with other groups, economic integration can overcome most of the limitations inherent to pastoral productive forces. Through these mechanisms, pastoralists access agricultural and other resources from other, more favourable ecozones. These goods, which can usually be stored for later consumption or trade, serve to buffer the
pronounced fluctuations that characterize herding economies. Moreover, both agriculture and trade can usually be intensified, overcoming the limitations to demographic growth. Economic integration is facilitated by the high productivity of pastoral labour, which allows some members of the household to engage in other activities at least part of the year, and the possibility of using pack animals to transport goods between productive loci.

PASTORAL SOCIAL SYSTEMS

The participation of pastoralists in other economic activities and their articulation with other groups cannot be conceived as a mechanical result of the ecological limitations and potentialities of pastoral productive forces alone, but requires also a consideration of the social dynamics of herders themselves. At the most basic level, social relations among pastoralists are structured by the forms of appropriation of two crucial resources, animals and pastures.

In all pastoral systems, livestock is privately owned and inherited, or at least subject to particularly individualized forms of possession and use (Ingold 1980:5. 1984), even though this right may be limited by obligations of reciprocity and redistribution (Khazanov 1984:124). In the Andes, animals belong to families or to particular individuals within them, and are bilaterally inherited (e.g., Lambert 1977; Nielsen 1996a; Palacios 1988b; West 1983). Some herds can also be owned by community institutions
(e.g., shrines [Murra 1965:202]). or held in common by groups of herders, who keep them as a back up they can resort to in cases of extreme necessity (ibid:195).

By contrast, key resources, like water, firewood, and specially pastures, are corporately controlled (Ingold 1980), a rule that applies to specialized pastoralists and to the herding sector within mixed agropastoral systems alike (e.g., Guillet 1981a; Netting 1976; Rhoades and Thompson 1975). Individuals gain access to pastures by being members of the community, according to norms that are usually embedded in the kinship system. Although the actual forms of appropriation of these vital resources by productive units vary and imply various degrees of exclusion and permanence, they are always limited by community rights and regulated by communal institutions. The reasons for this are to be found, first, in the short-term variability and unpredictability of pastures and water in the environments pastoralists tend to occupy and, second, in mid and long-term fluctuations in the size of individual herds and in the number of productive units in a given area. The combination of these two sets of factors operating at different time scales results in repeated imbalances between demand and supply of key resources which would threaten the viability of the system as a whole. Corporate tenure of large territories guarantees a minimum amount of key resources to all members and gives enough flexibility to the system so every herder can access some of them. For the same reason, highly productive or predictable resources tend to be subject to more exclusive forms of usufruct.
Land ownership among Andean pastoralists has been traditionally invested in kin groups or ayllus, and more recently in peasant communities. Individual households, however, enjoy rather permanent and exclusive use-rights over specific portions of the community's territory; rights that are patrilineally inherited (Caro and Palacios 1980; Custred 1977b; Lambert 1977; Nielsen 1996a). The limits of these grazing areas, however, remain rather flexible and a number of exceptions to the patrilineal transmission principle are anticipated in the norm. This general pattern notwithstanding, some highly productive and predictable pasturelands, like the marshy areas known as bofedales in the highlands of Peru, expanded by herders through the construction of irrigation works (Palacios 1977), are subject to far more exclusive rules of access that can lead to serious conflicts when violated (Palacios 1988b:187, see also Browman 1990:331). Conversely, other less critical but unevenly distributed resources, like firewood or medicinal plants, are freely shared, sometimes even with neighboring communities.

The structural contradiction between these two basic forms of tenure, combined with the potentialities and limitations of pastoral productive forces, translate into a number of systemic properties, resulting in broad regularities at the level of social practice. This is not to say that herders passively enact some systemic law or demand (Giddens 1979). Rather, these properties define "objective interests," strains, and possibilities for individuals immersed in pastoral productive systems, enhancing the
effect of certain strategies, constraining others, setting objective limits to the possible, often unintended outcomes of their actions.

Private property of animals creates a possibility of economic accumulation for herders that is constrained by the corporate tenure of pastures. From the point of view of the actor, this is the basic contradiction of pastoral social structure (Caro and Palacios 1980). Although individual herders experience that, under normal conditions, their labor can result in rapid herd growth, this progress will eventually be restrained by the demands of their neighbors and the intervention of corporate institutions. As a result, pastoralism generally offers only a limited potential for economic accumulation. This is not to say that herders are economically equal; significant differences in herd size have been reported for most pastoral communities in the Andes (e.g., Browman 1990:327; Flores Ochoa 1979:96; Göbel 1994:49; Tomka 1994:178-181) and may have been even larger in the past (Murra 1965:192).

The limitations to economic accumulation and the instability of animal wealth conspire against the development of social stratification as an endogenous process within pastoral society (Salzman 1999). In the Andes, this tendency is further strengthened by the bilateral inheritance of animals, which prevents the concentration of wealth in particular descent groups (Webster 1973:123).

The same can be said about political centralization and the development of coercive institutions. Restrictions to permanent, economic accumulation and productive intensification, together with low population densities make it difficult to finance
centralized political institutions or bureaucracies and put limits to competitive generosity and other debt-inflicting strategies that use redistribution to build political power. Moreover, this kind of strategy, which usually aims at building a clientage or labor force that can be appropriated, is not very effective given the limited ways in which that labor can be used within a pastoral economy (Khazanov 1984:157). Keeping the loyalty of such a force would be usually more expensive than the economic advantages it could produce. On a different line of argument, the absence of valued productive infrastructure to be seized, the high mobility of herds ("fields on the hoof" [Ekvall 1968]), and the flexibility of membership that characterizes segmentary organization, all sustain the possibility of fission as a way of resisting the development of centralized authority.

These tendencies, however, are the result of endogenous processes derived from the conditions of production within pastoral systems; they all assume an "other things being equal" clause, so they would strictly apply to pastoral groups in relative isolation. But since herding economies are not autarkic, pastoralists are always integrated with other productive systems. Through these relations pastoralists can revert most of the tendencies just outlined. Diversifying their economy, pillaging other groups, developing reciprocal obligations with them, or positioning themselves in interregional trade, they can overcome the constrains to accumulation of their own economy. These gains, can be stored in more stable forms of wealth (e.g., land or prestige goods), which can be inherited, redistributed to recruit a following, or invested in other political institutions and ventures. Additional labour can be productively used for plundering, driving caravans.
trading, farming, or extracting other valuable resources, thus intensifying various processes of power accumulation. The dependency on the outside, then, is not only the result of the ecological limitations pointed out before, but is driven by social forces as well. From this point of view, the emphasis pastoralists put on their articulation with other groups can be understood also as a way of overcoming some of the constraints and tensions of their own social structure.

INTEGRATION WITH OTHER PRODUCTIVE SYSTEMS

The integration of pastoralism with other productive systems can take two main forms, diversification and articulation. Diversification refers to the regular and direct participation of pastoral households or some of their members in other productive activities besides herding. By articulation, I mean a social relationship between communities that involves the regular exchange of economic, social, and/or cultural resources. I should remark that throughout this monograph the term "exchange" will be used in the substantivist sense (Polanyi 1953), as a mutual appropriative movement of goods between social actors. As such, the term includes transactions at indeterminate, set, or bargained rates, and applies equally to economic systems integrated through reciprocity, redistribution, or market.
Diversification

Adopting a mixed agropastoral economy is the most direct and secure form of diversifying production. In the Andes, this has been achieved in two main ways, depending on the area. In the humid or dry puna (sensu Gómez Molina and Little 1981) and special microregions within the desert puna that enjoy higher levels of moisture and temperature, herding can be combined with the cultivation of frost-resistant tubers (Solanum, Oxalis, Ullucus) and grains (Chenopodium). The combination of these and other secondary productive activities (collecting, hunting) may involve the use of settlements in different microenvironments within the Altiplano, through seasonal movements or periodic household fission (e.g., Ottonello and Krapovickas 1973; Tomka 1994). This system solves some of the ecological limitations of herding: it is more diverse and stable, provides easily storable products, can be intensified, and therefore can sustain higher population densities. Agriculture entails a variety of opportunities for the appropriation of labor, so these groups may experience complex social developments (e.g., Lupacas [Murra 1975], Tiwanaku [Kolata 1993b]). It should be emphasized, however, that high-altitude agriculture is not autarkic either; it is still rather unstable compared to lower altitude farming, includes a limited range of crops, and frequently cannot satisfy the requirements of highland populations. High altitude agropastoralism, then, is usually combined with other forms of economic complementarity.

A second mechanism of diversification, most frequently found in the eastern slopes of the Andes, where the highest environmental diversity is found within the
shortest distance, involves the direct exploitation of a variety of altitude-dependent ecozones through a transhumant cycle in which the entire household or some of their members move seasonally to lower areas to farm. These areas may be arranged in a continuous territory encompassing all or part of the ecological gradient, as in Brush's "compressed verticality" (1976; see also Flores Ochoa 1995; Webster 1973), or discontinuous landholdings separated by considerable distance, as in some "archipelago" systems (Brush 1976:162) where control is exerted at the household level (Brush and Guillet 1985), or in the "dual residence" practices of northern Potosí (Harris 1985:317; Platt 1982:35). This mechanism has the advantage of nearly granting economic self-sufficiency for the group, but its viability depends on the ability of pastoralists to secure access to means of production away from their own community, to mobilize the necessary labor, and to coordinate different productive cycles and task schedules, a problem that can be aggravated by the distance between productive loci. It is worth noting that although pack animals may be used in some of these practices, e.g., to carry products and tools from one production loci to another, these activities differ from specialized caravanning as defined in Chapter 1 in their scale and social impact.

Articulation

Although household productive diversification seems to be the most secure form of achieving self-sufficiency and coping with some of the social tensions of pastoral social structures (cf. Brush and Guillet 1985:25), this is not always possible due to
environmental and/or social constrains (e.g., communities living in agriculturally marginal areas. impossibility to maintain control of distant holdings or to mobilize the labor necessary to work them). In these cases. herders can articulate with other productive systems. Economic transactions between pastoralists and other social units range from the exchange of goods as part of political. ethnic. ceremonial. and/or kinship ties and obligations to trade. In the Andean complementarity literature the former alternative. together with some forms of productive diversification. are sometimes subsumed under the notion of "direct control" or "intraethnic articulation." while latter is referred to as "indirect control" or "interethnic articulation" (Madrazo 1981: Rabey et al. 1986: Salomon 1985). Where herds are large enough and the distances involved are significant. both systems may involve a considerable amount of caravan traffic. although this activity may be organized quite differently in each case.

Direct articulation. best exemplified by Murra's (1972) "vertical archipelago" model. involves the permanent integration of pastoralists into larger and more diversified economic systems through political. ethnic. ritual, and/or kinship ties (e.g., Duviols 1973; Harris 1982; Murra 1975). Economic transactions are embedded in other realms of practice and take the form of redistribution or reciprocity. depending on whether they are mediated by political authority or not (Polanyi 1953). If caravans are present. they transport goods between ethnically-related productive units or even relatives. This system gives pastoralists and other groups involved security. while overcoming some of the logistical problems of diversification in areas where different productive zones are
distant. Large, highly integrated archipelagoes can achieve high productivity, generating considerable amounts of surplus labor that can sustain complex social and political developments, as exemplified by the 16th century aymara kingdoms (Murra 1975). According to this author, however, herders were given a low social status in these social formations (Murra 1965:189).

A second form of articulation involves the seasonal migration of pastoralists to lower elevations or urban centers, where they get money or directly the products they need in exchange for their labor, but without necessarily developing ritual, ethnic, and other social bonds. This is a relatively common practice today among Bolivian pastoralists. In Li'pez, for example, a significant proportion of the adult male population leaves the highlands every year at the beginning of the dry season to work temporarily in cities, mining centers, and farms in both sides of the Andes (Nielsen 1998). It is not known if similar mechanisms were practiced in pre-Hispanic times.

The third possibility for pastoralists is to specialize in trade with a number of productive units of various political and ethnic affiliation. The use of pack animals significantly increases the efficiency and scope of this system. Although some security may be compromised, this practice can give pastoralists access to an extremely wide and diverse resource spectrum, with enough flexibility to take advantage of the best opportunities available. It can be also more effective than the other mechanisms in the less diverse Altiplano environment, offering a better way of coping with the logistical problems posited by the large distance between productive zones characteristic of the arid
puna and deserts (Browman 1980; Núñez and Dillehay 1979). The relative success of this alternative depends on whether pastoralists can mobilize enough resources valued by other groups, establish the necessary transactions with them, and move with their caravans through other communities' territories. This form of articulation was widely spread during prehistoric times in the South-Central Andes according to some authors (e.g., Browman 1981; Kolata 1993a; Núñez and Dillehay 1979). and is well documented among historic (Martínez 1998:149-152; Platt 1987; Sanhueza 1992) and ethnographic pastoralists throughout the area (e.g., Concha Contreras 1975; Custred 1974; Flores Ochoa 1979; Lecoq 1988; Molina 1987; Nielsen 1998; West 1981).

To the best of my knowledge, plundering, tribute extraction, and other forms articulation based on the use of force over other groups, common among Old World pastoralists (e.g., Twareg, Mongols, Kazakhs), never played a significant role in the Andes (but see Duviols 1973:175).

SUMMARY

Like other pastoralists around the world. Andean herders are always integrated with other productive systems. This can be conceived as a response to the ecological and technological limitations of their productive forces, but also as a way of overcoming some limitations of their own social structure. Their complementarity systems, regardless of the ways in which they may be organized, are both fostered and constrained by these internal demands and structural properties.
I have divided the mechanisms of economic integration developed by Andean pastoralists in two general categories—i.e., diversification and articulation—depending on whether they are based on the regular interaction with other productive units or not. From the herder's point of view, economic diversification is more secure, since it involves a direct control of essential complementary resources and other forms of wealth, fulfilling the ideal of self-sufficiency (*sensu* Murra 1972) at the household level. However, it may not be feasible in the most hostile portions of the highlands, may create serious scheduling conflicts for groups located far from the Andean flanks (cf. Browman 1980:107), and may require more labor than small domestic units are able to mobilize, particularly when seasonal mobility is involved. Articulation can solve some of these problems by taking advantage of pastoral specialization, simultaneously giving access to a larger resource space and to a wide variety of economic opportunities, but is more sensitive to factors out of the herder's control, therefore, it may be too risky in certain historical contexts. Some combination of both kinds of mechanisms would be ideal, but it would raise further scheduling and logistical problems. The criteria followed by pastoralists in the design of their complementarity strategies will be further discussed in Chapter 9, when analyzing the complementarity system in Cerrillos.

To conclude, even if (a) it can be assumed that Andean pastoralists have always been economically integrated with other productive systems, and (b) the vast llama herds of the South-Central highlands have given them the opportunity to achieve this goal through the use of caravans, these facts are not sufficient to explain the emergence of this
practice nor the various ways in which it may have been organized. In other words, we also need to consider the role that the various forms of caravan traffic can play in the creation and reproduction of regional systems, focusing on how it may have affected, not only the herders themselves, but the other social sectors involved.
ENDNOTES

1. Following Giddens (1979:66) I use the notion of "social system" to refer to concrete, patterned forms of interaction, or "reproduced relations between actors or collectivities, organised as regular social practices." Structure is reserved to "rules and resources, organised as properties of social systems."
CHAPTER 3:
CARAVANS IN ANDEAN POLITICAL ECONOMY

Like other perspectives born out of the Marxist tradition, political economy focuses on the analysis of social relations based on a differential access to key resources (Cobb 1992). Unlike other approaches, however, it combines an interest on the internal structure of local groups and on the distinctive social and cultural processes that result from their participation in large-scale political and economic systems (Ortner 1984:141-142; Roseberry 1988). Since these systems usually integrate culturally diverse populations, political economists are also concerned with ethnicity and other forms of group identity and the ways they interact with economic phenomena.

As pointed out in the introduction, after the work of Murra (1975) almost every discussion of political economy in the South-Central Andes has been framed in terms of "zonal complementarity: the need for regional systems of resource control beyond the immediate ecological zone of any particular settlement" (Stanish 1992:67). Zonal complementarity is conceived as an organizational response to the extreme diversity of the Andean landscape, characterized by a number of discrete, altitude-dependent ecological zones and other localized resources (e.g., subtropical forests, mid-altitude valleys and oases apt for agriculture, high altitude grasslands, coastal stripes, salt flats, etc). Given this pattern of resource distribution, no community can reach self-sufficiency exploiting one habitat only, but needs resources from the others.
By conceiving of social relations in adaptive terms, discussions of Andean complementarity are usually tied to, often implicit, functionalist assumptions (Van Buren 1996:341). This theoretical slant becomes evident, for example, in the emphasis put on redistribution and on the general benefits derived from elite management of vertical archipelagoes, or in the notion that complementarity resulted in a particular kind of "social harmony." These judgements notwithstanding, there is strong evidence to suggest that complementarity systems where intimately tied to social conflict and the development of particular forms of exploitation. Archaeological data, for example, indicates that the pre-Inka era (Late Intermediate Period, Regional Developments Period, or Late Period depending on the chronological framework employed), when according to most authors complementarity systems emerged or acquired singular strength, was also a time of endemic conflict throughout the Andes (Guaman Poma's 1980[1615] Auca Ruma) and witnessed the development of unprecedented social inequality, at least in some parts of the Circumpuna Area.

Given its wide acceptance, I will use the concept of complementarity to refer broadly to activities and processes that serve people in the Andes to access resources from different areas and/or produced by different social units, but with two important caveats. First, many of the resources that circulate as a result of these activities may not be satisfying ecological needs, but rather be fulfilling other important social or cultural demands (Martínez 1998; Sanhueza 1992:169). By the same token, I do not take ecological constrains and other adaptive needs (e.g., risk buffering) to be the only cause
of the development of Andean complementary systems, much less a sufficient explanation for the variety of forms they assume. As other aspects of the political economy, these practices are the result of a complex interaction between functional demands and constrains, power struggles, and cultural processes in historically specific contexts.

The purpose of this chapter is, first, to analyze the various ways in which caravan traffic may have been organized and the potential implications of these alternatives for the political economy. This discussion will also help to define the variables that need to be operationalized archaeologically in order to take advantage of the material residues of caravans to investigate social processes. In the second part, I will review the main complementarity models that have been proposed for the South-Central Andes, putting emphasis on how different authors envision the organization of caravans and their role in the history of the area.

THE ORGANIZATION AND IMPACT OF CARAVAN TRAFFIC

The relationships established between pastoralists and other social units through caravan traffic are not only economic, but also political and cultural. The role played by this practice in each one of these levels depends on a number of factors, six of which will be addressed here: (1) degree of pastoral specialization of caravanners; (2) goods transported; (3) relationship with elites; (4) ethnic and identity relations among the social units involved in the network; (5) geopolitical context; and (6) network configuration.
Certainly, some of these factors are partially interdependent, but each one of them responds to different combinations of variables. may have distinctive effects on social organization at large, and could be reflected in specific components of the archaeological record.¹

Unlike Salomon (1985), who proposed a functional classification of complementarity mechanisms which has some points in common with the following discussion. I take a deductive approach, trying to consider all reasonable alternatives for each variable considered, even if there are no examples of them in the regional literature. This is necessary from an ethnoarchaeological perspective because we cannot assume, as in a Direct Historical Approach, that the documented ethnographic and ethnohistorical instances exhaust the potential variability of prehistoric cases in the area, even if historical continuity can be demonstrated.

**Pastoral Specialization of Caravanners**

By pastoral specialization I refer to the combination of two variables, *degree* and *scale*. The former refers to the degree of herding specialization of caravanners’ *vis a vis* other subsistence activities, specially agriculture, giving an approximation to their relative economic dependency on traffic, i.e., to the role played by caravan traffic in the material reproduction of the group. It recognizes two basic states, specialized pastoralists and agropastoralists —usually cases in which ecological or other constrains prevent the
development of a self-sufficient agricultural base. By scale I refer to the size of the specialized social units, i.e., households or entire communities.

Combining these variables three general possibilities can be outlined (cf. Khazanov 1984:19-36): caravanners may belong to specialized pastoral communities, with no dependable agriculture; to agropastoral communities with marginal or insufficient agricultural production; or to specialized pastoral or agropastoral households within agriculturally-based communities. Again, I should emphasize that these alternatives refer to the nature of the productive activities directly carried out by discrete and archaeologically identifiable social (co-residential) units, regardless of their relative political or ethnic status.

Pastoral specialization is both determined by the possibilities of the natural and social environment occupied by the group. Thus, the limitations imposed by the high puna to the development of dependable agriculture, result in pastoral specialization with non-autarkic agriculture or no farming at all. The presence of specialized pastoral households as a sector in primarily agricultural communities, on the other hand, would respond primarily to social conditions, such as particularly favourable opportunities or the command of a political authority, as exemplified by the yana herd手s given by the Inkas to ethnic lords (Murra 1965:200).

Another aspect of specialization is the relative dedication to caravan trade vis a vis other activities, including pastoralism. If traffic is part of the reproductive strategy of independent agropastoral households in a subsistence economy, one can expect only a
part time dedication to this trade. By contrast, we could expect nearly full-time specialization among caravanners in a highly developed exchange economy, as postulated by Browman (1981) or Kolata (1993b:274) for Classic Tiwanaku. drovers attached to political institutions, like the Inka army (Murra 1978:95).

**Transported Goods**

Caravans can play a very different role in social processes whether they transport primarily *subsistence* or *prestige* goods. Subsistence goods are related to the satisfaction of practical problems of survival and basic comfort (Hayden 1998:2). Given their lack of autarky, we can expect a significant amount of subsistence goods to be involved in the general articulation strategy developed by pastoralists, and probably, but not necessarily, in their caravan networks. Of course, they can also transport subsistence items important for other groups, whether they produce them (e.g., meat) or they just serve as middle-men in their distribution (e.g., salt).

Prestige goods, on the other hand, accumulate significant amounts of surplus labour in a form that can be used to attract or indebt other people (*ibid*:11) and communicate success and social distances. Important characteristics of their design are high cost, as a global measure of the amount of labour involved in procurement and production, and "attractiveness," resulting from a number of properties (color, brightness, sound, taste, smell, etc.) that elicit favourable sensory responses. Since objects that are locally unavailable, rare, or produced by other groups are usually more costly, prestige
goods are likely to enter caravan circuits, regardless whether pastoralists use them or not. Metals, marine shell, tropical-bird feathers, elaborated textiles, and hallucinogenic substances are some prehistoric candidates for the area.

Caravans may also transport other goods for use in ritual, identity-signaling, and other cultural practices that do not meet subsistence needs or necessarily play a role in prestige-seeking strategies (cf. Hayden 1998:15, 45). These elements highlight the problems of the subsistence/prestige classification, which is based on two different axes of variability (i.e., the role of items in material and in social reproduction), resulting in overlapping and non-exhaustive taxons (i.e., some entities can be included in both and some in none). Current examples are a number of ritual items used throughout the South-Central Andes but produced only in certain ecozones, like coca leaves, cornmeal (llompaqa), llama lard (tujiuca), llama fetuses (sullis), and aromatic shrubs (k'owa). By lack of a better term, I will call these "cultural goods." referring to the fact that they play a central role in "cultural reproduction." without excluding of course, their potential uses in subsistence or prestige accumulation. They are defined with relation to particular historical and cultural systems of belief and practice, which may therefore condition the configuration of caravan networks as well.

It should be noted that the subsistence, prestige, or cultural character are not attributes of the objects themselves but a property they acquire in relation to social action. Although certain characteristics of artifacts make them more likely to perform in subsistence or prestige-accumulation activities, it is the context of their use what
ultimately defines their social significance. For example, the production and circulation of maize for daily consumption is a central part of Andean subsistence activities. However, giving away *chicha* (maize beer) in certain circumstances, or discarding it as an offering to the ancestors can be important for reproducing social networks, establishing a position, or performing a ritual; in these cases, maize would be performing mainly as prestige or cultural good. A similar argument could be made regarding a number of items that circulated in the Andean past, like coca leaves, metals, or weavings.

The relative importance of these various classes of goods imply different historical scenarios and explanatory frameworks to account for the development of caravan traffic and other forms of social and economic complementarity. In the first case, the circulation of goods is construed as an adaptive response that, by diversifying the resource base, enhances overall productivity and reduces risk, favouring the material survival of pastoralists and other social units participating in the network (e.g., Murra 1972, 1985; Núñez 1996; Núñez and Dillehay 1979). By contrast, those who envision caravaners transporting primarily prestige goods (e.g., Browman 1981:417; Kolata 1993a:214; Llagostera 1996:22), tend to analyze their trade in connection with the development of social power and inequality, by supplying elites with rare and valuable items necessary to create social closure, debts, and to compensate followers for their support. Certainly, caravans may have transported various combinations of all these, developing simultaneously networks at different levels with multiple social implications.
Relationship with Elites

Caravanners can be attached or independent specialists, depending on whether their activity is sponsored and managed by patrons, either social elite or political institutions (cf. Brumfiel and Earle 1987; Costin 1991). Attached caravan traffic, conducted upon command of curacas (chiefs) or state institutions, would emerge mainly for social and political reasons, to satisfy the demand of elites for prestige goods and other politically charged commodities while keeping control over their circulation, or to secure a regular supply of subsistence goods if redistributive activities are important for the maintenance of power structures. Independent trade, on the other hand, would develop in response to pastoralists' own need for agricultural products and perhaps to meet a generalized demand for resources from other ecozones or goods produced by other social units, whether this demand was economic, social, or cultural in nature.

The maintenance of attached caravanners would presuppose the existence of a considerable concentration of power in the hands of elites and would feed back strongly into this process. On the other hand, independent drovers can spontaneously emerge in a context of intensified, but relatively symmetrical interregional interaction, as exemplified by the massive participation of llameros from the Bolivian highlands in the firewood trade during the first half of this century (West 1987). Elites could still exert some influence over caravans by controlling the production and perhaps the demand of some goods, or even some of the routes (e.g., Kolata 1993a:215) and territories they traverse, but still the presence of socially independent caravaners would act against processes of
power accumulation based on the control of the circulation of exotic commodities, potentially contributing to the maintenance of more egalitarian regional systems.

**Ethnic Affiliation and Identity**

Ethnic groups have been defined as "culturally ascribed identity groups, which are based on the expression of a real or assumed shared culture and common descent (usually through the objectification of cultural, linguistic, religious, historical, and/or physical characteristics)" (Jones 1997:84). As a process, ethnicity entails the reproduction of classificatory distinctions between groups of people who perceive themselves as culturally different and which inform their interaction. Given the capacity of material culture to efficiently carry these identity messages (Wobst 1977), artifacts play an important role in the creation, maintenance, and transformation of ethnic distinctions.

By making intelligible and predictable behavior among co-ethnics, ethnic statuses and other identities are central to social relations, being strategically manipulated to promote interaction or to create closure. In the case of economic transactions, for instance, access to important resources and opportunities is frequently mediated by ethnic affiliation (Hodder 1979). Some authors (e.g., Schortman and Urban 1987) even consider the development of shared identities, either by the establishment of co-ethnic enclaves or through the spread of common salient identities, as a precondition for the development of trade and economic networks in general. Ethnic relations are central to Andean complementarity models. Shared ethnic statuses bind the "islands" of Murra's "vertical
archipelagos" or pastoral and agricultural communities among the Laymi studied by Harris (1982), while a common ethnic background combined with flexibility in the definition of identities seems critical to what Martínez (1992) has called "interdigitated territoriality" in the Circumpuna region.

It should be emphasized that ethnicity involves a practical consciousness of difference that results from the conjunction of two different processes. On one hand, ethnic identity is grounded on individuals' early experiences internalized in the dispositions of a common *habitus*. "a subjective but not individual system of internalized structures, schemes of perception, conception, and action common to all members of the same group or class" (Bourdieu 1977:86). On the other hand, ethnic distinctions are shaped by the situational characteristics of historical contexts of social interaction (Jones 1997:120). The contingent nature of the intersection between *habitus* and context reminds us that ethnic groups are flexible, changing categories rather than fixed, ahistorical essences.

These two dimensions of ethnicity have different implications and may acquire distinctive expressions in the archaeological record. One of them, referred to the contexts of learning and enculturation, results in pervasive, largely unconscious, idiosyncratic "ways of doing things" which are not necessarily part of the overt signification of ethnicity (cf. Bourdieu 1977). The other, related to strategies of affiliation or differentiation played out by the actors in specific contexts of interaction, involves active ethnic signaling as part of the negotiation of identity. These two aspects would
correspond to Weissner's (1983) "assertive" and "emblemic" styles, respectively (cf. Earle 1990:73; Shennan 1989). Assertive style reflects more directly degrees of social and cultural proximity, emblemic style does not. Depending on the context, emblemic diacritics may be manipulated (cf. Hodder 1982a): (a) by different groups to assimilate (e.g., if they find economic or political advantages in their cooperation); (b) by relatively close groups to emphasize their differences (e.g., if they compete over the control of key resources); or (c) by others to keep an open, ambiguous ethnic status (e.g., if they depend on the interaction with a variable number of ethnically diverse groups). From an archaeological point of view, the degree of correspondence between various expressions of identity may carry important information regarding power distributions and other characteristics of social relations.

As far as caravans are concerned, three situations can be envisioned: caravanners and their trade partners may all share a common ethnicity; traffic can involve two or more ethnic groups, the caravanners belonging to one or more of them; or traffic may connect two or more ethnic groups, with caravanners maintaining a separate ethnic status vis a vis their trade partners. Martinez (1992) reminds us, however, that in order to understand some forms of social interaction, the distance among categories and the flexibility of the ethnic classification system may be as important as the number of identities involved.

The emergence of a corporate caravanner identity, cross-cutting ethnic affiliations, may respond to other factors, such as the importance of traffic for the economy at large, the relative dependence of pastoralists on this activity, their dedication
to it, and their possibilities of negotiating a social position or other advantages as a discrete sector. Regardless of the ethnic framework, caravanners may or may not hold a separate identity with its own social diacritics.

**Geopolitical Context**

Traffic may connect social units belonging to a *single polity* or *different polities*. In the latter case, caravanners can belong to one or more of them, or may conceivably be autonomous agents conducting mediatory trade among other parties. By "polity" I do not refer to any specific scale of organization, but simply to the highest order, autonomous socio-political unit in a particular regional and historical context; potentially ranging from a single community to large territories under centralized administration, depending on the level of social complexity. (Renfrew 1986:2) In the Andean literature, the expression "ethnic group" is commonly used to refer to political units, especially to chiefdoms (*señoríos, curacazgos* [Murra 1975; Rostworowski 1989]), thus conflating two kinds of processes that may result in different and non-overlapping social units. I prefer to keep these dimensions separate, using terms like "polity" and "territory" to refer to political rather than ethnic phenomena.

A different but related issue concerns whether caravans traverse "alien" territory in their journeys. Given the disperse territoriality that may have characterized Andean political formations in many times and places (Harris 1982; Murra 1972), it is possible that even traffic operating within a single polity had to traverse areas under control of
other groups. This creates a number of opportunities for conflict and control of routes by local groups. By geopolitics of traffic, then, I refer to the conjunction of particular forms of territoriality and political integration with the concrete configuration of a caravan network. It appears as a relevant dimension to understand the role of traffic in political processes, such as warfare, alliance, integration, conquest, and various forms of "peer polity interaction" (Renfrew and Cherry 1986).

**Network Configuration**

I refer with this expression to various aspects of the spatial design of caravan networks and to the patterns followed by the circulation of certain goods (cf. Haggett 1965). One of them is the *distance* traveled by individual caravans or covered by specific caravanner groups. A limited number of caravan circuits connecting distant areas would have a different impact on social integration than the aggregate effect of multiple circuits connecting nearby nodes. Another attribute is the relative *segmentation* of the network. When traffic is segmentary, each node is directly or indirectly connected with only a limited number of nodes in the region: continuous networks connect all nodes in a region, either through direct or indirect links. A third aspect, that could be termed *convergence*, would refer to the tendency of caravan destinations and the items they transport to concentrate in one or a limited number of nodes.

It should be emphasized that, although the configuration of caravan networks largely reflects environmental factors (i.e., location of traded resources, of populations
that need them, and geographical constraints on the movement of caravans), it is also the result of the social organization of traffic. Hence, pastoralists may not get the resources they need in the closest place where they can be found; segmentary traffic may favor the reproduction of reciprocal obligations, disregarding a generalized demand for certain products; and convergent networks can be the result of political restrictions upon the circulation of certain goods.

**On the Nature of Transactions**

Murra has emphasized throughout his work that *reciprocity* and *redistribution* were the main integrative forms of highland Andean economies at the time of the European invasion, while market exchange was absent or played a very limited role (1972, 1978), a position that has been accepted by most authors (Alberti and Mayer 1974; Flores Ochoa 1978; La Lone 1982), including archaeologists (Llagostera 1996; Morris 1978; Núñez 1996; but see Browman 1981). This conclusion is supported by the fact that economic transactions were conducted preferentially among units that belonged to the same ethnic group and polity, frequently related through real or fictive kinship, and/or were embedded in ceremonial practices or regulated by political or community-level institutions. Additional arguments involve the absence of "money" or other forms of currency and the limited number of references to marketplaces in the early chronicles (Assadourian 1994:64; La Lone 1982; Morris 1978:319; Murra 1978:208-210, 1997; cf. Hartman 1971; Núñez 1996). The main exceptions to this pattern would be found among
societies of the central coast of Perú, like the Chincheró merchants studied by Rostworowski (1989).

All of them have followed the ideas of Polanyi (1953), who defined two economic "integrative forms" outside the market system:

"Reciprocity denotes movements between correlative points of symmetrical groupings in society; redistribution designates movements toward an allocative center and out of it again... Reciprocity, then, requires as its background symmetrically arranged groupings; redistribution is dependent upon some measure of centricity of the group." (p.223)

The flow of goods and labour between co-ethnics who belonged to a "vertical archipelago," for example, took the form of reciprocity because it connected symmetrically arranged households that, even when they where devoted on a full-time basis to various chores in distant colonies (e.g., herding in the puna, gathering wanu in the coast, or timbering in the yungas), did not lose their rights to productive resources in the center. "Such rights were claimed and exercised through kinship ties maintained and periodically reaffirmed ceremonially in the settlements of origin" (Murra 1976:143). Redistribution, on the other hand, would characterize the economic relationships between commoners and ethnic lords or between conquered groups and Inka imperial institutions.
involving the upward flow of labour as tribute (*mit'a*) and the downward flow of surplus through acts of political generosity (Murra 1978).

It is worth noting, however, that economic transactions can be based on reciprocity or redistribution and still take the form of trade. Polanyi emphasizes that, although trade and exchange are central to market phenomena, they are not coterminous with markets as an integrative principle. From the substantive point of view, *trade* is just "a method of procuring goods that are not available on the spot." (Polanyi 1953:229) It is a peaceful and two-sided movement of goods between communities, which can take the form of: (a) gift trade, between partners who stand in relationship of reciprocity, usually involving ceremonial practices as an essential component of the transactions; or (b) administered trade, frequently associated with redistribution, involves formal agreements between autonomous political units (e.g., treaties, customary relationships). Exchange, a related concept, "is the mutual appropriative movement of goods between hands" (p.234): outside market systems, it can occur at (a) indeterminate rates, when the actual rate of exchange emerges subsequent to the movement of goods or (b) set rates.

In the literature on Andean complementarity, reciprocity and redistribution have been identified with various forms of "direct control." which involve the circulation of goods and labor along ethnic, political, or kinship lines (e.g., colonies and nuclei, sections of the same *ayllu*, local communities and the state), while non-market forms of trade and exchange, as denoted by the concept of "barter," are considered restricted to economic transactions among ethnically and/or politically differentiated social units (e.g., Stanish
1992:39). Consequently, differentiating between these two broad complementarity mechanisms and the nature of associated transactions (reciprocity/redistribution vs. administered trade) in the archaeological record, has become a matter of defining the ethnic relationship between the social units involved.

This correlation between ethnic relations and forms of circulation is not perfect. Even within ethnically integrated economies, like those described by Murra or Harris, a fair number of transactions take the form of trade at set or indeterminate rates (Harris 1982; Murra 1978:212; Van Buren 1996:346). Nevertheless, since I cannot define direct archaeological correlates of the nature of transactions at present, I will follow the literature treating this variable as dependent on ethnic status.

CARAVANS IN COMPLEMENTARITY MODELS

Using the previous discussion as a comparative framework, I will now review the main complementarity models proposed for the South-Central Andes, comparing the role each one of them gives to caravan traffic (Table 3.1). Before I start, few remarks should be made. First, some authors are not explicit concerning all the aspects just discussed, leaving some of them implicit or only vaguely defined. Second, not all these systems are mutually exclusive; the same population can use simultaneously several different mechanisms to get what they need, thus gaining security. In fact, many authors consider this kind of redundancy a characteristic feature of Andean complementarity (e.g., Fonseca Martel 1986:292; Forman 1978; Harris 1987:27; Martínez 1998:170-176; Núñez...
1996:44; Rabey et al. 1986; Salomon 1985:517). For clarity's sake, however, I will just consider those mechanisms and other features that are taken as distinctive of each model. Finally, this does not pretend to be an exhaustive review; I just intend to show the diversity of organizational scenarios for caravan traffic that have been recorded or speculated for the area, and how are they integrated into political economy models.

The order I follow is somewhat arbitrary. I begin with "direct control" models, continue with "indirect control," and conclude with a brief consideration of complementarity systems that exclude the presence of caravans.

**Vertical Archipelagoes**

According to this model, elaborated by Murra (1964, 1967, 1972, 1976, 1985) on the basis of 16th century administrative records (*visitas*) from the Central Andes and Titicaca Basin, in order to achieve self-sufficiency in an extremely diverse environment, highland ethnic groups tended to control resources in several altitude-dependent ecozones, some of them located several days away from their main territory, sending households or entire communities to exploit them directly. These groups, who obtained other community-produced resources through reciprocity, formed colonial enclaves or "islands" in areas dominated by other polities, resulting in a complex, interdigitated territorial mosaic described through the "archipelago" metaphor. A further complexity of the model lies in the indication that some of these productive islands may have been multiethnic communities, formed by households conducting similar activities for
different ethnic groups. Archipelagoes were developed by polities of different scales, from the Chupaychu with ca. 3,000 households to the Lupaca with about 20,000, and probably originated in the pre-Inka era.

An economic system of this kind would entail massive demands for the transportation of goods at long distances. As Murra explicitly states (1965:185), not all this circulation took place through llama trains, but certainly caravans would have satisfied a considerable proportion of this demand among the animal-rich archipelagoes of the South-Central Andes. Caravanners would belong to altiplano agropastoral communities (Murra 1965:201, 1978:204), and perhaps to specialized herding communities in the case of eastern Andean archipelagoes with their ethnic center in the maize or tuber production zones (e.g., among the Chupaychu [Fonseca Martel 1986; Murra 1967]), while yana (servants) drovers, attached to ethnic lords or to the Inka state (Murra 1965:199, 210), could be specialized households within agricultural communities. Caravanners and the communities they connected would all share the same ethnic affiliation and belong to the same polity, but traffic connecting ethnic colonies and nuclei would have to traverse territories controlled by others.

Verticality has been construed as an "ideal," a singular adaptive response of Andean populations to the challenges of an extremely diverse environment. As such, most of the goods archipelago caravans transported were subsistence goods such as charki (dried meat), maize, tubers, chuño (freeze-dried potatoes), fish, salt, wool, and wood, or widely consumed "cultural" resources like coca (Murra 1965:201; 1978:203).
In the most complex polities (e.g., the Lupaca), this flow of goods was partially regulated by ethnic lords, taking the form of redistribution. In fact, the direct control of maize or coca production through colonial enclaves could be better conceived as part of a strategy for the appropriation of surplus labour by altiplano elites, who could then "reciprocate" services by distributing these valued resources, rather than an ecological adaptation that equally favoured all the sectors involved (Van Buren 1996:347). There is also evidence, however, of a considerable amount of direct transactions among commoner households beyond the control of elites (see Chapter II). Some of these could take the form of administered trade or barter between highland caravans and colonists or even local groups (Murra 1978:203; Van Buren 1996). Likewise, archipelagoes seem to include both attached and independent caravanners. Examples of the former would be the drovers given every year by the ayllus as mit'a (labor tribute) to the Lupaca lord, while independent caravans would be simultaneously conducting trade among commoners. Traffic networks in regions occupied by a number of autonomous ethnic archipelagoes would tend to be segmentary and convergent on ethnic nuclei.

**Ethnic Economies**

Through her ethnographic research in northern Potosí (Bolivia), Harris (1982, 1985) has defined a particular economic system which involves a considerable amount of caravan traffic. Each ethnic territory in this area includes portions in the highlands or suni (3,800-5,000 m) and in the valley or likina (2,000-3,500 m). In most cases, these
territories are narrow, continuous strips over 100 km long, running across the eastern Andean flanks (e.g., Chayanta, Macha, Sakaka), but in cases like the Laymi, they may form two discrete areas separated by several days of march through other ayllus' land. Two thirds of the population lives in the suni, herding llamas and sheep and cultivating tubers and other frost-resistant crops; those in likina cultivate mainly maize and squash, keeping a few goats and sheep. Highland and valley populations belonging to the same ayllu share an ethnic identity, expressed in the use of common material diachritics (e.g., textiles), and reproduced over time through the practice of endogamy (Harris 1985:317).

The economic articulation between the two ecozones takes two main forms. Some suni households (presently about one fourth) migrate seasonally to the likina territory of their ayllu to farm their own land, a practice known as "double domicile" (ibidem). A more common practice, however, is for suni people to travel to likina after the harvest, bringing llama caravans with their own production (chuño, charki, wool, textiles), money they obtain selling tubers in the market, or other valued resources they get from other groups (e.g., coca, alcohol, salt). These products are exchanged with their likina co-ethnics or relatives for maize, squash, wood, woodworkings, honey, or peppers. These transactions, which take place without the intervention of any centralized authority, may take the form of gifts, cash purchases – as in the case of maize, or barter at set rates. Although this "ethnic economy" (Harris 1982) is not autarkic – i.e., some items are obtained from outside (market or other groups) – transactions with ayllu members are always more favourable than with outsiders and usually involve other social and ceremonial exchanges.
In this model, then, caravans are in the hands of independent households from highland agropastoral communities who trade with farmers of the same ethnic group. In the past, these communities were integrated into autonomous political formations as well, but it is not clear to what extent this involved an intervention of ethnic leaders in the circulation of goods. Traffic involves mostly subsistence and cultural goods produced directly by the communities involved, and to a lesser extent, resources obtained from outside. Caravans travel distances of one or two weeks through territories that usually belong to the same ethnic group, and in the past, to a single polity. Resulting networks would be segmentary and divergent.

**State Archipelagos**

Murra has compared the economic organization of the Inka empire to a large, state-controlled archipelago, where the principle of ecological "verticality" in the distribution of enclaves was replaced by a structural one (1972:111). The development of this mechanism involved the establishment throughout the empire of state productive facilities, served through permanent mitmaqkuna or mit'a labor on a rotation basis. These "state islands" included maize-producing centers (Wachtel 1982), coca fields (Rostworowski 1989: 243), mines, pottery, textile, and metallurgic workshops (Murra 1978), while others had mainly political functions (e.g., administrative centers, military outposts). The operation of this geographically dispersed apparatus and the tendency to regulate the economic flow among conquered groups, entailed enormous demands on
transport that, at least in the southern provinces or Kollasuyu, was partially satisfied by state-managed pack trains. Moreover, some imperial activities (e.g., military campaigns) would have been extremely difficult without this resource. Probably this was one of the reasons why the Inkas extended llama breeding to new areas and kept state herds (capac llama) throughout the provinces (Murra 1978:90, 95).

Inka caravans were probably driven by mit’ayuc or specialized yana herders. They traversed multiple ethnic territories, using the logistical support of the imperial road system and associated facilities (tampus, chaskiwasis), carrying tribute from the provinces to the capital, redistributing production over the administrative infrastructure, and transporting supplies for the army, creating a far-reaching and highly connected network converging on the main nodes of political control. Transported products would vary regionally, but given the combination of staple and wealth finance that characterized Inka political economy (D’Altroy and Earle 1985), they probably included both subsistence and prestige goods.

Altiplano Mode

Partially inspired on ethnographic data (Browman 1974), this model was applied by Browman (1980, 1981, 1984) mainly to prehistoric cases in the northern Bolivian altiplano, where the relative environmental homogeneity and the larger distances between contrasting ecozones, turned "direct exploitation" through the political control of ethnic enclaves difficult and costly. Instead, populations in this area obtained the resources they
needed through the development of exchange networks, involving craft specialization, periodic markets, and regular caravan trade, a pattern that reached a prehistoric climax during the Tiwanaku phase. In Browman's words, "the altiplano individual had to become either an expert trader, acquiring goods through his entrepreneurial skills, or an accomplished craftsman, exchanging his marketable skills for desired commodities" (1981:415).

From its origins in the first millennium BC, altiplano long-distance trade included prestige goods such as metals, semiprecious stones, marine shells, hallucinogenic drugs, and textiles, although llama caravans were mainly devoted to a more mundane trade of agricultural products and items of local manufacture (ceramic vessels, projectile points, and wooden items) within middle level, regional circuits. All these forms of traffic were intensified and experienced a major convergence in the city of Tiwanaku, which served as an industrial center that imported raw materials and exported finished goods, irradiating its socio-religious concepts throughout Western Bolivia, Northern Chile, and Northwest Argentina. With the collapse of Wari and the separation of Cochabamba Valley after AD 1,000, Tiwanaku lost its main market areas, loosing its commercial pre-eminence. After this, Tiwanaku developed an archipelago mode of exploitation to secure complementary resources from the western Andean valleys, while some trade continued to exist between the coast and the highlands, and between the Loa and San Pedro de Atacama region, Northwest Argentina, and Southern Bolivia.
Browman repeatedly characterizes the altiplano pattern as a market system. Throughout the sequence, caravans connect ethnically diverse groups, but during the Classic Tiwanaku Phase (AD 375-750) at least, altiplano trade was conducted under the aegis of a loose but unified political organization (a federation "based on economic and theological ties" [Browman 1981:416]) controlled by the city. In fact, the desintegration of this order provoked the collapse of the trade network. The relationship between the "itinerant Tiwanaku caravan traders" (ibid:417) or "peddlers" and elites is not discussed in any detail, but the distribution of official Tiwanaku emblems throughout the South-Central Andes suggests significant connections between trade and political and religious power. The resulting network was far-reaching, continuous, and highly convergent on the Tiwanaku heartland.

**Caravans and Clients**

Relying on new data produced by one more decade of research at Tiwanaku, Kolata (1993a, 1993b) has offered a different rendering of the role of caravans in this state's political economy. Unlike Browman or Núñez and Dillehay (1979), he envisions Tiwanaku as an expansive state, squarely based on an effective, surplus-producing system of intensive agriculture (Kolata 1993a:205). Long-distance exchange with llama caravans appears as one among three pillars of the state economy, which also included (1) direct, intensive use of the core territory through tuber and grain agriculture, large-scale herding, and the exploitation of the lacustrine environment; and (2) the
establishment of state colonies at lower altitudes to secure access to warm-land crops, such as maize and coca.

Caravan trade was conducted under at least two different organizational patterns (1993b:274). The most frequent and dense one, originated at least 3,000 years ago, was independently conducted by villagers, on an inter-local basis. It connected relatives or co-ethnics in a constant stream of social visits and barter mainly in subsistence goods, with economic transactions embedded in ceremonial exchanges and other celebrations that served to reaffirm social bonds. Such networks would be divergent and highly connected.

A different kind of trade was in the hands of "specialized caravaneros" (full-time?), apparently independent, practicing long-distance exchange between ethnically distinct groups. Transactions were more impersonal and geared toward economic goals: they involved marketplaces or central locations where caravaners displayed and exchanged their commodities with local consumers, in a way that resembled "a medieval European trading fair, attracting people from the surrounding countryside to the town to examine exotic merchandise brought from afar" (Kolata 1993b:274). State control over this trade was exerted through the monopoly of specially valued natural resources and craft production, the forceful administration of strategic routes, and the enclavement of Tiwanaku populations in key areas, like San Pedro de Atacama (cf. Oakland 1992). These colonies served as transshipment points for other independent caravan traders operating more distant circuits (e.g., NW Argentina):
"From my perspective, the Tiwanaku state formalized key routes in the network of interregional communication maintained through llama caravans. In regions relatively close to the Titicaca basin (southern Peru, cochabamba, northern Chile, Atacama), Tiwanaku founded substantial economic colonies that were linked directly to the capital and its satellite cities by state-managed caravans. In regions at further remove (Valliserrana, Quebrada de Humahuaca, western Puna of Argentina), the state operated more indirectly, through a clientage relationship, in which politically independent, and perhaps ethnically diverse caravan traders were funneled into the Atacama entrepot" (Kolata 1993a:215).

These trade served the lords of Tiwanaku to maintain a clientage relationship with local elites in distant lands, who obtained in this way Tiwanaku emblems of power to be used in prestige-accumulation strategies. Resulting networks would be highly connected and convergent.

Finally, state-sponsored caravans would connect the city with its *mitmaqkuna* economic colonies at lower altitudes, in a pattern comparable to Murra's vertical archipelagoes (Kolata 1983:279).
Circuit Mobility

Caravan traffic is the most important mechanism of regional integration in Núñez and Dillehay's (1979) "circuit mobility." Unlike Browman or Kolata, these authors incorporate in their model a fair amount of archaeological data from the Circumpuna, an area that never experienced endogenous processes of urbanization or state formation. Beginning in late Archaic and early Formative times, the South-Central Andes witnessed the development of a lifeway of circuit mobility in which

"herder-caravan societies moved in fixed spiral-like transhumance paths between two or more axis settlements either along a puna-to-puna vector, a puna-to-coastal vector, or a puna-to-selva vector... Continuity and stability was given to the circuit herder-caravan movement by settlements at both ends of its pathway. For this movement to have maintained equilibrium, its pathway must have been balanced by relatively homogeneous fixed axis settlements which offered multiple resources and services from their particular ecological zone and by ferias (or fairs) where goods were exchanged" (Dillehay and Núñez 1988:611)

Each one of these circuits, including the sedentary communities and mobile segments connecting them, formed a "gyrating subsistence pattern based on the integration of complementary resources" (Núñez 1996:48). The concatenation of these circuits resulted in vast networks that put in contact distant communities, contrasted
ecozones, and different ethnic groups. This pattern, specially suited to the sparse distribution of people and resources characteristic of the South-Central Andes, gave a singular character to the history of this area, preventing the development of urbanism, conflict, or political centralization, and resulting in a peculiar form of "social harmony" (Núñez and Dillehay 1979).

Although circuit mobility has been extensively described and cited, it is difficult to define with precision some of the social and organizational parameters of the model: perhaps because the authors explicitly chose to concentrate on economic and demographic issues, avoiding the interpretation of their political and social context (Dillehay and Núñez 1988:605). In his more recent work, Núñez (1996. MS) presents circuit mobility as a regional "style" of integration cross-cutting other forms of complementarity:

"there are different basic and dominant modes of access to complementary goods in the South-Central Andes: emigrations, colonies, factories, barter, and integration of territories, manifested along caravan routes on the highlands-coast profile. The combination of these modes and the predominance of one over the others not only had efficient repercussions on the high valleys and the puna-Altiplano, but also articulated distant spaces between the coast and eastern forests. These patterns based on caravan traffic linked a mosaic of complementary
ecological zones resulting in a single unit integrated by different productive forms" (Núñez 1996:46. my translation).

Nevertheless, caravans are repeatedly described as connecting ethnically diverse groups and crossing the (soft) frontiers of chiefdoms under the protection of inter-ethnic alliances, bringing this pattern closer to "indirect control" models. In Núñez' view "each community keeps its own mobile groups to apply different strategies of access to extra-local resources" (1996:54). Transactions would take the form of reciprocity, redistribution, or barter: market exchange is ruled out, but not the existence of temporary marketplaces or fairs. From their beginnings in the early Formative, caravans would transport all kinds of goods, apparently under control of elites:

"south-central Andean authorities took care of neutralizing alternatives of commercial power based on the enrichment of 'unofficial' lineages... administered caravan traffic dependent upon the ethnic centers favoured the accumulation of wealth in the paramount lineages themselves" (Núñez 1996:49).

The configuration of the network changed along the prehispanic sequence. Formative period trade, developed from Archaic transhumance, was organized around the first sedentary settlements in resource-rich areas. These networks were connected, divergent, and already included the movement of goods across the Andes. Long-distance
Table 3.1: The organization of caravans according to some Andean complementarity models.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CARAVANNERS' SPECIALIZATION</th>
<th>GOODS TRANSPORTED</th>
<th>RELATIONSHIP WITH ELITES</th>
<th>ETHNIC AFFILIATION</th>
<th>GEOPOLITICAL CONTEXT</th>
<th>NETWORK CONFIGURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERTICAL ARCHIPELAGO</td>
<td>agropastoralists, pastoralists</td>
<td>subsistence, cultural</td>
<td>independent/attached</td>
<td>monoethnic</td>
<td>one polity -- across territories</td>
<td>segmentary convergent on ethnic nuclei</td>
</tr>
<tr>
<td>ETHNIC STRIPS</td>
<td>agropastoralists</td>
<td>subsistence, cultural</td>
<td>independent</td>
<td>monoethnic</td>
<td>one polity -- same territory</td>
<td>segmentary divergent</td>
</tr>
<tr>
<td>STATE ARCHIPELAGO</td>
<td>agropastoralists, pastoralists (mitayoc), specialists (yanaus)</td>
<td>subsistence, cultural, prestige</td>
<td>Attached</td>
<td>multiethnic</td>
<td>one polity -- same territory</td>
<td>continuous convergent on administrative centers</td>
</tr>
<tr>
<td>ALTIPLANO MODE</td>
<td>agropastoralists</td>
<td>subsistence, cultural, prestige</td>
<td>Attached</td>
<td>multiethnic</td>
<td>&quot;federation&quot;</td>
<td>continuous convergent</td>
</tr>
<tr>
<td>CARAVANS (a) AND CLIENTS (b)</td>
<td>agropastoralists / full-time specialists</td>
<td>subsistence / prestige, cultural?</td>
<td>independent / independent</td>
<td>monoethnic / multiethnic</td>
<td>one polity -- same territory</td>
<td>continuous divergent / continuous convergent</td>
</tr>
<tr>
<td>CIRCUIT MOBILITY</td>
<td>pastoralists, agropastoralists?</td>
<td>subsistence, cultural, prestige</td>
<td>independent, attached</td>
<td>multiethnic, monoethnic</td>
<td>different polities -- across territories (except Inka)</td>
<td>continuous divergent(c) continuous convergent</td>
</tr>
<tr>
<td>LLAMERO TRADE</td>
<td>pastoralists, agropastoralists</td>
<td>subsistence, cultural</td>
<td>Independent</td>
<td>multiethnic</td>
<td>different polities -- across territories</td>
<td>continuous divergent</td>
</tr>
</tbody>
</table>

Notes
(a) Upper line refers to "commoner" trade in Kolata's (1993a) model.
(b) Lower line refers to "specialized caravanero" trade in Kolata's (1993a) model.
(c) The three lines correspond to Formative, Tiwanaku, and Late Intermediate Period cases of circuit mobility, respectively.
trade peaked during the Tiwanaku era, with a marked convergence on the city. Finally, political fragmentation during the Late Intermediate Period reduced the spatial scope of individual circuits and would have resulted in a segmentary, divergent network.

**Llamero Trade**

I refer with this label to the ethnographically and historically documented traffic conducted by independent, peasant pastoralists or *llameros* — like our case study discussed in detail in the second part of this monograph — seeking to fulfill the basic subsistence needs of their domestic units (e.g., Casaverde 1977; Cipolletti 1984; Concha Contreras 1975; Custred 1974; Flores Ochoa 1977b; Karasik 1984; Lecoq 1987; Madrazo 1981; Molina 1987; West 1981). *Llameros* cross ethnic and international boundaries, trading with people who are socially and ethnically different, although they may be occasionally related to them through ritual kinship or other ties involving reciprocal trade obligations (*caseros, conocidos, colegas*). They transport mostly subsistence goods (e.g., salt, maize, tubers, meat, pots, hides, wool, ropes) and some culturally valued commodities (e.g., coca, k'owa, sullis). Mechanisms of exchange include direct reciprocity, barter, and market transactions. As mentioned before, in some cases, herders may obtain the resources they need in exchange for their labor (e.g., helping in the harvest).

Many authors consider that this kind of trade originated after the European invasion, as a way of obtaining the necessary money to meet tax obligations and
compensating for the disarticulation of vertical archipelagoes and other forms of "ethnic economy" (e.g., Fonseca Martel 1973:327; Harris 1982; Murra 1985:10).

**Complementarity without Caravans**

Finally, a number of complementarity models that include pastoralists among their social components, and may occasionally take advantage of pack animals, do not involve caravans as I have defined them in the first chapter. Most of them correspond to cases of economic *diversification* through seasonal mobility rather than *articulation*. Examples are the "compressed" subsistence systems described by Brush (1976), the *Q'eros* transhumant cycle (Flores Ochoa 1995; Núñez de Prado 1968; Webster 1973), and the double domicile practice among the Laymi (Harris 1985:317).

Another form of social and ecological integration without caravans has been identified by Martínez (1990, 1998) using ethnographic data and ethnohistorical sources from the Circumpuna Area. He found that a number of persons who reported themselves as Tarapacas, Atacamas, Lipes, and Chichas, appear in administrative and parish records as living (temporarily or permanently) or born in territories that supposedly belonged to the other ethnic groups, sometimes in the opposite side of the Andes. Some of these individuals kept spouse and children at home or in other "alien" territories, others married locally, and all of them took advantage of local resources. The resulting pattern would be one of highly interdigitated populations with multiethnic access to most spaces and resources. Unlike most complementarity models, in which goods tend to be moved
toward consumers who occupy residential bases, ethnic nuclei, axis settlements, state capitals, or administrative facilities. In Martínez model it is mainly people that move toward resources in distant, multiethnically exploited productive zones. Although some goods probably circulated between close relatives residing in different areas, it seems unlikely that this would have resulted in any sizeable traffic. Certainly, the author does not exclude the simultaneous existence of a considerable amount of caravan trade operating under some of the organizational premises discussed before.
ENDNOTES

1. Berenguer (1994:28-29) has also stressed the importance of some of these variables for understanding the socio-political significance of traffic.
CHAPTER 4:
THE ETHNOARCHAEOLOGICAL APPROACH

The main challenge faced by a study that seeks to take advantage of the observation of present day caravans, to learn something about the archaeological expression of this activity in general, so this knowledge can be used to evaluate alternative hypotheses of past political economy largely inspired by historical sources and ethnographic observations, is that of the interpretive interfaces between social disciplines. The problem is twofold. First, we have to define how can observations made on a few examples of present caravans—a marginal practice in the modern capitalist world system—contribute to understand the multiple ways in which this activity could be organized and their potential material expressions. Second, we need an analytical framework—i.e., operational concepts, units of observation and analysis, a definition of relevant variables—that can be applied to the study of the archaeological record, but can also be used to transfer information across discipline boundaries, whether this involves the interpretation of material residues of the past in terms of behavioral observations in the present, or the translation of historical hypothesis into archaeological expectations. In this chapter I address these two issues. I do not intend to offer an exhaustive literature review or solve long-standing debates in the discipline, but just to make explicit my current understanding of theoretical and methodological issues that are relevant to the research reported in the following pages.
ETHNOARCHAEOLOGY

Overview

I consider ethnoarchaeology to be the study of the relationships between human behavior (including its organization at different scales) and objects, both material culture and the natural environment, among living peoples. It can involve actual fieldwork in non-Western societies, rural contexts or even in modern cities, or it can take advantage of published material (e.g., ethnographies, travellers’ accounts [Stiles 1977:91]). The knowledge it generates runs the gamut from descriptive accounts of behavior-artifact interactions in particular contexts to general theories concerning the organization of behavioral systems or the role of material culture in social action (cf. Schiffer 1978).

Even when ethnoarchaeology can address a number of interesting issues that exceed the demands of archaeological inference, it has been of prime interest for archaeologists, who developed it as a distinct research strategy (Reid et al. 1975). All archaeological interpretations depend on background knowledge of contemporary contexts (Wylie 1989:11, 1992:275), because the archaeological record consists only of static arrangements of matter that exist in the present (Binford 1981a). In order to reach the past events that as social scientists they are interested in (i.e., to “assign meaning” to contemporary archaeological observations [Binford 1978:1]), or more simply, to make inferences, archaeologists rely on linking principles connecting archaeological traces (sensu Sullivan 1978) to the dynamic processes that generated them (i.e., human behavior...
or natural processes) and their organization (Schiffer 1976:12-17). These propositions necessarily have their origin in contemporary observations and experiences, since only in the present can both terms of this relationship be observed (Binford 1981a:26-28). Most of them take the form of commonsense, i.e., implicit analogies with the researcher's own experiences (Gandara 1990:51), while others are obtained from the observation of living societies or experimentally controlled situations. The development of ethnoarchaeology and experimental archaeology since the late 1950's (Thompson 1958; Kleindienst and Watson 1956) was a strategy to control the generation of these "connecting" principles, putting archaeological inference on a more solid basis (Stiles 1977).

Certainly, the use of ethnographic knowledge to interpret archaeological materials is much older than ethnoarchaeology (Orme 1981). Many of these early uses took the form of general analogies between contemporary "primitive" lifeways and prehistoric peoples based on a limited number of similarities in their material culture, a procedure that found theoretical support on early evolutionary stage typologies (e.g., Morgan 1881). In order to prevent the abuses generated by this method, archaeologists began to constrain the uses of contemporary background information, first by defining criteria to select appropriate source analogs for specific prehistoric cases. The most widely accepted criteria were historical continuity – the foundation of the North American "direct-historical approach" (Willey and Sabloff 1993:125-127) – and similarities of environment and subsistence between source and subject cases (Ascher 1961; Chang 1967).
A more radical path was taken by the positivist archaeology of the 1960s and 1970s (e.g., Binford 1968; Gould 1980; Schiffer 1978). Ethnographic analogy was rejected altogether as a valid methodological foundation for archaeological inference: (1) because as a form of inductive reasoning, the truth of the premises (i.e., formal similarities in material signatures) cannot guarantee the truth of the conclusion (i.e., similar behavioral or other dynamic antecedents) and (2) because "if we utilize models which are only sensitive to the elucidation of parallels with modern groups, the discovery of parameters of sociocultural structure unique to prehistoric time periods is impossible" (Freeman 1968:262). Only two legitimate uses of ethnographic data were envisioned. First, particular observations could inspire plausible hypotheses, which in turn had to be evaluated against archaeological data by deducing from them independent test implications (e.g., Binford 1967, 1972). Second, ethnographic and other actualistic observations could be used to test laws and other general propositions concerning variability in human behavior and its relationship with material culture. The resulting corpus of knowledge, variously called "middle-range theory" (Binford 1977), "reconstruction theory" (Schiffer 1988), or "interpretive theory" (Clarke 1973), could then be used to infer with confidence past behavior and system organization from archaeological residues (Schiffer 1975a, 1976, 1978).

It should be noted that none of these procedures ultimately avoids the use of induction in archaeological inference (Wylie 1985:85-88). In the first case, the formulation of archaeological test implications for an inference, based on ethnographic
analogy or any other source, requires also the use of general propositions connecting it with independent material signatures. and "such knowledge of 'connections' between Statics and dynamics must derive from experimental research conducted with documented living systems" (Binford 1981a:27). Binford (1977) attempts to sort this difficulty construing these test implications as "operational definitions" "advanced as part of the argument that seeks to warrant the assertion that certain empirical materials may justifiably be used in evaluating the hypothesis." (p.33) But since these definitions are ampliative, assuming a relationship between the dynamic terms of the hypothesis and archaeological signatures ("empirical materials") which is not tested in the hypothetico-deductive excercise, the fact remains that what is commonly referred to as "testing" an inference is actually putting together a bundle of inferential strings based on linking principles of various strengths (cf. Hodder 1982b:21). The first use of ethnographic data, then, depends on the second, concerned with the generation of these connecting propositions.

Two kinds of general propositions or laws are commonly recognized, universal and statistical or probabilistic (Salmon 1982:9-10). In the former, the proposed relationship between entities or variables holds always, without exceptions (p=1 or p=0); in the latter, the relationship is likely, but does not occur in all cases (p<1). While inferences based on universal propositions are deductive (i.e., if the premises are true the conclusion is necessarily true), those resulting from statistical ones are not; they are inductive. the truth of the premises makes the conclusion likely, but cannot guarantee its
truth. Despite the great emphasis put on deductive reasoning both as a model for hypothesis testing and for explanation, few (if any) non-trivial universal laws have been formulated in archaeology. The closest examples are those in which the proposed relationship is the expression of physical, chemical, or biological processes, as in the principles that govern the fracture of rocks, the decomposition of organic matter, or the fusion of bones. Human behavior, however, seems to be too complex or too underdetermined to be understood in terms of anything but statistical regularities at best. Thus, in spite of the deductivist rhetoric of the time, the relationship between analogical inference and test implications derived on the basis of such principles remains inductive, and the same is true of explanations that invoke probabilistic laws (Kelley and Hanen 1988). In any case, positivist archaeologists clearly set theory-building as the main goal of ethnoarchaeology, a shift that marks the coming of age of this subdiscipline, regardless of their opinion concerning the logical format of the undertaking.

The emergence of alternative views of ethnoarchaeology in the 1980s was largely related to the question of whether one can generalize about human behavior or social action. Putting emphasis on the fact that material culture is meaningfully constituted and actively manipulated in social strategies, and that neither symbolic systems nor strategic action are subject to universal laws, post-processual ethnoarchaeology (Hodder 1982a) rejected the possibility of building a general and objective middle range theory that could serve as a framework for assigning meaning unambiguously to archaeological observations, except as a projection of the researcher's ethnocentric bias:
"The aim of a science of material culture, a science of the archaeological record is a mistaken one, a futile search for scientific objectivity... there can be no objective link between patterning perceived in material culture and processes which produced that patterning" (Shanks and Tilley 1987:14, original emphasis).

The nomothetic explanation of archaeological patterning in terms of past behavior was rejected in favour of the contextual interpretation of particular historically and meaningfully constituted material culture.

Clearly, the most extreme interpretation of these claims leads to skeptic relativism, construing archaeological inference as pure speculation or ideological story-making, and reducing ethnoarchaeology to the particularistic role of documenting idiosyncratic cultural practices or producing "cautionary tales" to refute widely shared behavioral generalizations (e.g., Hodder 1987). In an attempt to defend objective grounds for archaeological inference in the face of an increasingly diverse theoretical landscape, Schiffer has advocated the independence of reconstruction theory from social theory:

"The past cannot be perceived at all, but is a product of the theory-laden operations of reconstruction. Fortunately, archaeologists holding different theories
about social processes can apply the principles of reconstruction to arrive at some agreement on what happened in the past" (1988:468).

But most behavioral inferences use principles concerning the nature of human activity, i.e., correlates and cultural formation processes (Schiffer 1976). Unless one embraces an extreme eclecticism, it follows that these principles should be consistent with the theories applied to other realms of social action. Therefore, archaeological inference necessarily shares the strengths and weaknesses of social theory in general (cf. Hodder 1986:103).

In spite of this apparent polarization of views, a middle ground is beginning to emerge. Wylie (1985, 1989, 1992), for example, has demonstrated that even when archaeological data and inferences are theory-laden, they can still be constrained by evidence, a position that she calls "mitigated objectivism" (1992:281) and draws mainly on a realist philosophy of science. In fact, a number of ethnoarchaeologists and archaeologists of different theoretical persuasions are converging on a similar position or seem to follow it through their practice, if not with their rhetoric (e.g., David 1992; Hernando 1995; Hodder 1992:15, 169-180; Kosso 1991; Saitta 1992). I will devote the rest of this section to outline my current understanding of the theoretical and methodological status of an ethnoarchaeology conducted under these premises, as an explicit statement of the biases that underlie the research reported in the following chapters.
**Realist Ethnoarchaeology**

Realist Theory offers ethnoarchaeology a model of social science that keeps a basic commitment with the notion that scientific research is a rational inquiry, that renders progressively better knowledge of an external reality that exists independently of our beliefs, through some kind of objective assessment of theories against empirical evidence (Gibbon 1989:143-144). Unlike positivism, however, realism takes into account that science is also a social creation, a fallible body of accepted knowledge, thus creating the theoretical possibility for considering a number of sociological factors that intervene in its production and make intelligible the particular dynamics of its growth (Kuhn 1970; Lakatos 1970). The following outline relies largely on the synthesis of realist philosophy elaborated by Gibbon (1989:142-172).

Realism identifies three domains of interest for science:

- The **real**, structures and processes of the world, anything that is capable of bringing about changes in the material world, even if it is not directly observable.

- The **actual**, or flux of events and phenomena that form the ordinary, observable world, which are the composite result of the activity of multiple, unobservable real structures.

- The **empirical**, interpreted social products generated by our theory laden perception of actual phenomena but still rooted in the "material" of "reality."
As any other portion of the world, the dynamic forces that generate the archaeological record should be conceived as a stratified reality, the result of processes that act simultaneously at different levels, e.g., social, psychological, biological, chemical, physical (Schiffer 1988). They also constitute an open system, all events (e.g., a form of organization, a symbolic system, an activity, a sequence of actions, a particular configuration of materials) being "conjunctures," the result of several generative mechanisms, sometimes of radically different kinds, acting together to produce effects (Gibbon 1989:148).

The ultimate goal of science is to understand the ways real structures and processes act and interact to produce world. This knowledge is embodied in theories, models formed by causal laws or general statements describing how structures behave. Unlike the positivist (Humean) conception of laws as general relationships between variables (e.g., Nagel 1961), which makes them logically indistinguishable from correlations or empirical generalizations, causal laws in realism require the discovery, not only of co-occurrences between phenomena, but of some kind of mechanism or process that links them — the core of the theory — explaining correlations and turning them into necessary connections. The importance of moving beyond correlation to the understanding of causal mechanisms has been stressed in the ethnoarchaeological literature by authors of various theoretical commitments (e.g., Binford 1977:35; Gould 1980:108; Gould and Watson 1982:30; Hodder 1982b:16; Wylie 1982:395; 1985:95), and
seems to be the key for moving from formal to relational analogies (Wylie 1985:94-95). Following Wylie (1989:13), I would add that these necessary connections or considerations of "relevance." may include functional and structural links as well.

Explanation is retrodiction. It involves the identification of generative mechanisms and of the manner in which they interact to produce phenomena in the domain of the actual. In other words, to explain an event (e.g., a behavioral pattern, an archaeological configuration) is to lay out the structural conditions that must have existed for it to be present. Given the open character of most systems, explanation and prediction are not symmetrical (contra Hempel 1966). Even if a sequence of events can be explained with reference to the operation of a number of underlying mechanisms and their reciprocal influence, this knowledge cannot be used to predict a future sequence, since the operation of other intervening mechanisms or countervailing causes are likely to result in the same processes manifesting themselves in a modified form:

"The task of the applied scientist is to untangle the web of interlocking influences, to identify the conjuncture of causes in which an event occurred. For the realist, predicates like natural, social, human, physical, chemical, aerodynamical, biological and economic do not differentiate distinct kinds of events, but distinct kinds of mechanisms that generate (if unhampered) events (...) Even though the same mechanism may be active in two separate events, the effects produced can
be quite diverse because of the differing combination of mechanisms that conjoin in each case.” (Gibbon 1989:151-152)

In the same way, all causal laws, regardless of the strength of the real connection they may capture, are expressed merely as tendencies in the domain of the actual, except for the rare instances of closed systems. Laws and theories, then, cannot be related to social phenomena or to their archaeological consequences, both extremely open systems, with deductive certainty. Neither can they be falsified by a single contrary instance (as in "cautionary tale" ethnoarchaeology or Yellen's "spoiler" approach [1977:8]) and can hardly be exposed to decisive test situations. Rather, they should be judged by their capacity to render intelligible social phenomena. In addition, some of these may be ontologically under-determined (e.g., symbolic systems), a possibility that contributes to the probabilistic nature of social laws.

Ethnoarchaeological research from a realist perspective involves a three-stage process:

- It begins identifying a segment of experience for investigation. This is, our perception of some event or apparent pattern or regularity in an open system, e.g., an activity, the various forms in which it is organized, its potential material correlates, or the possible origins of an archaeological trace.
• The second step is one of creative model building. Attempts are made to untangle the real domains and structures involved and to imagine unobservable but plausible generative mechanisms that could have produced the phenomena in question. These explanations, which may introduce unobservable constructs, are mostly provided by background theoretical knowledge, but they also come up inductively from the observation of the flux of events or may even be suggested by the accounts that informants give of their own actions.

• The final stage is one of theory construction. Postulated structures and powers are checked against independent empirical evidence (e.g. testing independent consequences of them, deriving their implications for other conjunctures, striving to sort out situations of equifinality) and structures are defined, describing the ways they act in statements of causal laws. It is crucial at this point to achieve some degree of system closure in order to isolate as much as possible the effects of postulated mechanisms, without interference from other causal processes. This is usually achieved by creating experimental situations. Many of the processes ethnoarchaeologists are interested in, however, do not lend themselves to experimental manipulation. Yet, a logical closure can be achieved through controlled observation of anticipated events where critical variables would be expected to interact in specific ways according to our theoretical understanding of the phenomenon, and through cross-cultural comparison of cases that meet relevant conditions.
I believe that realists' account of scientific practice offers an appropriate epistemological foundation for a "mitigatedly objective" ethnoarchaeology, together with some answers that I find acceptable to some of the main issues that have been debated since the beginnings of ethnoarchaeology. One of them, raised time ago by Schiffer (1981:906), refers to the procedures for evaluating the strength of general principles formulated on the basis of a single ethnoarchaeological case. The previous outline suggests a two-fold strategy for handling this problem. First, through arguments of relevance that specify the causal, structural or functional necessity of the proposed relationship (Wylie 1989:13). Second, demonstrating empirically its generality, comparing a number of relevant contexts within the case study, and, when appropriate, other known cases that meet the relevant initial and boundary conditions. The aim of cross-cultural comparisons from this perspective is

"not to ascertain that the same superficial configuration of attributes obtains but that the same causal principles hold. They may, in fact, generate quite different correlational patterns if certain other features of the context in which they operate are different, but it is documentation of precisely this that is required to establish a general, securely projectable understanding of how the underlying mechanisms or causal processes responsible for 'correlations' operate." (Wylie 1982:389)
I am aware that the use of cross-cultural comparisons in this study may upset some Andean scholars, who are usually very fond of the singularities of *lo andino*. Nevertheless, when they involve a limited number of well-defined variables and relationships, I find these comparisons to be a valuable methodological resource for ethnoarchaeology when it comes to evaluating the generality of certain causal relationships inspired in just a few observations.

The second issue concerns the reliability of archaeological inferences based on ethnoarchaeological and other "actualistically-"generated theoretical knowledge. Since these linking propositions are probabilistic at best, inferences based on them are inductions, i.e., the truth of the premises (actualistic theories and relevant observations on archaeological initial conditions) does not guarantee the truth of the conclusion (behavioral or systemic inferences). How can reliability be improved in an inductive framework?

There are two ways of approaching this problem. First, reconstruction theories (*sensu* Schiffer 1976, 1988) vary in their strength or in the security of the linkages they establish between dynamic and static phenomena. Drawing on the previous discussion, these variations can be attributed both to the openness of the systems in question and to the relative determination of the real domains involved. For example, linking principles based on chemical properties of clays used to infer pottery provenience (Bishop et al. 1982) seem at present more reliable than those that relate technological and stylistic choices to social identity (Hegmon 1998). One way of strengthening inferences, then, is
to ground them or parts of them on more "secure" domains of reconstruction theory. breaking down complex propositions into simpler ones if possible. Wylie expands the concept of security to include also entrenchment of the background knowledge about the linkages and the relative length and complexity of the inferential chain (1992:276-278).

A second way in which inductive inference can be improved is synthesized in the "cables and tacking" metaphor proposed by Wylie. Archaeological reconstructions, like cables, gain in strength when they rely on a number of independent inferential strings acting together, even if taken separately, each one of them is relatively weak, or ambiguous (sensu Binford 1987:461):

"questions about the applicability of a given interpretive hypothesis are settled when a number of independently constituted lines of evidence converge either in supporting or refuting the proposal that particular interpretive concepts – near or distant – are instantiated in particular past practices... And, in this, their strength derives not just from the diversity of their support but, more specifically, from the fact that the constituent strands draw on different ranges of background knowledge in the interpretation of different dimensions of the archaeological record: they are compelling taken together because it is highly implausible that they could all incorporate compensatory errors...It is the independence of sources, and therefore of the constituent arguments about evidential significance, which ensure that the strands of the resulting cables are not just mutually
reinforcing but are also, and crucially, mutually constraining." (Wylie 1989:15-16.

my emphasis)

The third issue, that has preoccupied specially radical archaeologists, refers to the relationship between social commitments and objectivity. As I see it, the realist model can acknowledge that the social biases of the academic community are important forces in the production of scientific knowledge, without giving up the notions of objectivity, rationality, and scientific progress (cf. Schiffer 1988:467-468). The scientist’s biases (cultural, class, gender, or other) influence, first, his or her decision to study certain segment of experience and even condition the ways in which this experience is construed, e.g., spurious generalizations may be perceived as relevant. Second, it may “direct imagination” at the time of model construction, leading to postulate certain kinds of mechanisms and, perhaps, conspicuously ignoring others. Finally, to a certain degree, it can affect how the subject evaluates the performance of proposed models against empirical evidence, particularly considering the difficulties of creating system closure and the probabilistic expression of causal laws. In the long run, however, reality will impose restrictions on models that do not account for experience, which will be outcompeted by theories that make more intelligible empirical reality.
The Need for a Behavioral Approach

The second issue that needs to be considered concerns the relationships between archaeology, history, and social anthropology and the definition of concepts and procedures for transferring information across their boundaries. As social sciences, all three disciplines share the ultimate goal of understanding social action in all times and places. Leaving aside distinct research styles, jargon, and topical emphases that result from the history of their development, their differences derive mainly from the nature of the evidence they study, i.e., material remains, written sources, or living people. These differences, which could be termed "methodological," confer each one of them a distinctive perspective on social processes, organized according to different categories. The possibility of "adding up" these approaches to gain a better understanding of a particular phenomenon depends largely on whether one takes into account their relative strengths and weaknesses, and uses categories which are appropriate to the nature of the information contained in each record.

To put it simply, ethnohistorical sources reflect their authors' perceptions of facts, filtered through their interests with regard to the situations in which documents were produced. They are structured around the "emic" categories of colonial officers, who strived to make sense of cultural realities organized according to very different principles, although testimonies of local people are occasionally included in these documents, opening small windows into other worldviews. They can offer a wealth of information
about social identities, kinship and ethnic relations, rights and obligations, but usually they are vague or totally silent about details of daily practice, more so about their material consequences. By contrast, the archaeological record is the aggregate result of what people actually did in the past, untranslated into symbols or clues to human 'thoughts' (Binford 1981a:23). Ideas, values, and perceptions do not leave any direct archaeological trace, except through their ability to inform actual behavior. Provided that the relevant linking principles are available, archaeology can offer an extremely detailed characterization of the nature and organization of past activities, including those systematically ignored by written sources, but can approach only indirectly the actor's views and motivations. Ethnography can access both the actors' perception and ideas (David's 1992:335 "ideational order") and simultaneously observe behavior and associated material culture ("phenomenal order"), potentially supporting the use of both emic and etic perspectives. In fact, it has been suggested that a better understanding of the relationship between these two orders of reality could be an important contribution of ethnoarchaeological studies (p.351).

Although such contrasts indicate that all these approaches can potentially complement one another (cf. Murra 1962), they also highlight some of the problems faced when applying knowledge based on one kind of record to data generated by the other, whether this involves data interpretation or hypothesis testing. For example, economic systems that rely on reciprocal obligations between distant social units for the control and circulation of resources, may be quite directly suggested by informants
reporting on the whereabouts of their relatives and co-ethnics or by their testimonies transcribed in written sources (e.g., Diez de San Miguel 1964 [1567]; Ortiz de Zuñiga 1967 [1562]). But their identification would demand an extremely complex and "insecure" (in all three meanings attributed by Wylie [1992:276-279] to this term) inferential sequence for archeologists studying the material residues of the same practices. By the same token, the archaeological evaluation of such models, repeatedly advocated in the Andean literature when authors wonder about the applicability of various complementarity systems to prehistoric cases, would require the definition of detailed behavioral and material parameters that are not specified in historical sources or may even seem trivial for those working in other social sciences.

Martínez is well aware of this problem when hesitating on what would be the implications for archaeological settlement patterns of his model of "ethnic interdigitation:"

"the interdigitation among different groups, which resulted in people from diverse political or ethnic origin living together in many settlements for long periods—or permanently—makes me wonder to what extent one can think about settlements with and 'atacama' pattern, or a 'chicha' pattern, or any other one. Interdigitation makes one to think of several alternatives. On one hand, one could imagine that members of foreign groups where forced to live in a significant spatiality different from theirs... or they had the possibility to 'intervene' those places (in a way and
intensity that should be studied), in such a way that some of these settlements (the interethnic ones at least) would express a more "shared" or "hybrid" formal structuration..." (1998:166. my translation)

To clear out these alternatives is crucial for his and other historical or ethnographic models to become archaeologically meaningful (sensu Murray and Walker 1988). Likewise, ethnoarchaeological knowledge, even when it refers to symbolic, ethnic, and other ideational processes, has to be translated into a behavioral frame of reference to be of any use for archaeologists.

I use the expression behavioral perspective – i.e., a focus on the relationship between human behavior, including its organization, and material culture (Reid et al. 1975; Schiffer 1976:4, 1992:1-21) – to refer to this characteristic of archaeology's peculiar approach to social practice as determined by the nature of the evidence it works with (Nielsen 1995:51). The adoption of this perspective to direct observation and to model the process of archaeological inference, does not necessarily imply that a behaviorist theoretical stance is assumed (Walker et al. 1995), but is a methodological consequence of the fact that mental processes are not an instrumental cause of material culture or of the residues archaeologists study (cf. Schiffer 1999:28). Inferences regarding intentionality and meaning are always mediated by reconstructions of human behavior, i.e., of physical "interaction of people and things" (Schiffer 1992:2).¹ Even interpretive
archaeologists seem to acknowledge this fact when considering the uses of artifacts as a key to understanding their meanings through contextual analysis (e.g., Hodder 1989).

Does this epistemological condition render archaeology incapable of understanding past social practice? From the theoretical perspective adopted in this project it does not. Moreover, one of the goals of practice theory is precisely to overcome old social science dichotomies (e.g., objectivism vs. subjectivism, materialism vs. idealism), bringing the roots of subjectivity into the realm of practice (Bourdieu 1977; Foucault 1977; see also Hodder 1992:18). From this point of view, lived intentions and discursive consciousness assume only a secondary role in the explanation of social action:

"The construction of the world of objects is clearly not the sovereign operation of consciousness which the neo-Kantian tradition conceives of: the mental structures which construct the world of objects are constructed in the practice of a world of objects constructed according to the same structures. The mind born of the world of objects does not rise as a subjectivity confronting an objectivity: the objective universe is made up of objects which are the product of objectifying operations structured according to the very structures which the mind applies to it. The mind is a metaphor of the world of objects which is itself but an endless circle of mutually reflecting metaphors." (Bourdieu 1977:91. my emphasis)
Habitus, for example, a central concept to Bourdieu's explanation of social reproduction, is conceived as a set of principles which generate and organize both practices and representations (p.53). Its operation may be accompanied by subjective intentions or calculations, but these only take to a conscious level what habitus performs quite differently.

"without any calculation, in relation to objective potentialities, immediately inscribed in the present, things to do or not to do [which]... tend to appear as necessary, even natural, since they are the basis of the schemes of perception and appreciation through which they are apprehended." (Bourdieu 1990a:53).

This fact makes "questions of intention superfluous, not only in the production but also in the deciphering of practices and works." (p.58)

In the following pages I present some of the concepts and units of analysis used in the study. In so doing, I draw upon the work of both processual (Binford 1978a, 1987; Brooks and Yellen 1987; Dewar and McBride 1992; Ebert 1992; Foley 1981) and behavioral archaeologists (e.g., Rathje and Schiffer 1982; Schiffer 1972, 1976, 1987, 1992, 1995; Sullivan 1978), who have discussed extensively the structure of behavioral inferences in archaeology, developing conceptual tools that are useful for organizing ethnoarchaeological observations.
Systemic Context

Beginning with "source side" or systemic context, behavioral streams can be analytically divided into minimal units or activities. "patterned interaction(s) between an energy source (e.g., human, machine, animal) and other material elements." where "patterned" refers to the "strong tendency for activity performance to be repeated in the same place (or type of place) with the same constituents in the same way" (Schiffer 1992:4). As far as humans are involved, then, activities imply social units who repeatedly carry them out in specific places using specific artifacts, some of which may eventually become part of the archaeological record.

Social Units

There are four kinds of social units, or "groups that carry out recurrent sets of activities" (Schiffer 1992:4): task groups, households, communities, and regional systems. Individuals who assemble temporarily to carry out specific activities form task groups. Usually, they are characterized by specialized tool kits, facilities, and activity areas, although this depends on their degree of specialization and the material demands of the activities they share.

Households are groups of people who regularly co-reside (i.e., sleep and eat together) during at least part of the year. Co-residential units in the Andes frequently correspond to nuclear or extended families and function as units of production and consumption as well (Lambert 1977), but in some cases nuclear family members may
reside permanently in different locations (e.g., women and elders in the altiplano, adult men in the city) but still share resources, economic responsibilities, decisions, and the output of their labour. This situation, that may have been quite common in the Circumpuna Area in the past (Martinez 1998), creates incongruencies among the various criteria usually followed in the definition of households (Wilk and Ashmore 1988; Wilk and Rathje 1982), potentially leading to confusion. Thus, if some members of a family live permanently or for several-year periods in a separate location, I consider them to be a separate household. Co-residence is a more convenient point of departure than kinship to approach this subject from the archaeological side, because it relates households to a set of activities that has a clear referent in the material record (Stanish 1989, 1992), i.e., dwellings and associated structures and activity areas, or sets of functionally complementary residences that account for the annual round of such groups.

By communities, I mean local groups of households that interact face-to-face on a regular basis and share corporate functions, including at least the direct use or actual appropriation of a discrete space or territory and associated resources, regardless of their ethnic composition or status. Their spatial referent is the aggregate of all activity areas, concentrated and dispersed, regularly used by its members through an annual round. The archaeological identification of past communities in a landscape once continuously occupied by various social units may become difficult when households did not reside regularly in aggregated settlements, as in the case of Andean pastoralists. Communities, however, usually share also other activities related to their cultural or social reproduction
as distinct corporate entities, such as feasts, ceremonies or meetings. The presence of these shared facilities (e.g., gathering places, shrines) may provide an additional clue to their identification. It should be emphasized that this use of the concept as a local group differs from the most common one in the literature on Andean complementarity (e.g., Browman 1980:107; Fonseca Martel 1986:305; Morris 1978:319; Núñez 1996:48), which tends to emphasize ethnic, political, or descent bonds. As discussed in a previous chapter, given the widespread "verticality" ideal (Murra 1972), it was probably common that the social units thus defined occupied discontinuous territories, with groups of domestic units or colonies (communities in my narrow definition) residing in different areas, sometimes several days apart. From an archaeological perspective, however, the identification of such "systems" represents a further step of inference.

*Regional systems* then refer to "communities that are related to each other by joint participation in various activities, such as warfare or common defense, trade or tribute, religion, intermarriage, and water allocation" (Schiffer 1992:5). Depending on the nature of these activities, we can recognize different kinds of regional systems which do not necessarily overlap in any given case. Communities bound by military domination, decision making, tribute, common defense, etc. form polities, while those related by intensive trade, coordinated production, complementarity and other forms of economic integration form regional economic systems. Communities that hold a common cultural adscription, which can be maintained or communicated through a wide variety of practices, including common rites or particular ways of doing things
("isochrestic" behavior sensu Sackett 1977). are ethnic groups. The archaeological identification of such units relies on quite complex inferential "cables," particularly in the prehistoric Andes, where current models suggest that many regional systems did not occupy continuous territories. Polities, for example, are usually related to the presence of singular public structures, "central places." settlement hierarchies, or discontinuities in settlement distribution. Regional economic systems result in the wide distribution of resources and goods, which frequently lack associated evidence of local production or extraction. Ethnic groups usually share a number of identity-signaling artifacts or social diacritics and may be also denoted by homologies in their built environments and in the organization of various activities as a result of a common *habitus* (Bourdieu 1977, see Chapter 8). As discussed previously, these two aspects may be related to different dimensions of ethnic processes.

In this study, then, caravanners are task groups, whose members belong to pastoral households, that belong to communities with various degrees of pastoral specialization. These communities, together with those connected by traffic, and perhaps others integrated through other economic mechanisms, form regional economic systems, which can in turn comprise one or several polities and/or ethnic groups.

*Activities and Artifacts*

Objects are modified in their physical properties through their participation in activities. These *traces* are the form in which behavioral information is "mapped onto"
the material world (Sullivan 1978), and constitute the evidential basis for the notion that we can learn about the past from the study of its material residues. Traces can be referred to different characteristics of the objects or "dimensions of artifact variability." Schiffer (1987:13-21) recognizes four of them, i.e., formal, spatial, frequency, and relational (cf. Binford 1964:430).

Several frameworks have been utilized to analyze behavior-artifact interactions and their potential expression in the archaeological record. Some of them, which I would term "microbehavioral," focus on individual activities, artifacts, or sequences of related activity-artifact interactions. A widely used approach of this kind is Schiffer's (1972, see also 1975b) life-history model, which focuses on the stages artifacts go through, since the procurement of their raw materials to their discard, passing through manufacture or preparation, use or consumption, maintenance, storage, transport, and various forms of reuse. At each one of these stages, objects participate in specific sets of activities, incorporate distinctive traces, and face the possibility of entering the archaeological record through purposeful or accidental discard. Certainly, artifacts are not only modified by human activity through their life cycle, but also by natural forces that continue to operate after their deposition, displacing them, modifying their formal qualities, or systematically destroying many of them. This is a useful framework for thinking about the ways in which artifacts progressively incorporate behavioral information. It also allows to integrate more specific models about the relationship between certain activities or systemic variables and its material consequences. like
artifact design theories that emphasize "performance characteristics" (Schiffer and Skibo 1987, 1997), cultural discard models (Schiffer 1987, chapter 4), as well as technological, use-alteration, and taphonomic knowledge.

On the other hand, Binford (1980, 1981b, 1982, 1987) has stressed the importance of considering the organization of cultural systems and their compound consequences on places and assemblages in the long run. He remind us that, with few exceptions, even the smallest component one can isolate in the archaeological record is not the output of isolated events or short-term activity sequences, but the accumulated result of several or many occupations, spanning years or decades (Binford 1982:17; Dewar and McBride 1992:231; Ebert 1992; Foley 1981:8). Consequently, the same activities may have very different archaeological expressions according to the organizational framework in which they are immersed (Binford 1987:449-452). I find these two approaches necessary and complementary and see no reason to exclude any of them from ethnoarchaeological research. The expression behavioral system, will be used to refer to the dynamic articulations among the activities regularly carried out by a social unit, including the associated artifacts and the spatial/environmental matrix in which they take place (cf. Binford 1965:205). A closely related concept, settlement system, focuses on the spatial dimension of behavioral organization at different scales and its material consequences. These scales can be conceived as varying along spatial and temporal axes.
Places

The places where activities are carried out can also be analyzed in terms of a series of inclusive categories. At the lower end is the *activity area*, "the place where an activity occurs, whether it is repeated many times or once" (Rathje and Schiffer 1982:45). Activity areas vary along a continuum from specialized, when they stage one or a limited number of interrelated activities, to generalized, when they are used for a variety of purposes simultaneously or sequentially. Due to functional or structural interdependence, it is common for many activities to be regularly conducted close to each other, but not necessarily in the same activity area. This defines a higher order of place, that I will call *locations* (cf. Hitchcock 1987:396), defined as discrete clusters of activity areas.

Locations can be relatively simple, including few (even one) activity areas (e.g., quarries, routes, agricultural fields, small shrines) or complex, like residential bases, villages, and administrative centers. I purposefully avoid the term "settlement" to refer to this unit in order to emphasize that, like some activity areas, locations do not necessarily include facilities, features, or even residues (e.g., grazing areas: cf Chang 1992:66-67). A third-order spatial category, is the *settlement pattern*, all locations regularly utilized by a given social unit, i.e., task group, household, community, or regional system. In the spatial dimension, then, the organization of behavioral systems (i.e., settlement systems) can be analyzed at the level of activity areas, locations, or entire settlement patterns.
Time Scales

When analyzing system organization in a temporal scale, I find it useful to look at phenomena and processes in short, medium, and long temporal scales. Short-term organization involves the relationship among activities within an annual cycle or, in the case of task-groups, periods in which the full range of activities involved in a specific domain of practice are performed—e.g., procurement expeditions may be completed within few days or a season, while ritual cycles may extend over several years. It can be summarized in synchronic models, like those used to characterize the behavioral organization of activity areas and locations, or even settlement patterns when considering the activities simultaneously conducted by task groups or diverse individuals or households within a community. This level of analysis is closest to the ethnographic scale of observation and description of subsistence/settlement systems. Medium-term organization refers to the principles that account "for year-to-year variability in the geographical positioning and content of assemblages of villages, bases, camps, special-purpose sites, and locations" (Dewar and McBride 1992:230, original emphasis; see also Binford 1982). Medium term processes can only be recognized over lapses of years or decades, and respond mainly to changes in the availability or value of resources due to natural processes or to the systematic impact of human activity on them. In most cases, even the smallest unit of deposition that can be differentiated in the archaeological record with the methods of excavation and dating currently available ("components"), is the aggregate result of short and medium term processes, modified by natural agents.
Finally, the long-term perspective focuses on continuities and changes in the organization of behavior over longer periods, which usually escape the perception or memory of the actors involved. This is the scale of structural, evolutionary, or historical change, resolved in terms of generations, centuries, or even longer lapses.

The importance of considering the cumulative effect of all these processes—operating at various scales and responding to different determinations—when translating ethnoarchaeological observations into archaeological expectations can hardly be overemphasized. Medium and long-term processes, however, are difficult to control ethnoarchaeologically since they usually escape the scale of ethnographic observation (cf. Wobst 1978): one has to resort frequently to informant accounts or extrapolate from short-term observations, evaluating these expectations against archaeological data when possible.

Archaeological Context

Artifacts (and features) are the primary units of observation and analysis of the archaeological record (Rossignol 1992). Artifacts have formal, relational, frequency, and spatial properties, which are, at least in part, the result of past human activity. A particular distribution of artifacts and features over a region constitutes an archaeological landscape. These remains sometimes appear in discrete concentrations or sites. It should be emphasized that sites are a fraction of a continuous phenomenon—the archaeological landscape—which is arbitrarily separated on the basis of density criteria.
for analytical convenience; i.e., because they present particular sampling problems and may demand different techniques of data collection. Archaeological structure refers to the contemporary and static spatial arrangement of artifacts and features and their relationship to relevant attributes of the environment. This concept can be applied at any spatial scale (i.e., landscapes, arbitrary portions of them, sites, or smaller areas within sites).

A basic premise of what Wandsneider (1996) calls "a formational approach" to the study of archaeological spatial structures is that, although human activities are among the instrumental causes of the archaeological record, short-term behavioral organization and archaeological structure are not isomorphic. Concentrated activities do not necessarily produce archaeological sites and, conversely, high concentrations of refuse do not always attest to the existence of past settlements or intensively used locations in the ethnographic sense of these terms. Sites can exist because of any combination of the following: (a) in the past, intensive activity and discard took place in a discrete location over a brief period (a short-term phenomenon); (b) a limited number of activities (not necessarily of the same kind or conducted by the same people) took place repeatedly (but perhaps not continuously) over a long period in the same place (i.e., due to medium or long-term process); and (c) artifacts were accumulated in a place or deposit by natural processes (e.g., animal activity, gravity, or deflation).

Inference proceeds by partitioning variability observed in the archaeological record and attributing it to various dynamic causes through the application of linking
principles. For the ethnoarchaeologist, who observes the continuous flow of those dynamic processes, the task is to contribute to the development of generative models that anticipate how human activities, behavioral organization at different scales, and natural agents interact to create multiple archaeological configurations. Given the diversity of these forces, such models potentially incorporate propositions and theories from multiple theoretical domains (Schiffer 1988). As far as human activity is involved, however, they bring back the question of the nature of social action and the alternative theoretical frameworks for its understanding. In accordance with their cultural materialist convictions, processual and behavioral archaeologists have stressed the functional and technological demands of adaptation in their ethnoarchaeological models, while interpretive scholars have emphasized the role of particular contexts of meaning and historical contingencies, polarizing their arguments toward a relativist stance that rejects the possibility of generalizing.

In the first part of this monograph I combined elements of Marxism with some notions taken from practice theory to analyze the roles potentially played by caravans in the reproduction of pastoralists and of the regional systems in which they are immersed. The application of this theoretical framework to ethnoarchaeology does not imply that technological, economic, and other functional constrains should be ignored or assigned a lesser role in explanation. On the contrary, the use of economic reasoning to analyze the dynamics of social, cultural, and symbolic capitals proposed by Bourdieu in his "economy of practices" (1977), for example, underscores the fact that all socially valued
resources are the result of a labor process involving energy, tools, spaces, and a "technology." in the sense of "behaviors involved in the making and using of artifacts" (Schiffer 1992:131), an approach that brings all fields of practice within the scope of archaeology, even those commonly presumed as mostly concerned with ideas and symbolic activity, like religion or art (cf. Walker 1995). Unlike other forms of materialism, however, this theoretical perspective puts emphasis on the active role simultaneously played by material culture in the creation, reproduction, and transformation of social relations established around the differential access to various kinds of valued resources or capitals. Ultimately, the explanation of social action—and material culture as an aspect of it—lies in the interplay between these two dimensions of practice.

With regard to the "ideational order," I share David's (1992:347) conviction that it is a legitimate subject of archaeological inquiry as well as his skepticism toward the possibility of achieving a deep understanding of the prehistoric frameworks of meaning. But again, through a behavioral approach, emphasizing "structure at the expense of content" (p.348), it may be possible to recognize some of their "etic" consequences on activities and artifacts. The identification of these structures, which as outcomes of habitus are redundantly expressed in multiple domains of material culture and action (Bourdieu 1977), would open the possibility for archaeology to study the organization of ethnic, religious, and other cultural practices, even if their meanings remain elusive.
ENDNOTES

1. Archaeology gave the field its current scope and structure (largely organized around archaeological problems), shaped its methods and particular research style, and even named it. Nevertheless, both logic and the practical experience of conducting ethnoarchaeological research, indicate that the questions posited by archaeology do not exhaust the possibilities of this research strategy, nor do they have to determine for ever its interests, methods, and internal organization. In fact, as the field grows to include long-term specifically designed projects rather than week-end incursions by field archaeologists, a specialized literature, and its own corpus of case-studies, models, and theories, it becomes more concerned with general social-theory problems and less restricted to the immediate inferential demands of archaeologists (cf. David 1992:352 but see Thompson 1991).

2. Note that framing archaeological inference in terms of strong inductive reasoning puts in evidence the little methodological value of "cautionary tale" ethnoarchaeology. While one counter-example suffices to refute a universal proposition, turning invalid inferences presumably based on deductive logic, it is insignificant in relation to probabilistic laws and the inferences they sustain. The demonstration that a widely shared inferential principle does not hold in some ethnographic case, does not invalidate the fact that it applies to most cases, particularly if it is backed up by a plausible causal link. Rather, these counter examples should be taken as an opportunity for discovering previously unnoticed processes or uncontrolled intervening variables.

3. Taking into account these arguments, I will use the terms social action or practice to refer to human activity as construed within social theory, including its subjective dimensions and associated material culture, reserving behavior for the "external" dimension of those practices (a physical phenomenon) as they appear from the particular standpoint of archaeological inference.

4. Note that this is a broader use of the term than Binford's (1980:9), who defines location as "a place where extractive tasks are exclusively carried out."

5. Consistency would require the use of a term like pattern of locations to refer to this category. However, the concept of settlement pattern is so entrenched in archaeology that it does not seem useful to replace it with a new piece of jargon, as long as it is kept in mind that it includes all locations and activity areas used by a group, whether they include residues or not.
The natural environment plays a fundamental role in the explanation of human behavior. Firstly, because it determines a number of things that cannot be done. Secondly, because it poses strains and risks that people must cope with in order to survive in a given place. Thirdly, because it offers resources, opportunities, and potentialities that humans creatively manipulate in their actions. Finally, the socially mediated experience of the natural environment provides the basis for the practical logic that underlies a variety of cultural activities, from daily tasks to rituals.

The purpose of this chapter is to describe those aspects of the natural setting in which llameros live that are relevant to understand their practices. Given the highly mobile nature of pastoralists' lifestyle, this necessarily includes, not only the small highland territory they inhabit, but also the regional and interregional context they interact with in their search for complementary resources.

THE SOUTHERN ALTIPLANO

Cerrillos is a peasant community located on the eastern side of the southern Bolivian Altiplano, an area generically known as Lípez and currently divided in three provinces belonging to Department of Potosí, i.e., Sud Lípez, North Lípez, and Enrique Baldivieso (Figure 5.1). Lípez is bound on three sides by mountain ranges with peaks
Figure 5.1: Location of the study region.
that largely exceed 5,000 m.a.s.l.: Cordillera Occidental to the west; Cordillera Oriental, known at this latitude as Cordillera de Chichas and Mochará, to the east; and Cordillera de Lípez to the south. With 3,650 m.a.s.l., Salar de Uyuni represents the northern limit of Lípez and its lowest portion as well (Figure 5.2).

Rainfall, temperature, and soils are the most important factors that constrain the development of productive activities in Lípez. Precipitation concentrates between December and March, with mean annual scores of only about 100 mm (Montes de Oca 1989:137), including both rain and snow. The amount of precipitation, however, varies across the region, being higher on the eastern side and decreasing toward the southwest. Rainfall also shows great interannual variability. Records for the last 20 years in Laguna Colorada (southwest Lípez), for example, indicate a maximum of 144 mm in 1984 and a minimum of 19.8 mm in 1985 (Sistema Nacional de Areas Protegidas 1997:4). For the eastern side, the closest data set available is that from La Quiaca, showing fluctuations between 470 mm and 207 mm per year in the period 1908-1987 (Reboratti 1994:24). Evapotranspiration is very high.

Prevailing winds come from the west during the dry season, shifting to the east and northeast by November, at the onset of the rainy season. This shift reflects the southward movement of the low pressure, inter-tropical convergence zone (ITCZ) that attracts to the Altiplano the moisture-laden winds from the south Atlantic. By March, as the ITCZ returns north, dry winds from the southern Pacific high-pressure cell prevail, putting the rainy season to an end (Gomez Molina and Little 1981:123).
Figure 5.2: The Altiplano of Lipez.
Mean annual temperature is $6^\circ$C (Montes de Oca 1989:138; Rojas 1991:5), with diurnal fluctuations of up to $30^\circ$C in the winter and daily frosts April through November. The warmest month is January and the coldest is June. Low precipitation, limited vegetation cover, intensive erosion and solifluction, and the mainly volcanic nature of the parent material, all combine to create immature soils, with poorly defined horizons, high salinity, and low phosphorus, nitrogen, and potassium content (Rojas 1991:3). Their sandy texture and lack of organic components result in low water retention.

The environment in Lipez has been variously characterized as “Salty Puna” (Troll 1980:24), “Desert Puna” (Custred 1977a:59), or “Arid Puna” (Dollfus 1991:69), but these generalizations overlook important differences within the region. It actually includes three different life zones with different possibilities for human occupation (Figure 5.3). What I will call the *Southwestern Zone* corresponds to a number of high and closed lacustrine basins (Laguna Hedionda, Laguna Pastos Grandes, Laguna Khara, Laguna Colorada, Laguna Chalviri, Laguna Verde, Laguna Coruto, etc.) dispersed over a recent volcanic landscape. Minimum altitude is about 4,300 m.a.s.l., but most of the area is situated above 4,500 m.a.s.l., resulting in extremely low temperatures (annual mean $2.2^\circ$C [Sistema Nacional de Areas Protegidas 1991:4]). This zone is mostly occupied by barren lava flows and wide depressions filled with volcanic ash. The limited vegetated areas belong to the “altoandina province” (Cabrera and Willink 1980:84-86) or “desert puna” (Gomez Molina and Little 1981:135-136), with plant covers usually below 15%, except for small, isolated marshy areas or *cienegos*. Similar conditions prevail south of
Figure 5.3: The three life zones of Lipez.
this part of Lipez, across the international frontiers, in the adjacent portions of Chile (Parque Los Falmencos) and Argentina (Vilama basin). Given the extreme restrictions to the development of productive activities in this zone, southwest Lipez has never supported permanent human population; instead it has been traditionally occupied during the summer by people from Quetena and (formerly) from San Pedro de Atacama the upper San Juan Mayo basin, who came to this area to hunt vicuña (*Vicugna vicugna*) and chinchilla (*Lagidium sp.*, *Chinchilla sp.*), gather waterfowl eggs, and graze their livestock in the localized *cienego* patches.

The Chiguana-Uyuni basin, on the other hand, that includes a number of rivers (Márquez, Pululus, Galera, Isca Mayu, Quetena, Alota) that converge to Río Grande de Lipez, the main hydrographic collector of the region, corresponds to a “dry puna” ecosystem (Gómez Molina and Little 1981:135) and falls within the *puneña* biogeographical province defined by Cabrera and Willink (1980:87-89). It shows 15-50% vegetation ground cover, including *pajonales* dominated by cushion plants and bunch grasses (e.g., *Stipa sp.*, *Festuca sp.*, *Calamagrostis sp.*), and *t'ulares* with resinuous shrubs generically known as *t'ula* (*Parastrephia sp.*, *Fabiana densa*, *Baccharis boliviensis*, *Adesmia sp.*). Small groves of *queñoas* (*Polylepis sp.*), the only tree present in the area, grow on hillsides and sheltered creeks up to 4,300 m.a.s.l. Among the main endemic animals are: vicuña (*Vicugna vicugna*), armadillos (*Euphractus sp.*), Andean fox (*Pseudalopex culpaeus*), skunk (*Conepatus rex*), Andean cat (*Felis jacobita*), puma (*Puma concolor*), chinchilla (*Chinchilla brevicaudata*), chinchillon (*Lagidium viscaccia*).
tuco-tuco (*Ctenomis opimus*), amo (*Abrocoma cinerea*), suri (*Pterocnemia pennata*) and partridge (*Rhynchosous rufescens*).

Two zones with different possibilities for human exploitation can be recognized within this basin. In the absence of local climatic records and detailed studies of other environmental variables, however, I cannot define precisely the parameters that differentiate them, except by observing their influence on subsistence practices (Nielsen 1998a).

The *Northern Zone*, west of Río Grande de Lipez and north of Soniquera, includes wide, flat basins below 3,900 m.a.s.l., some of them occupied by salt flats or lagoons, divided by volcanoes and volcanic ranges of the Cordillera Occidental. This zone has the best conditions for human subsistence, allowing the development of agro-pastoral economies (e.g., Tomka 1994). The most important cultigen is the protein-rich quinua (*Chenopodium quinua*), dry-farmed in sandy valley bottoms. Potatoes (*Solanum sp.*) are mainly cultivated in the area near the salt flats of Uyuni and Chiguana, on steep mountain slopes up to 4,300 m.a.s.l. Finally, small irrigated gardens with lettuce, carrots, beans, onions, and barley are kept in quebradas and other specially sheltered areas. Herding is favored by the existence of large *cienegos*, naturally flooded marshy areas. Other important resources in the area are *yareta* (*Azorella compacta*), highly valued as fuel, and salt, traditionally extracted by specialized communities, like San Juan, who exploits the small Patana salt flat.
These relatively favorable conditions gradually vanish as one moves to the south and east, probably because of a decrease in mean temperatures resulting from higher minimum elevations (>3,900 m.a.s.l.). In the Southeastern Zone (Nielsen 1998a), east of Ríos Grande de Lípez and Quetena and south of Soniquera, no dependable agriculture can be practiced. The communities of this area, Cerrillos included, practice a specialized pastoral economy with a marked dependency on economic relations with the outside. In some places, tiny irrigated plots with quinoa, potatoes, Lima beans, and wheat for domestic consumption, or barley and alfalfa for fodder, are kept mainly as a marginal, risk-reducing strategy. The largest cultivated areas are recorded in Polulos, a community of nearly 500 people, and amount to a total of only seven hectares (Rojas 1991:11). In other communities, such as Pozo Cavado, they are totally absent. The limited economic impact of these activities can be more fully appreciated if one considers that, according to several informants, most years these crops fail.

Herding in this zone relies on two main types of natural forage, which the local population classify as “dry” and “wet”. "Dry pasture" refers to the two vegetation communities mentioned before, t’ulares and pajonales, with relatively low productivity and species of little nutritional value. During the summer rains, however, a number of small, annual plants with high palatability locally known as malvas (e.g., Munroa sp., Eragrostis sp.) develop among the t’ulas and ichu grass, increasing the forage value of these communities. Dry pastures are the only support of herds in the arid, central plains known as Galera Pampa, Chatena Pampa, Grande Pampa (e.g., Cantón Pozo Cavado).
Towards the south and east, in the piedmont of Cordillera de Lipez-Chocaya, water is more abundant and "wet pasture" or highly productive marshy areas known as *cienegos* are found (e.g., San Pablo, Quetena). Wet pastures consist in wet cushions of *Oxychloe andina* and *Distichia muscoides*, together with other *gramineae* (Cabrera and Willink 1980:85) that reach their maximum productivity between December and March. When the rainy season is over, *cienegos* gradually turn yellow and become "too cold for llamas," so the herds are moved away to dry pastures where they stay for the rest of the year (cf. Gundermann 1984). This pattern contrasts with the cycle described for alpaca herders in central Andean areas or "humid punas," characterized by large marshes or *bofedales* fed by permanent water springs and thaw, which are the main source of forage for these animals during the dry season (e.g., Custred 1977a:68; Orlove 1981:100; Palacios 1977:159). This difference reflects, first, the relative lower productivity that characterizes the *cienegos* of the Arid Puna as a result of the high salinity of their water (Alzerreca 1986:169) and their marked seasonality; and second, the fact that llamas – the only camelids herded in Lipez – are better prepared than alpacas to take advantage of the dry and fibrous pastures dominant in the area (Tichit 1991:82). We lack specific data on the native grasslands of Lipez, but studies conducted on similar vegetation communities in the Oruro region (with annual precipitation of ca. 300 mm) indicate a carrying capacity of 0.3 llama units/hectare for *pajonal* or *t'ular*, and 3 llama units/hectare for *cienegos* (Alzerreca and Lara 1988).
Southeast Lipez is particularly rich in minerals, gold, silver, copper, tin, sulphur, and nitrates, although these resources are present to some extent in the rest of the area too. Minerals have been intensively exploited probably since prehistoric times (Lozano Machuca 1885 [1581]), were the main attraction of the area for the Spanish colonial administration, and continue to sustain a number of large mining centers. These mining settlements (e.g., San Isabel, San Vicente, Chilcobija) represent important sources of employment and ports of trade for pastoralists.

**INTERREGIONAL CONTEXT: THE CIRCUMPUNA AREA**

Given the emphasis of this monograph on long-distance trade, it is necessary to make at least a summary reference to the interregional context as well, for this broader environment shape the configuration of present and past caravan networks (Figure 5.4). Beginning east, beyond Cordillera Oriental lies the fertile valley of Río San Juan del Oro, and beyond, Tarija valley. Ranging between 2,000 and 3,200 m.a.s.l., these are both prime maize-tuber agricultural areas or *keshwas*. The subtropical forest area or *yunga* (<2,000 m.a.s.l.) is farther still, beyond Tarija, about 200 km away from Cerrillos in a straight line. Tupiza (east) and Uyuni (north) are the main centers pastoralists go to when they want to access urban markets and services. Salt, extracted by specialized communities such as Colchani on the eastern shore of Salar de Uyuni, is the only important resource sought to the north. Given the overall similarities between the central Altiplano and the Northern Zone just described, people from Lipez rarely go beyond this
Figure 5.4: Main life zones of the Circumpuna Area.
point, except on special occasions, like the popular pilgrimage to the sanctuary of the Lord of Quillacas, north of Salar de Uyuni.

The volcanic heights of Cordillera Occidental separate Lipez from the Atacama desert in northern Chile. Precipitation is most abundant in the upper strip of the western flanks of Cordillera Occidental, between 3,000 and 4,300 m.a.s.l., where t'ula and ichu grasslands dotted with marshy areas or cienegos offer good possibilities for pastoral production (Gumermann 1984:99). This activity can be supplemented with the cultivation of high-altitude tubers and grains in the well-irrigated quebradas that traverse this zone. Below 2,800-3,000 m.a.s.l., down to the Pacific coastline (an important resource area itself), develops a ca. 100 km-wide expanse of extreme desert, interrupted only by a few, narrow river valleys (e.g., Loa and its tributaries, Guatacondo) and small oases (e.g., San Pedro de Atacama). Maize, squash, peppers, and a number of European crops (e.g., pear, peach, apple), in addition to indigenous wild fruits like algarrobo (Prosopis sp.) and chañar (Gourriea decorticans), are just a few of the resources that Altiplano pastoralists have traditionally sought in these fertile agricultural oases. The Atacama Desert is extremely rich in minerals, specially copper. The mining centers of this region have attracted migrant labor from Lipez for decades.

Beyond the international border to the south, the western part of Argentina's Puna and adjacent Chilean highlands, also known as Puna de Atacama, is a very rigorous environment offering similar pastoral resources to those found in Lipez itself. In the northeastern side of Puna de Jujuy, however, there are lower areas (<4,000 m.a.s.l.)
where water availability, warmer conditions, and better soils support the development of tuber and (potentially at least) quinua agriculture, like San Juan Mayo, Yavi, Cochinoca, Doncellas, and Casabindo (Ottonello and Krapovickas 1973). Beyond this, crossing Cordillera Oriental (Sierra de Santa Victoria, Sierra Alta) to the east and southeast, are the prime agricultural valleys (keshwas) of Santa Victoria, Nazareno, Iruya, and Quebrada de Humahuaca, which simultaneously serve as natural corridors leading to the forested lowlands environment below 2,000 m.a.s.l. (e.g., Baritú, San Andrés, Valle Grande, Jujuy). Besides a number of tropical and subtropical crops, the yungas offer wood—an important material in the barren Circumpuna landscape—and a variety of wild resources for hunting and gathering.

**SPACE AND RESOURCES IN CERRILLOS**

Having outlined the regional and interregional environmental context, the territory of the project community can be considered in more detail. Cantón Cerrillos occupies an area of 350 km² situated between 3,900 and 4,660 m.a.s.l. (Figure 5.5) in what I have called Southeast Lipez (Nielsen 1998a). Cerro Tangani (4,390 m) and Tres Cerrillos (4,630 m), two mountains that belong to Serranía Interaltiplánica, are the most prominent topographic features in the area. The rest of Cerrillos appears as an open, undulated plain dissected by a number of small drainages or quebradas which remain dry most of the time, except for a few hours or days during the rainy season. Río Polulos, Río Alizo, and Río Márquez, three rivers that belong to the Uyuni basin, and Jatun Cienego, a
Figure 5.5: Cantón Cerrillos, geographical features.
marshy area located to the southwest, are the main permanent sources of surface water. Most water for human consumption, however, is extracted from waterholes dug in dry washes and other places where the watertable is high.

People in Cerrillos recognize three environmental units, defined by a combination of topography and vegetation: cerro, campo, and cienego. Cerro refers to the higher portions (ca. >4,300 m) of the territory, in Tres Cerrillos, Tangani, and the southeastern parts of the canton. The typical vegetation community here is the pajonal, "dry forage" with the lowest nutritional value that is used mainly to keep the castrated male sections of llama herds. Some portions of this unit, like the northern slopes of Cerro Tangani, tend to be avoided altogether given the abundance of garbanzo (Astragalus garbancillo), a toxic herb for llamas. A plant regularly collected in the cerro is Ichu grass (Stipa sp.), used for roofing. Several medicinal herbs, such as chachacoma and pupusa (Werneria pupusa) are also found mainly in this environment. This unit occupies between 15 and 25 % of the canton.

Campo is the open landscape most common in Cerrillos (about 70-80 % of its territory). In terms of vegetation, it is a mosaic of pajonal and t'ular patches that alternate in response to variations in terrain aspect, soil composition, and height of the water table. As mentioned before, the low grazing potential of these communities, specially t'ulares, is improved by the growth of highly palatable annual Gramineae or malvas, starting during the rainy season and lasting until May-June. Most livestock in Cerrillos lives on these pastures alone. Many informants agreed that grasslands are
slightly more productive in the eastern side of the canton; it has the best dry forage in the
form of steppes of añagua (*Adesmia sp.*), tolilla (*Fabiana densa*), and chuqui canglla
(*Tetraglochin cristatum*), while some valued malvas (like *oca quira*) seem to be more
common there.

*T'ulas* have a number of uses besides forage, compensating to some extent for the
lack of trees. Together with yareta (*Azorella sp.*) and llama dung (*takia*), these resinous
shrubs are the main fuel used in Cerrillos and in the Altiplano in general (cf. West
1987:152). *T'ulas* are piled up to form walls for windbreaks, corrals, outdoor kitchens
(or *llanteros, llanta* = firewood), and other activity areas, while bundles of *t'ula* are tied
together to make beams for house roofing. During the rainy season *ancañua* or *sich'a*, a
parasite root regularly consumed by pastoralists grows in the sandy soils of *t'ulares*. A
number of *t'ulas* are also valued as medicine (e.g., *lampaya* [*Lampaya medicinalis*] and
lejia [*Atriplex sp.*]); others are used as dyes (e.g., *rica-rica* [*Acantholippia hastulatta*]).
*T'ulares* are more dense and frequent in the southwestern part of the *cantón*.

*Cienegos* or marshes offer the best forage during the rainy season. Jatun Cienego,
however, is the only sizeable marsh in Cerrillos, occupying less than 2 % of the
community’s territory. My informants did not consider this to be a particularly favorable
area for grazing during the dry season. One household even abandoned an estancia in
the *cienego* because it was “too cold,” moving it to dry pastures in the opposite side of
the canton. But the *cienego* is an important source of permanent water and, therefore,
concentrates a variety of wild resources. At the beginning of the summer, some people
harvest there at least one wild root for human consumption, *birsu*, and an alga, *llullucha* (*Nostoc vesiculosos*), besides other edible leaves collectively known as *achicoria*. The spring that feeds Jatun Cienego from the south has small fish and the marsh itself supports important waterfowl populations that nest in the rocky outcrops around it.

There are some important mineral resources in Cerrillos. Several abandoned copper mines in the southwestern part of the canton attest to the relative abundance of this mineral. Gold nuggets are found at least in one riverbed near the northern border of the community (Quebrada Cieneguillas). On the shores of Kollpa Mayu and other rivers of nearby *cantones*, deposits of white salts known as *kollpa* regularly form. This substance, used as soap, is appreciated not only by local people, but also by valley populations all the way to Tarija.

**DISCUSSION: ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES**

From the point of view of human productive activities, the main restrictive factors posed by the environment in the study region are low temperatures, scarce and variable precipitation, and poor soils that turn agriculture unfeasible. Instead, it offers important wild resources for hunting and gathering, and good conditions (water and forage) for herding, particularly llamas that are better adapted than alpacas to the poor-quality pastures of the Arid Puna. These resources, however, are unequally distributed in space and time, a variability that human populations need to cope with in order to develop a dependable subsistence base. Three aspects of this variability are key to
understand their consequences for human activity, i.e., spatial structure, temporal structure, and intensity (Halstead and O'Shea 1989:3). I will consider each one of them, focusing first on the territory of Cerrillos, and then on the general ecozone where this canton is located (Southeast Lipez).

Water is fairly abundant in Cerrillos. No point in the canton is farther than five kilometers from a permanent source of surface water (river or marsh), and places suitable for building water holes to extract water for human consumption year round seem to be rather easy to find. Water is still a less restrictive factor during the rainy season, when a number of temporary springs and drainages become active. Certainly, the pronounced interannual fluctuations in rainfall have a direct impact on the amount of water available (e.g., some waterholes may dry up in times of extreme drought), but still herders do not perceive the impossibility to access drinking water for animals and humans as being a major restrictive factor for herding or settlement. Far more dangerous seems to be the impact of rainfall patterns on pastures.

As I mentioned before, the differences of productivity between wet and dry pasture can be approximately tenfold. The two kinds of pastures differ also in their temporal structure. Cienegos are good for grazing only during the summer; dry grasslands can be used year round but only offer significant nutritious value between December and May when there are malvas available. Since the relatively abundance of these annuals is directly related to the amount of summer rain, it follows that the productivity of these pastures vary dramatically with changes in precipitation, a
phenomenon that has a lower impact on cienegos which depend on more stable sources of water. Cienegos areas, however, are quite small and localized in Cerrillos. As a result, grazing potential turns out to be relatively uniform throughout the canton, shows a marked seasonal variation, and is extremely sensitive to unpredictable, interannual fluctuations in rainfall.

Two other important sources of risk for pastoralism are those derived from low temperatures and the attack of predators and disease. Cold is particularly dangerous toward the middle of the dry season (June-August) when the lowest temperatures occur and animals have already lost significant amounts of weight as a result of the general decrease in pasture quality. Like precipitation, temperature also shows marked interannual variation and unpredictability. Since the impact of this factor is directly related to the nutritional condition of livestock, cold winters are particularly dangerous when they coincide with years of drought. Sheep, goats, and crias of all the species bred are more vulnerable to the attack of predators (specially fox) than adult llamas. For llamas, then, this is a particularly serious risk during the rainy season and first few months of the dry season.

When shifting the scale of analysis to the entire southeast Lipez it becomes clear that both water and pastures and associated economic opportunities are differentially distributed in space (Figure 5.3). Water is far more abundant along the piedmont of Cordillera de Lipez, in the upper courses of rivers like Quetena, Grande de Lipez, Escala, San Pablo, or Polulos. Large cienegos are found in this area. As these drainages progress
north into the arid central plain. their waters progressively disappear into the sandy substrate. Some of the communities in this area totally lack permanent surface water, as in the case of Pozo Cavado, whose name literally means "excavated pit." making reference to only sources of water available in this *canton*. These differences are not only reflected in the productivity and seasonality of pastures and in the vulnerability of associated herding economies to episodic drought, but also result in marked contrasts in the opportunities for hunting and gathering. Besides attracting a variety of terrestrial fauna, the large marshes offer a number of wild resources that are not found elsewhere in this zone (e.g., waterfowl, eggs, edible roots, fish). Mineral resources in this zone also seem to be concentrated along the Lipez mountain range. As I will stress in a later chapter, these differences may be important to understand some long-term changes of subsistence-settlement systems in the area.

Turning to the interregional setting, the best and closest opportunities for economic complementarity lie on the eastern slopes of the Andes. Here Cerrillos' people find agricultural products (*queshwas*) and wild resources (*yungas*) in quantity and diversity, together with a relatively consistent demand for goods they can mobilize (e.g., salt, pastoral products) or for their labor. The city of Tupiza and several mining centers complete the range of possibilities for complementarity that can be found in this direction. This fact notwithstanding, the llameros from this and other communities located further west in this zone (e.g., San Antonio de Lipez, Quetena) used to be articulated with the oases and high valleys of Northern Chile and specially with the Puna
of Jujuy in Argentina. These connections have been largely discontinued as a result of the increasing "hardening" of international frontiers in the region, and only survive in the form of annual fairs along the Bolivian-Argentine border (e.g., Santa Catalina, Manka Fiesta, Yavi) that are regularly attended by caravans from Lípez.
Cerrillos is one of the 16 cantones or smallest administrative districts of Sud Lípez Province, Department of Potosí. Since 1984, when it was separated from Polulos and established as an autonomous community—or comunidad indígena according to the terminology of the 1953 Agrarian Reform, Cerrillos elects its own authorities (corregidor, agente municipal), who depend directly from the Subprefecto or provincial head of Sud Lípez in San Pablo.

Communities are not hermetically closed units, but they are autonomous in terms of resource administration, land property and allocation, taxes, and political decision. Some households living near the border of a canton may graze their animals in lands that belong to more than one community—usually paying taxes and fulfilling membership obligations in both of them, but in most cases canton limits also divide grazing territories. The community and its territory, then, can be considered the smallest valid unit for analyzing a number of aspects of economic organization and social dynamics among pastoralists in the area. Until last century Lípez was divided into several socio-territorial units or ayllus (Platt 1987) that had ethnic and ceremonial connotations that today’s communities have lost. Although some old people remember these divisions, they have already lost their social significance (cf. Mendoza et al. 1994:9).

Quechua is the main language spoken today in Lípez, but most men and some women speak Spanish as well. Ethnohistorical sources, however, suggest that aymara may
have been the language used in the area at the time of the European invasion (Capoche 1959[1585]; Lozano Machuca 1885[1581]), perhaps until the 19th century (Platt 1987:485). Like other Altiplano herders, people from Lípez are called llameros, a generic term used mostly in the eastern valleys to refer to highlanders who breed llamas and travel with them. This opposition between highland pastoralists and valley farmers (vallistos), summarizes a number of differences, not only in terms of production, but also in lifestyle, dress, and ritual, currently operating, if not as an ethnic classification, at least as a central framework for the definition of identities, particularly in the context of interregional social relations (cf. Rabey et al. 1986:132). Overlaying it, there is a second identity frame of reference derived from the international frontiers that divide the Circumpuna area among Bolivia, Chile, and Argentina.

In this chapter I describe aspects of social and economic life in Cerrillos in order to provide the necessary background information for the ethnoarchaeological analysis. I will focus on the following topics: (1) household organization; (2) pastoralism; and (3) community organization. In the final section, I discuss dynamic properties of both economic and non-economic forms of wealth, identifying some of the strategies developed by llameros to increase the amount of various forms of capital under their control.

HOUSEHOLD ORGANIZATION

Cerrillos’ Households

There are between 180 and 200 persons in Cerrillos, organized in 39 households (Table 6.1: 1993 data). Like in other parts of the Andes, these coresidential groups are
Table 6.1: Cerrillos' household data.

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<td>Wy</td>
<td>Go</td>
<td>nuclear</td>
<td>28</td>
<td>50</td>
<td>3 (1)</td>
<td>V</td>
<td>husband mostly in valley</td>
</tr>
<tr>
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<td>I</td>
<td>Qp</td>
<td>Mm</td>
<td>nuclear</td>
<td>29</td>
<td>51</td>
<td>8</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>C</td>
<td>Gz</td>
<td>Wy</td>
<td>nuclear</td>
<td>30</td>
<td>56</td>
<td>4</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>(C)</td>
<td>Vt</td>
<td>Gz</td>
<td>nuclear</td>
<td>31</td>
<td>68</td>
<td>7</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>C</td>
<td>Gz</td>
<td>Wy</td>
<td>nuclear</td>
<td>32</td>
<td>64</td>
<td>2</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>(A)</td>
<td>Ch</td>
<td>Wy</td>
<td>incomplete</td>
<td>33</td>
<td>50</td>
<td>4</td>
<td>U</td>
<td>lives in house Fly (49)</td>
</tr>
<tr>
<td>29</td>
<td>G</td>
<td>Wy</td>
<td>Cd</td>
<td>nuclear</td>
<td>34</td>
<td>61</td>
<td>2</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>A</td>
<td>Vt</td>
<td>Mm</td>
<td>extended</td>
<td>35.36</td>
<td>57</td>
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<td>V</td>
<td></td>
</tr>
<tr>
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<td>(A)</td>
<td>Cd</td>
<td>Az</td>
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<td>37</td>
<td>72</td>
<td>2</td>
<td>V</td>
<td>2nd generation</td>
</tr>
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<td>G</td>
<td>Wy</td>
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<td>nuclear</td>
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<td>83</td>
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<td>V</td>
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</tr>
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<td>V</td>
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<td>(A)</td>
<td>Lm</td>
<td>Wy</td>
<td>nuclear</td>
<td>40</td>
<td>66</td>
<td>2</td>
<td>U</td>
<td></td>
</tr>
<tr>
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<td>(A)</td>
<td>Cq</td>
<td>Wy</td>
<td>nuclear</td>
<td>42</td>
<td>37</td>
<td>9</td>
<td>U</td>
<td>keeps house Fly (50)</td>
</tr>
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<td>36</td>
<td>A</td>
<td>Wy</td>
<td>Fl</td>
<td>nuclear</td>
<td>43</td>
<td>44</td>
<td>1 (3)</td>
<td>V</td>
<td>wife in Tupiza, nurse</td>
</tr>
<tr>
<td>37</td>
<td>D</td>
<td>Rm</td>
<td>Nn</td>
<td>nuclear</td>
<td>44</td>
<td>50</td>
<td>1 (6)</td>
<td>V</td>
<td>wife &amp; children in Tupiza</td>
</tr>
<tr>
<td>38</td>
<td>E</td>
<td>Mm</td>
<td>-</td>
<td>incomplete</td>
<td>45</td>
<td>40</td>
<td>1</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>A</td>
<td>Wy</td>
<td>Cd</td>
<td>nuclear</td>
<td>41</td>
<td>32</td>
<td>9</td>
<td>V</td>
<td>former telegraph operator</td>
</tr>
</tbody>
</table>

Key: LG: lineage (in parentheses lineage that held the right to grazing areas in cases of uxorilocal residence). FN, MN: father's name, mother's name. N FLY: code number of nuclear families that form the household. AG: age of household head. MB: number of members (in parentheses persons who spend most of their time outside Cerrillos). RS: residence (V = virilocal; U = uxorilocal).
the basic units of production and consumption as well, i.e., all those who share a homestead, manage their herds and other resources together, and independently design an economic strategy that usually involves different but complementary duties for all members. Twenty seven of these households (70 %) correspond to nuclear families, including sometimes an older person (usually one of the partner's widowed parents); eight (18 %) are extended families (parents and one or more married sons with their children); and five (12 %) are incomplete families (a single person or a widow with children and/or an old person under her responsibility [Mayer 1977:61]). Household size ranges between one and 15 members, with a mean of 7.6 for extended families, 4.7 for nuclear families, and 3 for incomplete ones.

It should be emphasized that domestic groups in Cerrillos are constantly changing. This is not only because of trade expeditions, that may keep men away for several months, or the result of the common developmental cycle every household goes through, e.g., that may turn a nuclear family into an extended one when the older sons marry, and then to incomplete family if some members migrate or die. Besides this, there are always a number of individuals, families or entire households who stay outside the canton for periods that range from a few months to several years, or alternate between Cerrillos and other areas on a regular basis (e.g., families or individuals in parenthesis in Table 6.1 and in various settlement plans illustrated in Chapter 7). This “mobile fraction” of the population, who holds the same rights as those permanently residing in the canton, work temporarily outside, migrate seasonally to farm their own plots in the valleys, or stay for some time with relatives, a phenomenon that will be discussed in detail in Chapter 9.
In order to look after their animals while facilitating access to pastures, people live scattered throughout the canton, grazing their livestock around their main residences (casas) and herding posts (estancias). The town of Cerrillos, founded two decades ago near the geographical center of the canton, serves only as a gathering place for the community in special occasions, but is not inhabited on a permanent basis, except for children in school age living by themselves or in the company of an old relative, and people who have access to some stable income in the form of rent or salary. In 1993 there were three households living permanently in town. Two of them held paid positions, i.e., the nurse (#36) and the telegraph operator (#39); the third one was an old couple (hh# 34) who kept their herd at their estancia two kilometers away and enjoyed a rent from the state.

The rest of the adult population come to town only for a limited time—from a few hours to a few days—when they are on their way to some other place, or to assist to special meetings or celebrations. These include, ordinary and extraordinary communal assemblies, New Year’s Eve, Mother’s Day (May 27th), Independence Day (August 6th), and All Saints (November 1st), when people come to the cemetery to visit their dead relatives. Those who have joined the Evangelic Church gather in town every Sunday to read the bible and sing; in 1995 they built a special room or “temple” for this purpose. The catholic priest comes once or twice a year to celebrate mass, baptism, and marriage.
Residence and Inheritance

To understand how people distribute themselves over the landscape, the mechanisms that regulate access to basic resources have to be considered. As a general premise, it is thought that individuals own their labor and its products, while natural resources belong directly to supernatural entities like Pachamama and the Mallkus, who lend them to humans at their caprice. Given the absence of cultivated land in the canton, this principle translates juridically into the private property of herds, dwellings, their content and associated features, and the communal property of land and all resources on it, including pastures, water, firewood, herbs, wild animals, and minerals. The community in turn gives the land in usufruct to domestic units “according to their needs.” Thus, individuals gain access to land and forage through their membership in the community. Equal rights have their counterpart in equal obligations for all members or comunarios, regardless of the amount of resources they actually use.

In practice, households enjoy customary rights to graze their animals for life in specific areas, rights that ideally are patrilineally transmitted. When a new family is formed, it is expected to join the groom’s father’s main residence, adding a room or a whole compound to it and keeping their animals together. After a few years, the young couple and their offspring usually leave these extended family households, building a new, separate house nearby, within the area where the consanguineal relatives of the groom traditionally hold their grazing rights. This separation may never take place if the son is the only child, or the only one left in the canton, therefore entitled to inherit his parents’ house and a special share of their animals. As their own herd grows, the new
household may build one or more herding posts in order to take advantage of additional range. Exceptions to the virilocal rule are the cases of women whose brothers have left home and therefore stay to look after their parents in their old age (hh# 4, 8), and women who have no male siblings. In these cases, the young couple is expected to reside uxorilocally, taking advantage of the grazing rights of the consanguineal relatives of the bride, and inheriting her parents' possessions (Caro and Palacios 1980; Custred 1977a; Hickman and Stuart 1977:53; Palacios 1988b).

It should be noted that rights to pastures become effective through residency and/or actual use, i.e., occupying *casas* and *estancias* and/or grazing animals around them. Hence the close link between the patrilineal transmission of land rights and the virilocal postmarital residence rule. The latter results in a tendency toward the location of agnatically related families on discrete portions of the territory (Nielsen 1996a).

Custred (1977b) has used the concept of lineage to refer to these groups of households who gain access to the land through their descent from a common ancestor. Lambert (1977:14) prefers the expression “nuclear family federations,” emphasizing that they are only linked by the common origin of their territorial rights, but they lack the corporate functions that characterize lineages among other pastoralists around the world (e.g., Evans Prichard 1940). In the Andean case, such activities are currently invested in each household or in higher order levels of organization, such as the community or the *ayllu*. According to Izko (1986:74, 1992:47), however, the *ayllu* itself may have its origin in alliances among these patrilineages holding rights to the land, which at some point organized the defense of their territory, developing authorities, rituals, and other referents.
of a shared identity. I will use the terms lineage or agnatic group indistinctly to refer to these sets of people who claim exclusive rights to the use of specific portions of the territory on the basis of their descent. Even if they do not have corporate functions in the present, they are important to understand a number of territorial practices in the area. The project community currently includes members of 12 such lineages (A through L in Table 6.1).

It is worth emphasizing that people in Cerrillos consider that the right of every member of the community to have “all the forage needed” stays above any norm. This principle justifies, for example, that in cases of necessity a herder can use the pastures that customarily belong to his affines or that, in extreme cases, he may receive direct permission from the community to exploit any other part of the territory, as long as this does not seriously jeopardize the interests of other comunarios. This flexibility is necessary for the long-term continuity of the system, allowing to correct for localized imbalances between herds and pastures that may occur over time due to the differential growth of agnatic groups. The same principle, however, creates a margin of ambiguity that supports the development of a number of strategies of territorial expansion played out by successful herders, which are directly linked to the accumulation of wealth within the system, a point I will return to in a later section.

By contrast with land, prived property (i.e., animals, casas, estancias, personal belongings that are not destroyed at death) is bilaterally inherited, with a special share usually reserved for those who stay with their parents until the end. Over generations, this norm limits the accumulation of pastoral wealth in certain descent groups, since the
large flocks of successful herders are usually divided among all their children, both men and women, therefore accruing the patrimony of their cognates as well (cf. Webster 1973:123).

**Household Cycle**

Most people form a new family between their late teens and early twenties. After a first contact has been established between the future partners, the new couple goes through a period of trial marriage of at least one year, living with the bride's parents. During this time, the groom works for his future affines, helping them in daily chores, building an additional room at their house, or perhaps travelling as an assistant drover for his father-in-law. If they do not marry after this trial period, children that may have been born are usually raised by the mother’s parents. If they do, both families help the new couple to start their own herd through animal gifts, which are conceived as an advanced payment on account of future inheritance. These animals, together with those given to both spouses at various life-crisis rites and their offspring, will eventually form the economic basis of the new couple. After marriage, however, most men and women continue to conceive their animals as individual property, even though the entire herd is managed as a unit.

Most newlyweds stay for a few years with the groom’s parents, keeping their animals together in order to facilitate herd management until their own children are old enough to help, usually when the spouses reach their thirties or forties (see Table 6.1). This pooling of labor also makes it easier to engage in a number of complementarity
practices (e.g., travelling with caravans, seasonal migration), which demand the absence of some household members for long periods. For the same reason, at some point in their life, nuclear family households may bring their widowed parents or another old relative to live with them temporarily or permanently, specially when their own children marry away or migrate.

Authors working with central Andean alpaca herders have reported residential groups integrated by up to 10 nuclear families (e.g., Custred 1977a:71). These comparatively large aggregates, which certainly offer a number of advantages in terms of labor efficiency and the ability of households to diversify their productive base, only seem to be possible in the presence of large bofedales, which support high animal densities. This is not the case in the project area, dominated by low productivity dry pastures. With one exception, extended family households do not include more than two nuclear families and do not exceed ten members.

Besides Christian baptism, many families continue celebrating the traditional haircut ceremony or chujcharrutu when the child is two or three years old. This is an important rite, in which the new person acquires the first property (specially animals) and ritual kin. Around the age of six, children start collaborating in pastoral or domestic chores (e.g., fetching water, gathering firewood), but they only take full responsibility over herding duties after eight. Around 11 or 12, young boys begin to participate in caravan ventures as assistant drovers with their fathers, godfathers, or uncles. The importance of children's work in the household economy creates a conflict with school obligations. A common solution is to keep girls working at home, sending boys to
school, at least for the first few years, so they learn basic skills (e.g., Spanish language, basic arithmetic) they will need in order to assume their role in various complementarity practices, and in general, as mediators with the outside world. According to a 1995 census elaborated for Sud Lípez by Tupiza’s Central Hospital, less than 37% of men or women ever finish primary school.

Pastoral tasks tend to be divided by gender and age; daily herding tends to be in the hands of children, adult women (who also do the housekeeping), and old people, while men usually conduct other pastoral duties (shearing, butchering, monitoring the male sections of the herd), trade, and find temporary employment outside. These roles, however, are rather flexible; adult men often do the daily herding when they are at home, mainly during the rainy season, and women occasionally assist their husbands or fathers during caravan journeys. Most informants emphasize that all important decisions are taken together by both partners. Gender inequalities are apparent in various realms of community life. Women do not occupy public offices (ethnic or state-related) and are excluded from what are considered to be the most important parts of certain ceremonies (e.g., the mountaintop sacrifices held for Espíritu). Valued ritual objects, like Tata Reyes are only owned by men and patrilineally inherited.

Collaborative work parties organized at the household level do not seem to be as frequent in Cerrillos as they have been reported for groups directly involved in agriculture (e.g., Izko 1986) or even among agropastoralists, where several households or entire communities may share herding duties (Browman 1990:329). My informants frequently insisted on the fact that they are “very individualistic.” This is perhaps a
consequence of the high productivity of pastoral labor, that only requires extra-household help on few occasions, and the absence of land use practices that demand strong inter-household coordination (e.g., administration and maintenance of irrigation systems, rotation, coordinated planting, etc.) or that may create frequent scheduling conflicts, as in the case of agropastoralists. Extra-household labor is required at particular junctures of the pastoral cycle (e.g., shearing, earmarking or butchering of several animals) and of the household cycle (house roofing or rites of passage such as chujcharrutu, weddings, and funerals). Cooperation is established on the basis of two main forms of direct reciprocity that have been described for other Andean communities (e.g., Alberti and Mayer 1974; Carter and Albó 1988:474-477; Izko 1986:80-82; Lambert 1977:18). Asymmetrical reciprocity or minka, is work paid in kind or money (e.g., a person receives the whole entrails for every three animals he helps another comunario to butcher), while symmetrical reciprocity or ayni is a collaboration in the form of work or a loan to be returned in the same kind (like the help provided by relatives and neighbors in funerals or earmarking ceremonies). In addition to these, people may just help their neighbors or relatives without expecting direct compensation other than food, drink, and coca. This practice, known as yanapana, would amount to a form of generalized or structural reciprocity, which tends to be more frequent among kin.

PASTORAL PRODUCTION

Pastoralism is the main productive activity developed by all households in Cerrillos.¹ Herds provide their owners an important part of their diet, raw materials for
manufacturing clothes and other artifacts, products for trade and a means of transporting them, a way of storing wealth, and social prestige. The requirements of pastoral production are among the main determinants not only of residence, mobility, and time scheduling, but also of many aspects of social and ceremonial life. Animals, specially llamas, are the first possessions of the new born, they are given to people at all major life-crisis rites, and they escort the deceased in his last caravan journey to the other world. Llamas are sacrificed, offered, given, shared, and eaten at all important ceremonies, from baptism to house roofing and funerals, from inflorada to Espiritu.

**Herd Composition**

The total community herd in Cerrillos includes 4,500 llamas, 2,130 sheep, 338 goats, and 714 donkeys (1993 data). As Table 6.2 demonstrates, most households keep mixed llama-sheep herds and 38% of them have goats as well. Almost 70% also own donkeys. Decisions regarding the species composition of herds are influenced by a number of factors, including the biological and behavioral characteristics of each animal, domestic demands, market conditions, and the overall nature of the complementarity strategy implemented by the household.

The highly territorial behavior of llamas, makes them relatively easy to herd. Both male and family sections of the herd return spontaneously every evening to the same sleeping areas. Adult llamas are also less vulnerable to some predators, like fox. They have more digestive efficiency than sheep and can extract greater amount of nutrients from the poor pastures of the altiplano (Browman 1983:244; Fernandez Baca 1978:511;
Table 6.2: Herd composition by household.

<table>
<thead>
<tr>
<th>HH#</th>
<th>LLAMA</th>
<th>SHEEP</th>
<th>GOAT</th>
<th>LL UNITS</th>
<th>DONKEY</th>
<th>COMMENTS</th>
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<td>180</td>
<td>-</td>
<td>720</td>
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</tr>
<tr>
<td>2 *</td>
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<td>180</td>
<td>-</td>
<td>330</td>
<td>30</td>
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</tr>
<tr>
<td>3 *</td>
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<td>160</td>
<td>50</td>
<td>250</td>
<td>15</td>
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</tr>
<tr>
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<td>25</td>
<td>67</td>
<td>-</td>
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<tr>
<td>5</td>
<td>100</td>
<td>100</td>
<td>-</td>
<td>167</td>
<td>5</td>
<td>Includes in-law's herd</td>
</tr>
<tr>
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<td>140</td>
<td>80</td>
<td>-</td>
<td>194</td>
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</tr>
<tr>
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<td>80</td>
<td>30</td>
<td>-</td>
<td>100</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8 *</td>
<td>700</td>
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<td>20</td>
<td>780</td>
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<td>20</td>
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</tr>
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<td>10</td>
<td>200</td>
<td>100</td>
<td>-</td>
<td>267</td>
<td>10</td>
<td>Includes brother's herd</td>
</tr>
<tr>
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<td>-</td>
<td>180</td>
<td>40</td>
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</tr>
<tr>
<td>12</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>20</td>
<td>Includes brother's herd</td>
</tr>
<tr>
<td>13 *</td>
<td>110</td>
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<td>-</td>
<td>123</td>
<td>15</td>
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<tr>
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</tr>
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<td>16</td>
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<td>66</td>
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<tr>
<td>28</td>
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<td>-</td>
<td>20</td>
<td>43</td>
<td>-</td>
<td>Fly-49's herd (in Tupiza)</td>
</tr>
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<td>60</td>
<td>-</td>
<td>120</td>
<td>10</td>
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</tr>
<tr>
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<td>-</td>
<td>214</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
<td>Includes two sons' herds</td>
</tr>
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<td>40</td>
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<td>127</td>
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<td>Includes son's herd</td>
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<td>50</td>
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</tr>
<tr>
<td>35</td>
<td>100</td>
<td>50</td>
<td>-</td>
<td>134</td>
<td>3</td>
<td>Mostly bro-in-law's herd</td>
</tr>
<tr>
<td>36</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>40</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>25</td>
<td>30</td>
<td>-</td>
<td>45</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Tot</td>
<td>4,300</td>
<td>2,130</td>
<td>338</td>
<td>6,170</td>
<td>714</td>
<td></td>
</tr>
</tbody>
</table>

Key: Llama Units = llama + 0.67 (sheep + goat) * = extended family household.
Tichit 1991:79-82), therefore they are better prepared to afford starvation during the dry season. On the negative side, llama herds grow very slowly. Female llamas are fertile between the ages of 2 and 17 (Tomka 1994:115), although pastoralists in the project area consider them good for reproduction only between 3 and 12. Given the high incidence of abortions and nutritional stress, fertility rates among peasant production units are only around 43%, with 14% mortality for newborn and 4.5% for adults (Tichit 1991:54).

Llamas provide mainly meat, wool, and burden transportation. Adult individuals (7-8 years old) weight between 80 and 120 kg during the rainy season, with up to 60% of carcass dressing. Most llamas in Cerrillos are of the short haired variety (*Q'ara*), probably the result of a long term preference for meat production and transport, rather than fiber extraction. They are characterized by a relatively large body mass but short fleece with abundant bristle, so they produce comparatively small quantities of wool of poor quality. Ideally, each individual is shorn every other year (i.e., one half of the adult animals are shorn every year), yielding about one kilogram of fiber. Wool is mainly used for manufacturing domestic articles such as ropes, saddle-bags, blankets, and sweaters, although a share is usually reserved for trade, depending on market conditions and other opportunities. Finally, llamas are used as pack animals, both in long-distance trade journeys and in shorter, local trips. They can carry more than 30 kg covering a distance of 20 km per day in long journeys, and up to 45 kgs over 25-30 km in short trips. Unlike donkeys, they forage on natural range and usually need no supplementary food during the trip.
Besides these main uses, herders take advantage of almost every part of the llama’s body. Hides were used in the past to make sandals (ushutas) and are still used as construction materials (e.g., holding together thatch roofs and wooden doors) and to sit or sleep on. Bones are regularly sold to truckers who supply fertilizer manufacturers, and dung or takia is used as fuel, particularly when people fall short of t’ula. In addition to their economic importance, llamas play a role in the cultural and social reproduction of Andean pastoralists that no other animal does; llama sacrifices are necessary for many rituals and various prestige-seeking celebrations (e.g., Flannery et al. 1989; Murra 1965; Nachtigall 1975; Tomoeda 1994; Webster 1973:128) and the size of llama herds is still the main expression of household wealth and power.

Sheep demand more work. They have to be permanently watched after because they can drift away, stray, or abandon their newborn, besides being an easier target for most predators. They always have to be corralled for the night. Unlike llamas, they have two main birthing seasons: “one for Christmas” (December), “one for San Juan” (June). Given the lack of good forage during the dry season, neonatal mortality rates are extremely high. Sheep are valued for their meat and wool. Adults reach about 20 kg, with a carcass weight of 10 kg, and can yield up to one kilogram of wool annually (Browman 1983:244).

Goats are relatively easy to herd, provide meat for domestic consumption, and the only source of milk pastoralists use. Milk is mostly turned into cheese. Goats, however, do not provide any product for trade.
Donkeys are not eaten but are stronger and faster pack animals than llamas; they can easily walk 40 km per day carrying 50 kg of burden. Donkeys can forage at night, so they can be forced to march more hours per day than llamas, for several consecutive days. Therefore, they are preferred for short trips to the high valleys immediately east of the Altiplano. Besides, since they wander freely, donkeys do not represent an additional pressure over a household's particular grazing area; in fact, from the household perspective, they are a way of using a larger share of the community's general resources and even of those that belong to other communities.

Given the particularities of each animal, households adjust the relative proportion of each species according to the shifting conditions of the market and changes in their overall complementarity strategy. For example, until the early 1990s, llama meat was mainly used for domestic consumption or sold at local mining centers because it was paid 30 % to 50 % less than mutton in the city (Tichit 1991:44). This situation changed dramatically in the last few years, when llama meat entered urban markets and began to sell at a better price than mutton. In response to this change, many pastoralists began to butcher sheep for their own consumption, trying to increase the proportion of llamas in their herd or saving them just for sale. As long-distance trade becomes less common, male llamas are replaced by donkeys, which are more efficient in short trips, while those who do not travel any longer, may sell most of their pack animals.

Keeping high diversity rates, regardless of herd size, can be conceived as an effective risk-minimizing strategy, that takes into account uncertainties derived from both climatic or ecological fluctuations and changes in the economic environment (Göbel
On one hand, maintaining animals with different reproductive cycles, feeding preferences, and vulnerable to different diseases is an effective way of coping with specific natural adversities that may differentially impact each species; on the other, species diversity allows households to cope with shifting economic junctures by having a variety of products and capacities to offer or resort to, adjusting domestic consumption patterns accordingly.

The sex and age composition of the camelid herd in particular is a trade-off among various demands. Pastoralists prefer to have a larger proportion of fertile females (ca. 2-13 years old) in order to maximize the reproductive potential of the herd. Castrated adult males (capones) that can serve as pack animals, however, are necessary to travel to the eastern valleys, as long as the household still engages in this kind of long-distance ventures. My informants considered ideal for a household to have between 35 and 40 capones exclusively for this use. Male llamas begin to be loaded after their second year, and are considered ideal as burden carriers between 3 and 8 years old. Since they reach their maximum body weight around 8, males tend to be culled approximately at this age. Sterile females should be killed fairly young, fertile ones after 10-12, or whenever they are not considered good for reproduction any longer. It should be emphasized, however, that these are “ideal” criteria that guide the selection of animals when a herder decides to butcher. In practice, maximizing herd size is the overriding goal expressed by most pastoralists (cf. Browman 1974:188), even if this entails keeping a high proportion of castrated males and old individuals. This is perhaps the most effective way of buffering the impact of severe animal losses that periodically occur as a
result of drought and disease outburst, since given similar proportional losses, larger herds can recover more rapidly. Moreover, those who own very large herds can sell part of them to buy land in the valleys, diversifying their domestic production and gaining access to a whole new range of economic opportunities. These facts turn the opposition between risk-reduction and yield-maximization goals so common in the literature somewhat misleading.

**Herd Management**

Two main grazing systems are currently practiced in Cerrillos. Wealthier households keep two separate herd segments. Castrated male llamas are kept most of the time in the higher portions of the territory, or *cerro*, where they survive on the poorest range available. Females, crias, and non-castrated males (*jañachos*), together with sheep and goats are kept at the main residence or grazing post, depending on the season, securing in this way the best forage for the reproductive segments of the flocks. Those who own very large herds even graze sheep and llamas in different areas around the house. Male llamas stay in the *cerro* unattended; their owners go to check on them once every 5-15 days. Many of these groups, belonging to different households, live in Tres Cerrillos, in the southeastern portion of the canton, and specially in Tangani: each flock tends to stay in the same area and returns every night to the same sleeping areas, marked by characteristic dung concentrations. This highly territorial behavior greatly facilitates this kind of management, since the herders can predict quite accurately where will their animals be, even if they do not see them for weeks.
On the other hand, those who own relatively small herds tend to keep all their animals together. Neither the pressure over pastures around the settlement nor the economic return of herding justify the additional work involved in the maintenance of two separate segments. This practice is also observed among smaller households, with shortages in labor being the main limitation in this case.

Male llamas are castrated when they are two years old, leaving a *jañacho* for every 25-50 fertile females. They select for this purpose individuals who exhibit particularly desired characteristics, such as a large body size or a particular fleece color. Castration reduces the aggressiveness of males, making it possible to keep mixed male-female herds and facilitating overall management. Besides, my informants believed that castrated llamas grow stronger and are more docile, so they are the only ones used for caravan journeys (cf. Browman 1974:193; West 1981:66).

Some informants recall that a different management system called *llapucha* was practiced in “the old days” (cf. Gundermann 1984:106-107). Males were not castrated, except those that showed undesired traits. Since these animals were very aggressive, they were kept in the *cerro*, at least two hours away from the rest of the herd. This system was very labor-intensive, since the males had to be constantly monitored so they would not attack, not only their owner’s females, but also other herders’ reproductive segments. During the birth season, once all pregnant llamas had given birth, they would tie the females in the corral and bring the males in for a day. They believe the “seeds” were stronger in this way, resulting in more successful pregnancies. Besides, they could control better reproduction and certain characteristics of the flock, selecting particular
pairs for special purposes (pack animals, various fleece colors), and all the births took place about the same time. Nowadays, both birth and matting take place anytime from late November through late February.

Demographic expansion could be one of the reasons for the abandonment of this practice. Holding approximately constant the carrying-capacity of the land and therefore the overall size of the community herd, demographic growth must result in progressively smaller herds per household, i.e., per management unit. This conclusion is consistent with the generalized impression among informants that "in the old days" herds were larger, a phenomenon that people tend to impute mostly to increasing aridity and the consequent lack of good pastures. As one of my informants put it, "in the time of the grandparents the malvas were one meter high." Clearly both processes (population growth and decreasing carrying capacity) could be acting together, mutually enhancing their effects. At any rate, more, smaller herds in the same area would pose increasing difficulties to the maintenance of separate grazing territories for males and females, decreasing at the same time the absolute gains that could potentially result from such a labor-intensive system.

A typical pastoral day starts at sunrise, when llamas get up in their open sleeping areas and spontaneously head toward the field. By this time, people have already cooked and consumed a full meal. One member of the household leads the animals to the area where they are scheduled to graze for the day. If sheep are kept separately, they usually stay in the corral until the llamas have been led to the field. As mentioned before, there is considerable flexibility as to who carries this responsibility. Sometimes this person stays
the whole day with the animals, making sure the area is free of predators or rustlers ("pumas on two legs" in one informant's words) and the sheep do not disperse. Others leave the animals grazing by themselves most of the day, perhaps paying a short visit around noon to make sure everything is fine, and returning in the afternoon to drive the herd back. Sheep and goats are then corralled, while llamas spontaneously lay down in their sleeping areas (dormideros) as the sun sets. Grazing areas change almost daily, progressing in a circular pattern around the house or grazing post, securing in this way a systematic but even coverage of the forage available around the settlement.

Condors, pumas, and specially fox, are the main predators in the area. The latter is specially dangerous for llama newborns and can even get adult sheep. According to some informants, in bad years they may kill up to one fourth of the offspring. To protect them, pastoralists hang improvised rattles from their necks, build stone traps and scarecrows in grazing areas, and corral females with their newborns for the night, when fox most frequently attack.

Those who keep separate male and reproductive herd segments, visit their capones once every one or two weeks. This is usually responsibility of adult male members of the household. Finding the herd may take several hours or a whole day if the animals have drifted away from their usual territory. In these cases, it may be necessary to spend the night in the field, perhaps taking advantage of natural shelters. During these visits herders check on the health of their animals, make sure none is missing, and when necessary, drive them back to the areas where they are expected to stay.
Culling rates vary across households, depending on herd size, household demands, and selling opportunities. Wealthy households slaughter 10 to 12 llamas per year (or their equivalent in sheep) for domestic consumption, and a few more to obtain money to buy various goods and supplies for special celebrations. An average household, however, consumes between five and seven head per year. Poor or young households, who need to build up herd numbers, may try to avoid killing altogether, getting meat for their own consumption from wealthier ones at feasts—where meat gifts are an important expression of the host’s generosity—or in return for labor or assistance during ceremonies. Butchering an animal, for instance, is usually paid with the entrails, while those who help in funerals or infloradas may also be paid with meat.

Most people prefer to slaughter between January and May, when the animals reach their maximum weight. As the winter approaches, parts of the sacrificed animals or entire caracasses may be preserved for later consumption as charki or chalona, i.e., sun dried meat with or without salt, respectively. The meat is stripped out of the bone, adding salt to it if necessary; then, it is hanged from a wire running across the courtyard, where it is exposed between two weeks and a month.

Both men and women weave. Men use the stationary Spanish loom and the natural colours of llamas and sheep; they make several kinds of fabric (barracan, corte, picote) with which they use to tailor coats and trousers. In “the old days,” men dressed entirely with the clothes they made, including ushuas or sandals made with llama hide; as pastoralists gain increasing access to markets, this traditional attire is being replaced by Western clothes (tennis shoes, t-shirts, nylon jackets, and baseball caps), considered
more comfortable and durable. Men also braid ropes for securing the burdens on pack animals. Women weave on the field loom or waist loom, of pre-Hispanic origin, and use multiple colours they traditionally obtained with t'ulas, insects (cochinilla) or mineral substances, although nowadays they use mostly industrial dyes. They make blankets, ponchos. awayos (square weavings used to carrying burdens), bands. ch‘uspas (small bags for carrying coca leaves), costales (saddle bags), and talegas (hand bags used to carry sugar, flour, salt, and other food supplies on journeys) among other pieces.

The Annual Cycle

Table 6.3 summarizes the temporal distribution of herding activities, side by side with those related to economic complementarity and domestic and communal celebrations. It should be emphasized that economic production and ritual are so intimately related in pastoralists’ worldview and practice, that these two domains can only be separated in analytical terms (cf. Flores Ochoa 1979:90). When a herder is asked a specific question about his domestic economy, it is common for the answer to be phrased in terms of the generosity of some Mallku, the anger of wak‘as, or the effort put into the preparation of a ceremony. Conversely, questions about the purpose of rites or the reason for organizing a feast, are frequently answered through references to the multiplication of the herd, animal diseases, pastures, and labor obligations. Most pastoral and other economic activities (e.g., earmarking, slaughtering, mining, or trading with caravans) demand ritual actions and most pastoral locations include ceremonial features and refuse, or are partially structured with reference to ritual hallmarks. Consequently, it
Table 6.3: Economic-ritual cycle in Cerrillos.

<table>
<thead>
<tr>
<th>Month</th>
<th>Herding</th>
<th>Complementarity</th>
<th>Domestic Rites</th>
<th>Community Celebrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEC</td>
<td>llama and sheep</td>
<td>birth-mating</td>
<td>llama inflorada</td>
<td>new authorities (king's day)</td>
</tr>
<tr>
<td>JAN</td>
<td>llama and sheep</td>
<td>season</td>
<td></td>
<td>Carnival</td>
</tr>
<tr>
<td>FEB</td>
<td>llama and sheep</td>
<td>birth-mating season</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>MAR</td>
<td>llama and sheep</td>
<td>birth-mating season</td>
<td>llama inflorada</td>
<td>Espíritu</td>
</tr>
<tr>
<td>APR</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>MAY</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>JUN</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>JUL</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>AUG</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>SEP</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>OCT</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
<tr>
<td>NOV</td>
<td>llama and sheep</td>
<td>move to estancias</td>
<td>llama inflorada</td>
<td>community assembly</td>
</tr>
</tbody>
</table>
seems appropriate to treat the pastoral calendar as an economic-ritual cycle (paraphrasing Merlino and Rabey 1978), in order to emphasize the behavioral and archaeological integration of these two dimensions of action.

The annual cycle is conceived as beginning during the rainy season, which is also the birth and mating period for llamas. Llamas give birth mostly between December and February, after a gestation period of about 11 and a half months. Females enter into heat shortly after parturition and fertile crossings can take place from the tenth day on. Since mating is currently not controlled by the herders, it takes place throughout the rainy season. Most sheep births also take place during this period.

Most households stay at their main residences or casas during this time. Forage is abundant, both cienego and pajonales are green. malvas grow everywhere. The herders have to watch closely after the herd, particularly the crias which are easy targets for predators. In the “old days,” at least one member of the household use to sleep in the corral during this season, getting up several times during the night, shouting and making loud noises to keep foxes away.

Anytime from New Year’s Eve through Carnival, every household celebrates inflorada, the most important domestic ritual in the pastoral cycle. The name means literally “to put flowers,” a reference to the colored yarn (“flowers”) that is sewn to the llamas’ ears during the ritual. This ceremony, which is described in detail in next chapter, is meant to thank the Mallkus (“the animal givers”) for the new offspring while pleading for more, and to invoke Pachamama’s (“the sustainer”) protection for the winter. Also during this celebration, the yearlings are marked by cutting little “notches"
in their ears according to a distinctive pattern that serves to identify the owner. Some herdsmen only mark their animals every third year, during a ceremony known as *k'ilpa*.

After the end of the rainy season, anytime between March and July, many households move to their *estancias* with their herds, staying there between two weeks and three months. Sometimes only one or a few members of the family move, typically the household head. Those who intend to travel with llamas to the valley may also bring down their *capones* from the *cerro* in order to feed them properly in preparation for the journey. Given the relative homogeneity of pastures in the canton, this movement generally does not involve different ecozones, as it is the case in other areas that combine large marshes and other differentiated (usually altitude-dependent) vegetation patches over short distances (e.g., Gundermann 1984; Tomka 1994). For most households in Cerrillos transhumance is mainly a way of exploiting additional but similar forage, reassuring inherited rights over grazing areas and creating new rights over others, taking advantage of the last seasonal pastures, and saving the range around the main residence for the most difficult part of the winter.

June is the second birthing season for sheep. Some herders hold a sheep *inflorada* for San Juan, June 24th.

Between June and the first rains in December, when *malvas* are exhausted and *cienego* productivity is low, the animals have to survive exclusively on dry pastures of very low nutritious value. They all lose weight and many die of hunger. Snowfall can be particularly dangerous during this period. In the absence of stored fodder, if the snow
keeps the pastures covered for more than a couple of days before melting, the animals begin to die of starvation.

In August, after caravans return from the eastern valleys, some people make offerings to Pachamama, invoking her protection for the herd during these hard times. Some burn k'ichiras or sacrifice a llama, burying its heart in the wirgin; others burn k'owa and feed alcohol to water springs or q'ochas.

September and October are months of little pastoral activity beyond daily grazing. The animals have lost weight and they barely survive on t'ula and other dry forage. Some men seek temporary employment in the valleys or cities; those who stay, may take advantage of the extra time for weaving, braiding ropes, or building a new room in the house.

In November, when the weather becomes warmer, llamas and sheep are shorn. This is also the time when male llamas and rams of about two years of age are castrated. Before the end of the month the donkey rodeo takes place. These animals wander freely over the entire canton, frequently crossing community boundaries. Once a year, every community gathers all the burros within their boundaries. Each owner claims his animals; those left unclaimed are distributed among the people present.

The first rains usually fall in December and the vegetation begins to bud. The animals are safe now. Llamas and sheep begin to give birth and a new cycle begins.
Other Productive Activities

Other tasks of secondary economic importance are embedded in pastoral activities i.e., they are carried out while monitoring the herd in the fields or during idle time at the grazing posts. These include gathering wild plants (firewood, medicinal herbs, edible roots and leaves) and collecting eggs from suris and aquatic birds that nest in the rocky outcrops surrounding Jatun Cienego. Hunting is not a regular or planned activity, but is practiced opportunistically, as a way of adding variety to the diet. Vizcacha or chinchillon (Lagidium viscacia) and armadillo (Euphractus sp.) are the main species hunted, using traps or simply throwing stones at them. Vicuña hunting is currently forbidden, but was common in the past and is still illegally practiced. In fact, figurines made with vicuña lard are still a common offering at ceremonies throughout Lípez. Sporadically, some people catch small fish in the spring that feeds Jatun Cienego using small, improvised nets. All these wild resources belong to the community and are freely accessed by any member.

Another activity llameros seem to be passioned about is mining, perhaps as a consequence of the importance of Lípez as a mining region since early Spanish colonial times. One of the old, abandoned copper mines on the western side of the canton is still worked by a solitary old man who has accumulated a considerable amount of mineral, hoping to sell it some day. Another example is a group of men from Cerrillos and Cieneguillas –the next canton to the north– who regularly spend a considerable amount of time straining the gravel of the river that divides both communities in search for gold nuggets. In fact, they have evolved into a corporate group that actually controls this
resource, decides who is allowed to extract, and even share special ritual practices at the mining site to invoke the favors of El Tio, the supernatural entity worshipped by miners throughout Bolivia. After a full day of search, the amount of gold usually found is worth approximately the same as the pay for a day's work of a rural labor. Although nobody is known to have become rich in this way, its importance as an additional source of income should not be underestimated. Many other comunarios declare that at some point of their lives they have spent time in the eastern valleys (where the rivers are believed to contain gold in abundance) trying their luck in this activity.

COMMUNITY ORGANIZATION

According to the terminology of the 1953 Agrarian Reform, Cerrillos is organized as comunidad indígena or originaria which is the owner of the land and everything on it. In return for their right to use community resources, individuals have to fulfill their membership obligations, which include: (1) paying a fixed annual tax or tasa territorial; (2) working a number of days per year (six for adult men and one half of this for adult women) in faenas or community undertakings (e.g., repairing the school, maintaining roads, digging a waterhole); and (3) serving periodically in community offices at their own expense. Beyond these obligations, which do not include permanent residency in the canton, membership is also sustained participating periodically in community assemblies, meetings, and celebrations such as Carnival or All Saints Day.
State-Related Authorities

According to Bolivian law, peasant communities are ruled by a series of officers that include corregidor, agente municipal, sindico and junta. All of them are annually renewed and elected by the assembly of all comunarios. During my fieldwork in Cerrillos, they were all occupied by men, although my informants declared that in principle these positions could be held by women as well.

The corregidor is the maximum executive authority; he represents the community before other state officers and institutions, presides communal assemblies, calls extraordinary meetings, coordinates communal work parties or faenas. The agente municipal serves as a local judge; he solves local conflicts (e.g., over grazing territories or inheritance) or derive them to higher instances; he is also the link with regional courts and police, having the obligation of notifying them of any violations. Sindico and junta are positions created since the Agrarian Reform. The area of competence of the former includes rural production and peasant issues in general. They make contact with higher-order institutions that promote rural production, applying for assistance in land-improvement projects or campaigns to improve the sanitary condition of animals, searching new opportunities for commercialization, etc. The juntas escolares (usually a man and a woman) serve as a nexus between the school and the rest of the community. They collect a contribution from all families that send children to school, make sure the school is supplied, help teachers prepare breakfast and lunch for the pupils, and organize certain celebrations, like Independence Day (August 6th) and Mother's Day (May 27th).
These attributions notwithstanding, the assembly of all adult community members is considered the maximum local authority in most domains. This assembly gathers in town three times a year (Carnival, August 30th, and November 8th) in order to treat subjects of general concern, such as projects to undertake through faenas, election of authorities, new applications to community membership, conflicts between neighbors, etc. The meeting, conducted almost entirely in queshwa, takes place in the corregimiento, a large room facing the plaza. All adult members or comunarios, both men and women, can attend, even those who do not live permanently in Cerrillos but fulfill their obligations. In practice, only adult males participate directly of these gatherings, except for widows or women whose husbands do not live in the canton, who have to represent their households. Other women participate indirectly by sitting in front of the corregimiento’s door and following closely the discussion: from time to time, men will come outside and consult with them on important decisions. These meetings always last at least a whole day and frequently more. They are extremely formal: the authorities are on one end presiding the meeting, while people sit or stand around in the rest of the room. Every person speaks at length and with great solemnity. Besides discussing and deciding important topics for the community, they are also opportunities for reassuring membership, displaying personal charisma, and acquiring social status.

Community office is considered a service rather than an opportunity to exert power. Certainly, good performance in office is an important way of gaining respect and recognition: when old people give an account of the their achievements in life, they proudly mention the number of times they passed cargos. Nevertheless, these positions
are not paid; those who are in office, have to conduct their chores, including occasional trips to San Pablo or to the departmental capital, Potosí, at their own expense. Moreover, since they have to spend a significant part of their time involved in community matters, they have to leave their domestic business unattended, exposing themselves to further economic loss. For these reasons, most comunarios try to avoid cargos and only accept them when it is "their turn," or when they are strongly pressed by the other members.

Ethnic Authorities

Until 1994, besides state-related offices established by Bolivian law, Cerrillos had indigenous authorities collectively known as jilaqatas. Although it experienced dramatic transformations during Spanish Colonial and Republican times (Rasnake 1989), the system of autoridades originarias ultimately traces its origins to prehistoric political structures, and is closely linked to the ayllu as a basic unit of organization and territorial control throughout the Andes. In Lípez, both ayllus and jilaqatas have gradually disappeared during the last few decades, although many people still remember this form of organization and associated events and activities. Moreover, it seems that some of the roles they had in structuring social relations in the past have been invested in the new offices and administrative units. From this point of view, the apparent replacement of "traditional" institutions by "modern" ones may be masking important continuities at the level of social practice (Carter and Albó 1988:458). This possibility justifies a consideration of these past forms of organization as a way of understanding some aspects of present-day community life in the region.
The ayllu can be defined as a group of people that traces its origins to a common (real or fictive) ancestor and corporately administrates key resources, specially land (for a review of concepts see Isbell 1997). Izko (1992:47) thinks that the origins of the ayllu are in the expansion of patrilineal groups and alliances of similar units, that created the need to defend a common territory in order to secure access to land and pastures for their members. As these units grew, they subdivided in accordance with a segmentary dynamic of fission, resulting in the emergence of higher, more inclusive levels of organization. The result of this process was a segmentary, hierarchical structure, the lower tiers of which still survive in some parts of the Andes. Following the terminology proposed by Platt for the Macha of northern Potosí (1987b; also Izko 1986:73-75), the base of this structure was occupied by the minimum ayllu or kawiltu, formed by several patrilineal groups or lineages as defined earlier in this chapter; these were in turn grouped into minor ayllus, which integrated major, and maximum ayllus. At one or more of these levels, ayllus were divided in halves, revealing a dual pattern that cross-cuts the hierarchy. The system of traditional authorities was defined in relation to this segmentary structure. The names given to each position and to the corresponding organizational levels, varied from one region to another.

Until its promotion as an autonomous canton, Cerrillos and Viluyo were part of the (minor) ayllu of Polulos, ruled by a curaca. Cerrillos and Polulos alternated as the seat of this authority; when one of them appointed the curaca, the other one had an alcalde, keeping in this way a balance between these two sections. At a higher level, Polulos, Santa Isabel, San Antonio de López, San Antonio de Esmoruco, and Quetena
formed the (major) ayllu of San Pablo, led by an alcalde mayor resident in San Pablo de Lípez (Mendoza et al. 1994). When Cerrillos became a separate canton, it began to appoint its own cacique, a position that was abolished in 1994. All these authorities carried a number of emblems of their position, which included scarf, poncho, rope, ch'uspa (bag for coca leaves), and Tata Rey (literally "father king"). a wooden staff with a silver cap and a number of silver rings that indicate the rank of the user.

Jilaqatas were responsible for collecting the territorial tribute that was sent to Potosí and for organizing communal labor parties. Beyond these administrative functions, they had to look after the well-being of the community. Old people in Cerrillos remember that, while serving in office, the jilaqatas could command extraordinary powers to heal, to know when someone was lying, and even to paralyze people when they tried to escape in order to avoid their community obligations. These powers were largely invested in the Tata Rey itself, which could be awakened by the authority "feeding" it alcohol and certain wild foods, like uchupa (a wild "onion"). mutukuru (a tuber) and quinua axara (a wild grain).

Probably the most prominent role of the jilaqatas however, was in the organization of feasts and ceremonies (cf. Rasnake 1989). They were expected to finance some of these celebrations themselves: in other cases, they had to find an alferez or mayordomo in the community who would carry with all the expenses. i.e., food, coca, alcohol, and a variety of ritual goods (incense, k'owa, lard, etc.). During the ceremonies, the presence of the jilaqata and his emblems of authority were a crucial aspect of the ritual as well. Traditional officers were elected among the most respected people. The
new authorities were invested in San Pablo (capital of the major ayllu) at the beginning of the year in a special ceremony held for King's Day (January 6th).

The abolition of traditional authorities in Cerrillos (and in many other areas of Bolivia) was partially the result of the confusions and contradictions that resulted from the overlap of functions and roles with offices created by the Agrarian Reform. Toward the end, the jilaqatas had lost all their power, their areas of competence and social roles (e.g., in the acquisition of prestige) being absorbed by the modern authority system. Some informants also mention the fact that young people are reluctant to maintain the "old ways." most of them would feel ridiculous carrying around a Tata Rey or wearing the emblems of authority. From this perspective, this phenomenon may also reflect to some extent the penetration of Western cultural models among rural populations.

One aspect that seems to be only incompletely incorporated by the modern forms of organization concerns the importance given to communal rituals and other celebrations in the indigenous system. These public ceremonies, that in the past were articulated around the cult of ancestors/mountain spirits or Mallkus (Izko 1992:48), were central to the reproduction of ayllu solidarity and of a corporate (ethnic?) identity. They also served as constrains on the development of economic inequalities by committing the most successful herders to spend an important share of their resources in institutionalized displays of generosity, while acting as important mechanisms of prestige acquisition. a point I will return to in the last section. Current celebrations, like Mother's Day or Independence Day, are organized by the school and teachers (who do not belong to the community) and attended only by children in school age and some of their parents. They
clearly lack the ritual character and cultural importance of the public ceremonies held in the old days.

Only one of these ceremonies is still practiced in Cerrillos. Espíritu is held every year in Pentecost Day at Tres Cerrillos, the highest mountain in the western side of the canton. Similar rituals devoted to the mountain spirits were widespread in Lípez until a few decades ago. Once a year, members of every community (or ayllu) in the area used to go up the mountains led by their ethnic authorities, to honor their Mallkus and beg their protection. Cocani went to Cubincho, San Pablo to Bonete, San Vicente to Cerro Animas.

In fact, the celebration of Espíritu was discontinued in Cerrillos for a while, until Carmelo W (Table 6.1, hh#1), currently one of the wealthiest persons in the community who lives and keeps his animals in Tres Cerrillos itself, returned to the canton after 25 years of living and working in Argentina and revived this "old custom." Carmelo, who is convinced that his economic success is largely related to his devotion to the Mallku, is the only person who knows all the intricate details of the ritual, which were taught to him by his grandfather, who lived in the same area. Most households living around the mountain (mostly from lineages A and B) still participate in the ceremony, including those that currently belong to canton Cieneguillas (to the north) and Viluyo (southeast). This Mallku, however, is well known in the entire region and one hears a number of stories about his powers. People who did not honor him died or lost all their animals, while those who served him well became rich; more than one informant remembered the case of a man that used to come to the celebration from far away and, thanks to his devotion.
owns today a successful photoshop in La Paz. In the old days six jilaqatas from other communities would come every year to worship the spirit of Tres Cerrillos, including the alcalde mayor of the ayllu from San Pablo.

Every year the feast is sponsored by a different couple known as alferados, usually a man and his wife. To be an alférez involves a lot of work and significant expenses. They have to provide the animals to be sacrificed (llama, sheep, and a Cavia), great amounts of food, enough chicha (maize beer) and liquor to satiate everyone, coca leaves, incense, k'owas, and all other necessary supplies. They have to make arrangements in advance with one of those who live in the immediate vicinity of the peak in order to have a place to prepare the offerings and to hold the party once the mountain rituals have been concluded. They recruit or hire people to assume responsibility over a number of tasks, such as serving constantly alcohol to everybody, driving the herds up the mountain in order to witness the ritual, cooking the sacrificed animals, serving the food, etc. The success of the feast (and therefore the merits of the alferados) are judged on the basis of the devotion demonstrated in the performance of the rituals, and perhaps more important, in the amount of food and drink given to the participants. In a good ceremony, everyone has to eat as much as they can, take food home (people bring plastic bags with them to carry back the leftovers of the banquet), and end up completely drunk. Otherwise, it is common to hear people criticize the host or comment that the feast was "sad." In return for all this effort, however, a generous alférez gains the Mallku's favor, together with prestige and recognition from the community. The celebration of Espíritu will be described in detail in Chapter 8, when analyzing ritual practices.
DISCUSSION: PASTORALISM AND SOCIETY IN CERRILLOS

Having presented some basic information about Cerrillos' economy and society, it is now possible to analyze how these various facets interrelate in a dynamic way. In so doing, it will be possible to recognize some of those structural properties of pastoral societies outlined in Chapter 2, which not only function as internal constrains on llameros' complementarity strategies (Chapter 9), but influence a variety of their practices and associated material culture.

Dynamics of Economic Wealth

As it was emphasized in last chapter, the conditions of temperature, rainfall, and soils make of Cerrillos, and southeast López in general, an extremely hostile environment for human occupation. A high degree of pastoral specialization combined with economic complementarity is one of the few adaptive strategies — if not the only one — capable of securing a subsistence base for a permanent population in this habitat.

In a productive system like this, animals are the main form of economic wealth. A large herd gives the owner not only a number of products for domestic consumption, commodities for exchange and a means of transporting them, but also social prestige and a capital that is readily convertible into other forms of wealth, including land in the valleys, labour, or social support at important junctures. In fact, livestock offers the only mechanism of economic accumulation within the pastoral system. In the absence of strict community control over household grazing areas or herd size (e.g., as reported by
Brovman 1983:249 for other cases), expanding the herd is also an effective way of taking advantage of a share of community resources that otherwise would be used by others. A tactic that falls close to the logic implicit in "the tragedy of the commons" (Hardin 1968). From another point of view, wealthier pastoralists are in better conditions to cope, not only with environmental risk as pointed out in a previous section (cf. Browman 1987:185), but also with adverse junctures in the larger economic environment – e.g., in the face of sharp drops in meat or wool prices they can afford higher culling rates. Whether conceived as a risk-minimizing or as a power-seeking strategy, then, the expansion of the herd is one of the central goals of the domestic economy.

Cerrillos' herds show great variation in size, from 35 to over 700 "llama units" (Table 6.2). To facilitate global comparisons, all livestock has been translated into these standard units, multiplying the number of sheep and goats by 0.67 (i.e., one sheep or goat equals 0.67 llama units). This coefficient reflects the approximate relationship between the forage demands of sheep, goats, and llamas (Alzérreca and Lara 1988), simultaneously approaching the differences of economic utility among these species expressed by the herders themselves. The latter value, which would be more appropriate in this context, is difficult to estimate with any precision, since it varies according to the junctures of the broader economic system. In any event, even a cursory examination of Table 6.2 indicates that the differences in herd size are quite substantial. This variation is the result of a number of factors. Some of them are largely beyond the control of people, like the action of random forces (e.g., droughts, predators, desease) that may impact households selectively. Others could result in temporary differences only, like those derived from
the position of the household in its developmental cycle. But these differences reflect also the relative ability of individuals to manipulate to their advantage certain conditions or properties of the social structure. More specifically, these inequalities may also derive from: (1) the number of animals received from the kin group through presents or inheritance; (2) differential access to external resources (e.g., money, agricultural products) that can be used to purchase animals or to avoid culling; and (3) the amount of range exploited by each household. I will consider each one of them trying to assess, in a qualitative way at least, their relative incidence on observed differences.

"Llamitas are like snow"

This expression, taken from an informant's account, summarizes a widespread conception in Cerrillos regarding the fragility of pastoral wealth and the nature of the processes that govern its development. When pastoralists are asked about the causes of the stock differences observed, the first and most frequent answer is that it is a matter of luck. "Luck" is in turn related to the intervention of supernatural forces, like Pachamama and Mallkus, or creatures of the underworld (Bouysse-Cassagne and Harris 1987; Libermann et al. 1989:126-129), like wak'as (spirits living in rocks), q'ochas (water springs), and chullpas (civilization that lived before the sun and the Inkas), who protect those who pay them respect and give them proper offerings:
You never know. I can walk by a rock without noticing it and I may forget to give it its ch'alla (libation). And the wak'a may turn against me and get me back. My animals may die in this way.

In a similar vein, others assert that those who respect the costumbres or "old customs" and follow the "untrue" religion (i.e., non-Christian) usually have more animals. By stressing the influence of luck or invisible forces and the impotence of people to intervene in any significant way in the creation of wealth, this conception allows to conciliate the reality of economic differences with the egalitarian ideology generalized in the community.

This egalitarian view of society is reinforced by the perception that animal wealth is extremely volatile. The sudden action of predators, the outburst of a disease, and specially, the lack of forage during years of drought can decimate the largest flocks, leaving their owners in dire poverty in only two or three years. It should be noted, however, that natural adversities affect more severely those who own less stock (Browman 1987:185), contributing in this way to increase inequalities, not to reduce them. Small populations are extremely sensitive to the impact of random variables that may seriously affect them, such as the proportion of females born each year or the loss of fertile individuals because of predators, starvation, or disease (cf. Flannery et al. 1989). A bad year can have fatal consequences for small herds, but the impact of such factors diminishes with herd size. When faced with a 50 % loss, the recuperation capacity of a
herd with 100 fertile females is much higher than one with only five. Thus, even when wealthier herdsmen lose more in these junctures, they are better prepared to handle them.

My informants also made reference to the importance of the skill and dedication of the owner (e.g., keeping predators away or looking after the animals' health) for herd growth. For example, one of the reasons commonly invoked to explain the belief that the flocks were larger in the "old days" is that "the grandparents" were more machos (i.e., strong); they were constantly looking after their animals. People are poorer today because they are flojos (weak).

**Household Composition and Developmental Cycle**

Stock differences may also reflect to some extent the position of each household in its developmental cycle. Holding constant other factors, one would expect young families to start with relatively few animals, increasing progressively their numbers to reach a climax with their maturity; then their capital would begin to decrease as they distribute animals among their children. However, when one compares the ages of household heads—as an approximate measure of household development stage—with herd size, no correlation between these two variables seems to exist (r = 0.15). There are considerable differences among households of all ages. The only relationship that is observed concerns the maximum size of the herds; i.e., younger households apparently never have as many animals as some older ones.

There is a stronger correlation between herd size and household composition. Extended family households tend to have more animals (mean = 345 LLU) than nuclear
ones (119 LLU). a difference that is statistically significant ($t = 2.4, p<0.05$). This relationship reflects two situations. As mentioned before, some herders stay with their parents because they have the obligation of looking after them or because of the advantages that characterize larger management units, mainly in terms of a more efficient use of labor, which allows to engage in complementarity activities (e.g., hh#3. 21. 30; see Tables 6.1 and 6.2). These flocks are larger because they combine two or more individual or nuclear family herds of regular size in a single management unit. The most successful herders (e.g., hh#1. 2. 8), on the other hand, tend to retain their married offspring because they need more labor and can support them. In neither case, however, household composition or size seems to be a significant cause of herd growth, an observation that is consistent with our previous discussion concerning the high productivity of pastoral labor.

**Gifts and Inheritance**

As mentioned before, the first animals owned by a person are usually female llamas or sheep given as presents by parents, godparents, or other close relatives at important life-crisis ceremonies such as birth or first haircut (chujcharrutu). At the time of marriage, some persons may own up to 15-20 head, while others may have none. In this opportunity, additional animals are frequently given as an advance of inheritance to both men and women by their parents, and as "wedding presents" by the godparents of the ceremony. Other things being equal, then, the (biological and ritual) sons and/or daughters of successful herdsmen usually start their married life with a larger flock. an
advantage that may become even more substantial when they fully inherit their parents' animals, i.e., when they die or join their children's household, giving up the administration or even the ownership of their herd. Specially valued partners are the youngest men or women, who tend to stay with their parents and, consequently, are entitled to a special share of the parental herd and property in general. A first way in which individuals can enhance their possibilities of economic success, then, is by choosing spouse and ritual kin among the wealthiest households.

The impact of these choices on economic differences, however, should not be overstressed. Only one household (Table 6.2, #8), seems to owe its fortune largely to the fact that the family head inherited many animals from an aunt that had no other heirs. It is my impression that, rather than serving as a mechanism of accumulation, having wealthy relatives and ritual kin serves as a valuable reassurance in cases of extreme necessity, when the possibility of borrowing a few animals, or getting meat or a live female as a gift or as a generous compensation for some help, can be vital to recoup a decimated herd (cf. Flannery et al. 1989).

Access to Money and Other External Resources

The multiple mechanisms used in Cerrillos to obtain resources they can't produce, or the money to buy them, will be treated in detail in Chapter 9. What I want to emphasize here is the influence that the relative success in these "complementarity strategies" has on the growth of pastoral wealth.
First of all, animals can be purchased. Money is obtained through direct articulation with the market (permanent or temporary employment, selling pastoral or agricultural products) or indirectly, form richer herdsmen who hire others to help them with specific tasks, to do their communal work (faena) for them, or to tend their flocks on a regular basis. This money can be used to buy young females from other comunarios, or from other communities that are known for the quality and quantity of their animals (e.g., Quetena, Cusi-Cusi).

Money is also necessary to buy agricultural products, groceries, clothes, and a variety of goods that are not produced locally. Those who obtain some of these products directly through other mechanisms (e.g., temporary employment, farming their own land in the valleys, caravan trade), do not need to slaughter for sale, so they can reduce their culling rates to the minimum necessary for self consumption, maximizing in this way the growing potential of their flock. This is specially true of households that cultivate their own farms in the valleys, who secure for themselves most of the agricultural products they need and can even obtain some cash selling them in the market.

Finally, some herdsmen may tend animals that belong to community members residing away from the canton. These services can be paid in cash, in external products, or with one-half of the offspring. These share-herding or al partir arrangements with non-resident comunarios, are an important way of building up herd numbers for young and poor herdsmen.
Another factor that strongly influences herd growth is the amount of forage available to the domestic unit (Nielsen 1996a). Considering that starvation at the end of the dry season is the main cause of animal losses and perinatal mortality, the importance of this variable could hardly be overestimated. Given a relatively uniform carrying capacity of pastures throughout the canton, the amount of forage is more or less a function of the area available to the household for exclusive grazing. Sometimes pastoralists refer directly to the importance of this variable in wealth differences when commenting that certain families are rich because they have hoarded a lot of land for themselves, while others lost all their animals and had to leave the canton because "they had no room" to graze their livestock. Moreover, disputes over grazing rights are one of the most common sources of conflict in the community.

To assess the relative incidence of this factor, it would be necessary to compare herd sizes with the extension of the grazing areas available to the owners. This variable, however, is extremely difficult to establish with any accuracy, because grazing territories are flexible and permanently negotiated between neighbours; when individuals are asked about the extension of their use rights, they usually answer in vague terms, referring simply to the name of the general area. Moreover, while the family segments of the llama herds usually graze around houses and herding posts, the male segments stay most of the year by themselves in the cerro areas, away from their owners' settlements, complicating even more an accurate assessment of the amount of forage actually used.
In any event, taking into account that each animal needs a certain amount of forage to survive, it is obvious that those who own more livestock are using a higher share of this communal resource than poorer ones. Since pastures are being exploited to the limits of their carrying capacity (i.e., their exploitation cannot be intensified) and there is no cultivated forage, it can be concluded that if an individual (rich or poor) wants to expand his herd, he will eventually have to increase the amount of range under his control, at the expense of his neighbours' interests. Herders have developed several strategies to achieve this goal, such as: (1) manipulating the norms that regulate the transmission of land-use rights and their exceptions; (2) controlling multiple herding posts or estancias; (3) taking advantage of another comunario's grazing rights through share-harding arrangements; (4) acquiring use rights through direct negotiation with the community; and (5) legitimizing land-use rights through ritual. Given their importance to understand the distribution of people (therefore, of activities and residues) over the landscape, I will consider them in some detail.

The patrilineal transmission of land-use rights and associated virilocal residence may result in uneven population distributions, creating disadvantageous concentrations of households when several brothers have to share the same agnatic territory. In these cases, it is acceptable for a man to reside uxorilocally, using the pastures that would correspond to his affines (cf. Palacios 1988b). In Cerrillos 7 of the 39 domestic units reside uxorilocally; some of them because they married the youngest daughter of the family, who is expected to stay with her parents, but others simply because they did not have "enough room" where they were born. Some herders, however, invoke the patrilineal
principle to keep their affines and non-relatives away, even if their requests are based on a legitimate need, securing in this way vast grazing areas for their exclusive use.

As an example, consider the case of Serapio Wy (hh#15), whose herd grew during the last few years to reach a total of 240 llama units. In the winter of 1994 he began to experience very high losses. Serapio attributes them to the fact that he has to share a relatively small grazing area southwest of town (see Figure 7.2), that used to belong to his grandfather, with his brother and five cousins. If he wants to consolidate his herd or continue expanding it, he needs to exploit more pastures besides those that correspond to his lineage. For this reason, he moved his residential base to an area that belongs to his in-laws, to the north, and began to use their range. This decision, however, is being strongly resisted by his wife's brothers, who pretend to establish a strict limit to the area where he can keep his livestock, even when they have plenty of space and do not own very many animals. They even threatened with killing his llamas if they cross this frontier. Serapio then asked Feliciano Gz (hh#33), who lives south of town, permission to build a herding post in the area that traditionally belonged to his lineage. Even when Feliciano granted his request, the post was violently destroyed few months later by one of his sons, who does not even live permanently in Cerrillos or keep animals there, but plans to return to the canton some day, so he is not willing to give up his rights over his agnatic territory. The only solution for Serapio, then, is to get permission directly from the community assembly to graze his animals somewhere else, breaking in this way the resistance of those who would be affected by this decision.
A second way of securing control over a grazing territory is through the use of several estancias. Ultimately, grazing rights are only maintained through the actual occupation of the land, a fact that creates a close relationship between settlements and other facilities, usufruct of pastures, and herd growth. Herding posts can be used to make effective existing rights or to create new ones. In the first case, building estancias is a way of consolidating use rights over a territory that traditionally belonged to one's lineage against the pressure of neighbours; alternatively, building or buying a post is an accepted way of creating rights over land that nobody else claims. This mechanism is based on the notion that a person has exclusive rights over his or her labor, in this case the post itself and associated structures, which simultaneously attest to the "actual use" of the land. For this reason, almost any improvement made to the land may create some rights over its use. Thus, even building windbreaks, corrals, or any other facility may serve this purpose. Mario Rm (hh#37), Serapio W's unfriendly brother-in-law, is a clear example of this behavior. Not only has he constructed four small estancias that he barely uses, but he built dozens of small windbreaks (see Chapter 7) throughout what he considers to be "his" land. At some point he even started to build a wire fence around it, generating a strong reaction from the assembly that considered this a serious violation of community ethics.

Besides controlling larger grazing areas, those who own several estancias can also move their livestock more frequently, making a more efficient use of available range. Carmelo Wy (hh#1) has resorted systematically to this mechanism; from the five posts he effectively uses (he owns two more he was not using at the time of fieldwork), he
benefits from the exclusive use of a significant portion of the community's territory, a factor that most comunarios signal out as one of the main reasons for his economic success.

Another way of expanding the grazing areas under one's control is to negotiate use rights directly with the community assembly. This is always a possibility for those who do not have enough land to support a sustainable herd. The same principle, however, can be used by rich herdsmen in certain circumstances. Again, Carmelo Wy offers an example of this strategy. In the early 1980s, when the school building was concluded, the corregidor requested the donation of a llama for the celebration; Carmelo provided the animal in exchange for the authorization to build a herding post outside the area that corresponded to his lineage.

A fourth way of gaining access to additional pastures is through share-hoarding arrangements. This practice would be reserved to relatively wealthy pastoralists who reached a limit in the amount of land that their neighbours (or the community) allow them to exploit. By giving animals al partir to others, these herdsmen can use other comunarios' grazing rights to their advantage. This mechanism, reported by other authors working in the Central Andes (e.g., Robles Mendoza 1980), was not used in Cerrillos during the time of my fieldwork. The two cases of share herding I recorded responded to a different pattern; one was a young man who share-herded the animals of a non-resident comunario, the other was a man who kept the sheep of an old widow from Polulos, who could not tend them by herself.
Finally, land control seems to involve ritual practices as well, mainly infiorada, a domestic ceremony to be described in Chapter 8, and perhaps Carnival. This connection that had been already observed by Merlino and Rabey (1983) among pastoralists of Northwest Argentina, was suggested to me by three households (#8, 25, and 30) who declared to spend most of the year at their estancias, occupying their casas only for a few weeks in the summer. This seemed to contradict the normative view, according to which households reside most of the year at their casas (literally "houses"). moving to their estancias for a maximum of two months during the fall. Moreover, unlike most herding posts, the estancias of these "anomalous" households showed a size and complexity comparable to any main residence in the canton. If they looked as casas and were used as such, why did they keep calling them estancias? The answer I finally got was that they did not celebrate infiorada at a grazing post, but only at main residences, where they kept their wrgines (altars) and ritual paraphernalia. All three of them explained that they did not live in their casas anymore because the places were too cold and their llamas refused to stay there very long.

When a herder holds an infiorada, his close relatives, ritual kin. and neighbours in general are invited. These people help the family corralling the llamas and sewing the wool "flowers" to their ears, and in return they are entertained with coca, chicha, alcohol, and food in abundance. One of the central purposes of the ceremony is to show gratitude to the Mallkus and Pachamama for the animals born during the summer and to beg their protection for the winter. By joining the hosts in these rogatives, acknowledging their economic progress during the year, and accepting their hospitality, the visitors implicitly
give them their support, renewing their solidarity bonds with the family. In the social
plane, then, these celebrations serve herders to periodically reaffirm their rights as
community members in front of others, particularly those who live nearby and therefore
compete more directly with them over the use of corporately owned resources. For those
who do not live permanently in their casas, this mechanism keeps latent the possibility of
claiming the territory around these settlements, a right that could be legitimately
questioned by their neighbours since the pastures are not actually used. The fact that this
"statement" is part of a ceremony devoted to the Mountain Spirits and Mother Earth is
consistent with the view that, ultimately, these entities are the true owners of the land and
everything on it, so they are the best entitled to grant it to a person.

Dynamics of Non-Economic Wealth

When compared to other societies, Cerrillos and other Andean pastoral
communities appear as relatively equal, a condition that is rooted in the very nature of
their social structure. This comparative fact notwithstanding, there are significant wealth
differences among community members (cf. Carter and Albó 1988:472). In last section I
analyzed the causes of these differences, identifying some mechanisms that are used by
llameros to expand their herd numbers. Putting aside those derived from
complementarity practices, all these mechanisms are ultimately based on the strategic
manipulation of social networks and of the normative framework, ideology, and ritual
practices that regulate the access to key material resources. What is important to
emphasize, is that the relative success of individuals in these accumulation strategies
largely depends on their ability to gain the consensus of other community members (specially neighbours), or at least to neutralize their resistance. This highlights the importance of taking into account the role of prestige and other non-economic forms of power in the analysis of pastoral social systems, a statement that could probably be applied to non-stratified societies in general.

The limited importance given to these "superstructural" phenomena is an important limitation of some materialist approaches that take the control of material production as the only real source of social power. Bourdieu's notion of an "economy of practices" (Bourdieu 1977:183), however, provides a theoretical framework that supports the analysis of these various forms of power in their own right while keeping a basic commitment to the Marxist emphasis on resource appropriation.

This author conceives of society as a multidimensional space, with various principles of differentiation and power. Each one of these dimensions or fields, is constituted around capitals "goods, material and symbolic, without distinction that present themselves as rare and worthy of being sought after in a particular social formation." (Bourdieu 1977:178), that give rise to "markets," which have their own institutions and rules (as in a game), and even when interrelated, cannot be reduced to one another. Although the emergence of specific forms of capital and corresponding fields is a historically contingent process that needs to be empirically investigated, Bourdieu recognizes at least three forms of capital in addition to the economic one, i.e., cultural, social, and symbolic (1986). Cultural capital is related in current Western society with sciences, arts, and sports; more generally, it could be conceived as resources
which are highly valued within a particular social formation but are not directly related to its material reproduction, like those subsumed under the label of religion. Social capital refers to a durable network of social relations, which can be sustained through kinship, alliance, ethnic identification, and other forms of group affiliation or exclusion. Finally, symbolic capital is "the form that the various species of capital assume when they are perceived and recognized as legitimate," (Bourdieu 1990b:127) commonly equated with prestige. Symbolic capital may offer the most valuable mechanism of accumulation in societies like the ones we are analyzing, where the conditions of material reproduction impose limits to the accumulation of economic capital, specially because it can be usually converted into other forms of wealth under certain conditions and according to specific rules (Bourdieu 1977:179-180).

Thinking a variety of socially valued resources, including prestige, esoteric knowledge, or relations with supernatural entities as capital, makes it possible to apply Marx's economic logic, and his emphasis on domination through differential appropriation, to multiple domains of social practice. Cultural, social, and symbolic capitals, like economic ones, are produced (through a process that involves natural resources, tools, labor, a particular technology and organization), distributed, invested, consumed, and accumulated, according to forms of differential appropriation that are analogous to social relations of production in Marx's model. The application of economic reasoning to non-economic fields, unravels the calculated and self-interested logic that underlies practices (e.g., redistribution) which are ideologically construed as "generous," "disinterested," or "indifferent," an euphemism known as symbolic violence.
that appears as a necessary condition for the appropriation of the symbolic profits they render (Bourdieu 1977:191). This also dispels the economist argument that certain societies are egalitarian because they have built-in mechanisms that prevent significant economic accumulation, demonstrating that surplus labor may be differentially appropriated in other forms of capital.

In the rest of this section I will consider briefly how people acquire these various forms of wealth in Cerrillos.

**Social Networks**

Three main mechanisms are used to develop interpersonal bonds beyond the agnatic group in Cerrillos, i.e., marriage, ritual kinship, and labor reciprocity. Interlineage alliances established through marriage open a number of opportunities for individuals, from inheriting the parents-in-law's livestock (in the case of marrying the youngest child) to the possibility of taking advantage of the affines' range in case of need. Other obligations implicit in these bonds include the exchange of labor at critical points of the pastoral or household-cycle (e.g., inflorada, roofing a house) and assistance in the organization of feasts, rites of passage, and other important celebrations (e.g., weddings, funerals). Marriage alliances are a crucial aspect of some complementarity practices as well; the assistance of relatives (consanguineal or affinal) living outside the community is a great advantage for those who migrate temporarily to work, while those who farm land in the valleys usually can only handle the resulting scheduling conflicts expanding the labor pool available to the household with the participation of some in-laws.
Ritual kinship ties are established at rites of passage (e.g., Christian baptism, *chujcharrutu* or first haircutting ceremony, marriage) or at certain celebrations (e.g., the *flechada* or housewarming ceremony) and involve two types of relationships; i.e., *padrinazgo* between an adult person or godparent (*padrino* or *madrina*, usually a non-relative) and a child or the newlyweds (*ahijados*), and *compadrazgo* between the godparent and the parents of the child or couple, or the owners of the house. *Padrinos* are expected to help their *ahijados* out, providing support, advise, or material resources if necessary; *ahijados* owe their *padrinos* respect and loyalty, and may even be expected to work for them when requested (e.g., serving as assistants in caravan journeys or looking after their herd). Services that are usually paid back with particular generosity. *Compadres* give each other support, whether this implies work, hospitality, assistance at special celebrations, or a loan. Since these bonds are consciously chosen, they are frequently more reliable than affinal and even consanguineal relationships.

Finally, persons or households which are not related by any form of kinship, may develop a relationship of mutual support and social obligation by helping each other (working, cooperating in a social event, lending money or an animal), creating in this way a reciprocal obligation that does not have to be paid back necessarily in the same kind of assistance. Certainly, this kind of reciprocity is most frequent between relatives or *compadres*.

At different stages in their life, people may combine these mechanisms in various ways to develop social networks appropriate to their needs. Thus, matrimonial strategies are most important for young individuals, since marriage choices determine in the first
place the spectrum of social and economic opportunities open to the new household. Further on, relations of *compadrazgo* and labor reciprocity that progressively expand this initial social network, become necessary to handle periodic shortages of labor and other resources that periodically emerge in the productive-ritual calendar, in various complementarity strategies, and at various points in the developmental cycle of the household. *Padrino-ahijado* relationships entail more complex forms of exchange; poor or young households may seek economic reassurance for themselves or their offspring by choosing the *padrinazgo* of a wealthy person or helping him, thus creating a reciprocal obligation. Having many *ahijados*, on the other hand, not only increases a person's prestige, but is a way of creating a following whose support may become critical when negotiating prerogatives with the community or in cases of conflict with other *comunarios*.

**Christianity and Tradition**

The struggle among social actors over the control of a field not only involves attempts to appropriate the particular kind of capital that defines it, but a more or less overt struggle over the legitimacy of the principles that structure the field (Bourdieu 1985). This is particularly true of what I provisionally call the "cultural field" in Cerrillos. Like in many other peasant communities in the Andes, two paradigms, which can be termed "traditional" and "evangelical Christian," are disputing over the control of this field.
Traditionalists believe in ancient Andean deities (e.g., *Pachamama*, *Mallkus*, *Wak'as*, *Q'ochas*) and cosmology, maintaining or participating in related practices or *costumbres* (e.g., *K'ilpa*, *Espiritu*, *Chujcharrutu*, chewing coca leaves or using them for divination or healing). Some of these beliefs and rituals, probably of pre-Hispanic origin, have fused to various degrees with Catholic and other European elements, as in the case of the cult to the patron saints or to the *Tata Rey*. All these practices were closely related to the system of ethnic authorities or *jilaqatas*, and therefore to indigenous power structures. Evangelical Christians reject all these beliefs and customs as false and pagan, observing instead the precepts of the evangelical Church. Unlike the traditionalists, "brethren" (as they call themselves) are tightly-organized, meet every Sunday at their temple in town, and follow the instructions of well-defined leaders. An interesting aspect of the strife between these two cultural paradigms is that it frequently involves the actual destruction of emblematic artifacts and features, a strategy of cultural domination known as kratophany (Walker 1998). For example, some people declared that many *comunarios* used to own *Tata Reyes* but "they were forced by the brethren to burn them." Those who follow the evangelical cult have dismantled their *wirgines*, altars used during the fertility rituals associated with the *inflorada*, and do not even use traditional clothes anymore.

Each one of these paradigms involve a set of valued resources (i.e., knowledge, skills, attitudes, objects, locations, and institutions), which confer a particular kind of power and prestige to those who control them. For the evangelical Christians these include, among other things, knowledge of the Holy Scriptures, the capacity to stay away from impure acts such as drinking alcohol or chewing coca, and connections with higher
institutional levels. Daniel Gz (hh#10), who lives most of the time in the eastern valleys is the most respected leader of this group, serving as a nexus with the Church outside the community.

Examples of important cultural resources among traditionalists are: a detailed knowledge of ancient ceremonial practices, which involve complex and precisely-defined recipes and sequences of prayers, gestures, and other ritual acts; special powers to heal and divine, usually attributed to those who are struck by lightening and survive: rare and/or valuable objects used in all these practices; and ritually-charged locations or landscape features. Specially valued possession are patron saints images which are widely revered in the community; two households (hh#1 and 8) have domestic chapels devoted to them.

Two individuals stand out in this field. One of them is Bernardo Gz (hh#27), who was jilaqata several times in his life and still owns one of the two Tata Reyes left in the community; in fact he was the last man to serve as cacique before the system of ethnic authorities was abolished in the canton. Most informants considered him to be the most knowledgeable person in Cerrillos with regard to the "old customs." The other one is Carmelo Wy (hh#1), mainly through his involvement with the celebration of Espiritu. He is the only one who knows the intricate details of the ceremony (which he has been teaching to his favorite godson during the past few years). he lives and grazes his animals in Tres Cerrillos, the mountain where the Mallku dwells, he uses the community altars for his own domestic ceremonies, he owns a Tata Rey (considered a necessary element of the
Espíritu ritual), and he is the only person in the community who breeds Cavia, one of the three animals sacrificed during the ceremony.

During my fieldwork, I had a clear demonstration of Carmelo's authority over this event and of the importance that he gave to this role for maintaining his social position in the community. In 1993, I had been invited by a man from the western side of the canton to participate in the celebration of Espíritu. The night before we stayed at one of his friends' house who lived near Tres Cerrillos, and at dawn we headed toward the altars up in the mountain. When we were almost there, we met the retinue led by Carmelo and the alferez. When my friend introduced me and explained to them that I wanted to participate of the celebration, Carmelo was so annoyed that he refused to continue unless I left the placed. He argued that my presence would irritate the Mallku, that he would "miss" when sacrificing the animals, and this would bring misfortune on the community. Months later I paid a visit to him; he was extremely friendly and formally invited me to attend the ceremony the following year. After that, I was expected to join them every year for Espíritu if I was in the area, and at Carmelo's request, I even became padrino of two of his grandchildren. I never brought up with him that first encounter, but years later he apologized for having thrown me out of the ceremony. He explained to me laughing:

*I know I was bad. I shouldn't have done that to you. But you have to understand, I am the "capo" (chief) here. Had I let you in, they would have thought they could make decisions. This is my place, my grandfather lived here. I decide who can*
come. From time to time I have to misbehave so they respect me and remember that I am the one in charge.

**Prestige**

Symbolic capital is intimately related to the possession of economic, social, and cultural wealth. People can be prestigious because they own a large herd, they have a number of *compadres* and relatives outside the community, or they are considered *yatiris* (healers). In addition to these, I have mentioned throughout this chapter a number of practices that seem to be quite directly related with prestige acquisition. One of them is serving in public offices. Authorities, whether state-related or ethnic, are given special respect, and if they have a good performance in office, people may remember this for many years. "Passing feasts" (i.e., sponsoring them as *alferez*), entertaining a number of neighbors for *inflorada*. Carnival, and various rites of passage, and other forms of ritualized generosity, seems to be the most important way of achieving social recognition. "Generous" *comunarios* are widely appreciated and always have people ready to help them to mark their animals, organize a feast, or roof a house, while "stingy" ones are harshly criticized by everyone, specially if they are wealthy.

As in other rural areas of the Andes, a special value is attached to objects or designs that belong or refer to the urban or capitalist system in general (e.g., tin roofs, wall-paint, double-story houses, watches, wall clocks, binoculars, tape recorders, bicycles, cameras, or industrial clothes). To some extent, this may be understood as a recognition of the high cost that some of these commodities have, but it also denotes the
strong symbolic charge that this "outside world" has in the eyes of *llameros*. The use and conspicuous display of this kind of objects and architectural styles is more frequent among those who enjoy a salary or rent; this partially a consequence of their regular access to cash, but also an expression of a value system quite different from the one that prevails in among pastoralists. *Llameros* are not particularly inclined to conspicuous consumption, perhaps as a result of the prevalent egalitarian ideology that condemns ostentation and other explicit statements of social inequality. In fact, disproportionate investments in "luxuries" are ridiculed and criticized, potentially harming a person's prestige.

One important property of symbolic capital is the possibility of converting it into other forms of wealth under certain conditions. Thus, a prestigious person is a good *compadre* to have, can perform better in office, and is in a better position to make matrimonial alliances or to negotiate economic advantages with the community or with his neighbors. The benefits thus obtained can in turn be re-invested in other prestige-seeking strategies or in the expansion of the social network. This is a reason why, although different fields and capitals have their own dynamic properties and cannot be reduced to one another, they are also mutually reinforcing in accordance with certain rules.

**Conclusion**

I have discussed throughout this section the strategies developed by individuals in Cerrillos to increase their control of a variety of economic and non-economic resources
(e.g., livestock, land, social networks, knowledge, rituals, prestige), under the premise that this represents a central aspect of their social practice. To conclude this chapter, I would like to point out some of the possible implications of this discussion for understanding pastoralists' settlement systems and other dimensions of their material culture.

A first point that should be emphasized is the high level of competition among households for the control of pastures, a characteristic that is rooted in the social structure of pastoral production. Houses, grazing posts, windbreaks, and other features play an important role in the appropriation of this resource, not only because of the "utilitarian functions" they serve, but because they are effective ways of supporting individual claims on grazing areas, given the shared notion that personal effort and need (expressed in actual use) is the ultimate source of rights over the land. When analyzing the frequency and distribution of pastoral facilities, then, it may be necessary to take into account, not only their "technofunctions," but also their role in the social negotiation of these and other key resources. This may also be the case with ritual activities, which legitimize territorial claims in at least two ways: firstly, by connecting the person with the supernatural entities who are the true owners of the land and all resources on it; secondly, by reinforcing the social bonds with other community members who could potentially question these claims.

Another characteristic to consider is the importance of prestige in all social relations. This seems to be a consequence of both the limited potential to economic expansion within the system and the existence of community checks on accumulation. A
relatively high investment of labor and resources in feasting and other displays of generosity, in ritual performances, in the acquisition of exotic goods, or in other prestige-seeking strategies that usually leave distinctive signatures in the archaeological record, could be considered essential components of the social system.

A closely related issue concerns whether central locations (a ritual site, a meeting place, or some other kind of communal, public setting not necessarily occupied on a permanent basis) should be considered a necessary component of pastoralists' settlement pattern, or only a relatively recent consequence of their incorporation to national states and to the world system. Cerrillos and other temporarily-inhabited towns of the Altiplano emerged to host churches, schools, sanitary posts, corregimientos, and other alien institutions. However, some kind of communal location, perhaps better exemplified in this case by the altars of Espíritu, may have been necessary for the reproduction of the social and cultural life of prehistoric herding communities as well. If this turns out to be the case, the identification of these places could serve to trace in the archaeological record the existence of specialized pastoral communities, as opposed to areas containing complementary, seasonally occupied pastoral settlements belonging to agropastoral communities.
ENDNOTES

1. A few households occasionally plant very small areas (<50 m²) with potatoes, lima beans, and some European vegetables, which most of the time fail. This practice is economically insignificant, except as a marginal, risk-minimizing tactic. In 1995 several households were given through foreign aid materials to build greenhouses where they currently grow a few vegetables for domestic consumption.

2. A similar structure can be traced back at least to the 19th century (Platt 1987a).

3. A brief account of this ceremony as held among ayamara agropastoralists in the northern Altiplano is given by M. Mamani (1988:126). His description is very different from the way Espiritu is celebrated in Cerrillos, which resemble instead Rasnake’s account of the q’unway among the Yura (1989:210).

4. I call this paradigm "traditional" because their followers explicitly refer to it as a set of customs and beliefs inherited from their "grandparents." In so doing, I am not implying that these practices have remained unchanged (see Barnes 1992) or that they are the last expression of some "cultural essence" that blossomed in prehistoric times. I am aware that, as any other kind of practice, they are constantly modified and re-invented in relation to present, practical junctures.
During their annual cycle, Cerrillos' pastoralists regularly use four types of locations: main residences or casas (literally "houses"); herding posts or estancias: grazing areas; the town of Cerrillos; and other less frequently occupied, special-purpose locations, such as communal altars, anti-mange baths for llamas, and mineral extracting sites. In the first part of this chapter, I will describe them taking into account the ways they are used, their location, content, and internal structure. Then, I will focus on the principles that organize the settlement system at different time scales.

**MAIN RESIDENCES (CASAS)**

These are the settlements where domestic units and most of their animals (sheep, goats, and the reproductive segment of the llama herd, at least) reside during most of the year, usually for about nine to eleven months, between June-July and the end of the rainy season (March-May). Some households (or some of their members) even stay at their main residences all year round. As a result, with the exception of the town itself, main residences are the largest and most complex locations pastoralists occupy on a regular basis, in terms of the number and diversity of activity areas and associated features and assemblages.

Three households do not follow the general pattern, but stay most of the year at what they call their estancias. These settlements have the size and complexity of main
residences, with the difference that they do not include ritual structures, features, and related paraphernalia, which are kept at a second settlement of similar characteristics, called "casa," but where households only go for short periods during the rainy season. As I argued before, this can be understood as a strategy for maintaining inherited grazing rights over the surrounding areas in the absence of actual use. These casas actually served as main residences at some point in the past, for the same household or for one of the spouses' parents from whom it was inherited. According to my informants, altars and associated activities eventually will be moved out of these settlements, which will then be abandoned or will serve as simple grazing posts.

Activities carried out at main residences include: storage (e.g., pastoral products, agricultural and other non-pastoral resources, caravan's gear and goods for trade, personal belongings, clothes, tools, ritual paraphernalia); food processing and consumption; resting; artifact maintenance and repair; herd management-related activities (e.g., shearing, castrating, earmarking, and butchering); carcass processing and elaboration of pastoral products (e.g., charki, cheese, hides, yarn, weavings, ropes); caravan preparation, departure, and arrival; socializing; and ritual performances (e.g., inflorada, carnival, rites of passage).

Residential locations vary in size and internal complexity. The simplest examples (e.g., Figure 7.1) have a minimum of three roofed structures (nighttime kitchen, kawildu, and storage room) arranged in a U pattern around a courtyard, an outdoor kitchen, one or two corrals, and a generalized discard area. The largest ones have over one dozen roofed structures, a number of open activity areas (llanteros, ovens, storage areas), several
Figure 7.1: Main residence of household 12.
animal enclosures, a small garden, differentiated discard areas, and perhaps a domestic chapel. They all comprise a human habitation sector – that takes the form of one or two compounds and associated activity areas – and a sector where the herds are kept – animal enclosures and sleeping areas for llamas. The contiguity of these two sectors facilitates herd monitoring and a number of management-related activities.

Residences combine a variety of raw materials in their construction. Nowadays, roofed buildings (e.g., kitchens, *kawildus*, storage rooms, bedrooms) are rectangular and most of them have adobe brick walls, mortar-laid stone foundations, and gabled thatch roofs supported with beams made of cactus lumber, *queñoa*, or bundles of *t'ula*. Doors are made of wood or metal. None of these structures exceed three meters in their smallest side (a limit set by the roofing technique), and seven meters was the maximum length recorded. All of them have dirt floors which are periodically levelled adding clay or lime to fill the depressions. Mortar-laid stone walls are less common, but people say they were more popular a few years ago. In "the old days," however, most roofed structures were made of wattle and daub, a constructive system that apparently was abandoned in the course of the 20th century, i.e., within my oldest informants' memory. Twenty-five percent of the main residences still have at least one room called *pauchi* which is made in this way. They are usually small (ca. 2 x 1 m and 1.5 m high) and have an oval plan. Most of them serve as kitchens; others use them to store firewood and seldom used objects, like *chicha*-brewing pots used only on ceremonial occasions. Windbreaks, animal enclosures, and other non roofed features can be made of shrub (*t'ula*), mud (*tapial*), stone (with or without mortar), or packed dung. It is relatively common for a
single structure (e.g., a corral) to be made of more than one of these raw materials. Besides these variations, all main residences in Cerrillos are quite homogenous in their construction quality and style, relying mostly on local materials.

**Location**

Figure 7.2 shows the distribution of the main residences used by the 39 households living in Cerrillos at the time of fieldwork; as I mentioned before, three of them are located in town. First, although both main residences and estancias are dispersed over the entire canton, the general distribution of settlements is random to slightly clustered (variance-to-mean ratio = 1.47; $p < 0.01$ [Hodder and Orton 1976:34]) and even more clustered when only main residences are considered ($V/m = 1.67; p < 0.01$). This trend toward grouping is the combined effect of different factors. One of them is the tendency of main residences to be near permanent water sources (KS test; $p < 0.05$); even houses that are far from the main rivers (e.g., #1, 2, 6, or 7 in Figure 7.2) are relatively close to small cienegos or springs not shown in the map. As indicated in Table 7.1, most water for human consumption is taken from waterholes, but animals are usually taken to these sources to drink at least once every other or every two days.

Another factor that contributes to clustering derives from the tendency of relatives to live close to one another, resulting in relatively small distances between neighbours. The mean distance between nearest neighbours is 1.29 km ($sd = 0.81$) if only actually occupied residences are taken into account ($N = 39$); if usable residences belonging to community members temporarily outside are also included, this figure goes down to 0.91
Figure 7.2: Distribution of settlements in Cerrillos (numbers correspond to households in Table 6.1).
|| hh # | masl | aspect | water | nst mr | reuse | red'cy | comments |
|-----|------|--------|-------|--------|-------|--------|----------|
| 1   | 4.320| 90     | cienego | 1.4    | N     | PH     | 2 more compounds (son & sister in valley) |
| 2   | 4.370| 110    | wh     | 1.4    | R     | H      | 2nd compound unused (son in valley) |
| 3   | 4.130| 56     | wh     | 1.3    | N     | -      | 2nd compound unused (son in valley) |
| 4   | 4.190| 80     | wh     | 1.3    | N     | -      | 2nd compound unused (deceased son) |
| 5   | 4.140| 240    | wh     | 2.0    | N     | H      | 2nd compound unused (sister-in-law in valley) |
| 6   | 4.200| 85     | wh     | 1.4    | N     | -      | 2nd compound unused |
| 7   | 4.180| 194    | wh     | 1.5    | R     | -      | casa briefly used during the summer |
| 8   | 4.270| 120    | wh     | 0.2    | R     | -      | casa briefly used during the summer |
| 9   | 4.075| 50     | wh     | 3.0    | N     | -      | 2nd compound unused (brother in Tupiza) |
| 10  | 4.100| 124    | wh     | 2.3    | N     | -      | 2nd compound unused (brother in Tupiza) |
| 11  | 4.250| 125    | wh     | 1.1    | N     | -      | 2nd compound unused (brother in Tupiza) |
| 12  | 4.025| 200    | wh     | 3.0    | R     | -      | 2nd compound unused (mother-in-law) |
| 13  | 4.170| 79     | wh     | 3.0    | N     | -      | 2nd compound unused (mother-in-law) |
| 14  | 4.070| 110    | wh     | 1.9    | N     | -      | 2nd compound unused (mother-in-law) |
| 15  | 4.070| 270    | wh     | 1.8    | N     | -      | 2nd compound unused (mother-in-law) |
| 16  | 4.100| 50     | wh     | 0.8    | N     | -      | 2nd compound unused (mother-in-law) |
| 17  | 4.110| 86     | cienego | 0.6    | N     | -      | 2nd compound unused (mother-in-law) |
| 18  | 4.130| 92     | cienego | 0.6    | N     | H      | 2nd compound unused (mother-in-law) |
| 19  | 4.118| 160    | wh     | 0.8    | N     | P      | 2nd compound unused (mother-in-law) |
| 20  | 4.150| 105    | wh     | 0.8    | N     | -      | 2nd compound unused (mother-in-law) |

Notes: aspect=terrain aspect in degrees from north; water=type of water source (wh=waterhole); nst mr=distance in kilometers to the nearest main residence (only those effectively occupied at the time of fieldwork); reuse=residence was built from start by current occupants (N) or was inherited (R); red'cy=the location shows traces of a previous occupation in the recent past (H) or in prehistoric times (P); nd=no data available.
Table 7.1: Locational attributes of main residences (continued).

<table>
<thead>
<tr>
<th>hh #</th>
<th>masi</th>
<th>aspect</th>
<th>water</th>
<th>nst mr</th>
<th>reuse</th>
<th>red'cy</th>
<th>comments</th>
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<td>21</td>
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<td>cienego</td>
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<td>N</td>
<td>PH</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>4.080</td>
<td>194</td>
<td>river</td>
<td>3.1</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>4.140</td>
<td>85</td>
<td>cienego</td>
<td>1.6</td>
<td>N</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>4.280</td>
<td>nd</td>
<td>nd</td>
<td>1.7</td>
<td>R</td>
<td>nd</td>
<td>casa briefly used during the summer</td>
</tr>
<tr>
<td>25</td>
<td>4.190</td>
<td>100</td>
<td>wh</td>
<td>1.7</td>
<td>R</td>
<td>PH</td>
<td></td>
</tr>
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<td>R</td>
<td>-</td>
<td></td>
</tr>
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<td>wh</td>
<td>0.3</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
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<td>4.210</td>
<td>90</td>
<td>wh</td>
<td>0.3</td>
<td>N</td>
<td>-</td>
<td>belongs to hh27's brother in Tupiza</td>
</tr>
<tr>
<td>29</td>
<td>4.280</td>
<td>112</td>
<td>wh</td>
<td>0.2</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>4.216</td>
<td>10</td>
<td>wh</td>
<td>0.6</td>
<td>N</td>
<td>H</td>
<td>used only for 3 months in the summer</td>
</tr>
<tr>
<td>31</td>
<td>4.184</td>
<td>75</td>
<td>wh</td>
<td>1.4</td>
<td>N</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>4.170</td>
<td>80</td>
<td>wh</td>
<td>1.0</td>
<td>N</td>
<td>-</td>
<td>2 more compounds (sons at mining centers)</td>
</tr>
<tr>
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<td>4.150</td>
<td>5</td>
<td>spring</td>
<td>0.7</td>
<td>N</td>
<td>P</td>
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<td>wh</td>
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<td>N</td>
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<td>in town</td>
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</table>

Notes: aspect=terrain aspect in degrees from north; water=type of water source (wh:waterhole); nst mr=distance in kilometers to the nearest main residence (only those effectively occupied at the time of fieldwork); reuse=residence was built from start by current occupants (N) or was inherited (R); red'cy=the location shows traces of a previous occupation in the recent past (H) or in prehistoric times (P); nd=no data available.
km (sd = 81; N = 55). In two cases (#27-28 and 8-29), main residences belonging to siblings are located within 500 mts of each other, and in another eight, there are one or two more residential compounds in their immediate vicinity which belong to close, mostly cosanguineal relatives currently living outside the canton (Table 7.1, vid Chapter 9). Similar kinship ties bind other households living in relative close proximity (e.g., 17-18-19; 21-22-38; 35-36-39).

Once a general area has been chosen, the search for warmer, sheltered places seems to determine the final location of these settlements. Most of them are situated in small washes, against buttes, and other landscape features that offer protection from the wind, and tend to occupy east-facing slopes (Figure 7.3). Localized, warmer conditions may also occur in response to other factors which are difficult to define or predict. Herders say that before building a house or grazing post, they visit the chosen place at night to make sure it is not too cold and may even take the llamas there for a couple of days. "to see if they like the place."

Artifact Content

Most of the items herders own and consume are kept at main residences, and many of them are used and discarded there. These can be divided in 18 functional categories that include both consumable and durable elements: primary pastoral products; agricultural products; firewood; wild plants gathered for other uses; salt; cooking vessels; serving vessels; food storage containers; chicha brewing vessels; general containers; kitchen utensils and accessories; weaving tools; clothing and weavings; pastoral-caravan
Figure 7.3: Terrain aspect at main residences and herding posts.
Table 7.2: Consumable and durable elements present at main residences.

<table>
<thead>
<tr>
<th>Category</th>
<th>Items</th>
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<tbody>
<tr>
<td>PASTORAL PRODUCTS</td>
<td>meat; lard; blood; milk-cheese (goats only); bone; hides; wool; dung</td>
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<tr>
<td>AGRICULTURAL PRODUCTS</td>
<td>maize; wheat flour; vegetables; fruits; alcohol; groceries; coca leaves</td>
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<td>FIREWOOD</td>
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<tr>
<td>WILD PLANTS (other uses)</td>
<td>medicinal plants (pupusa, chachacoma); edible roots (ancañusa, llullucha)</td>
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<tr>
<td>SALT</td>
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<tr>
<td>COOKING VESSELS</td>
<td>cooking pot; frying pan; tea kettle; coffee brewer</td>
</tr>
<tr>
<td>SERVING VESSELS (DAILY USE)</td>
<td>plate; cup; serving bowl; pitcher; sugar container.</td>
</tr>
<tr>
<td>CHICHA VESSELS</td>
<td>virque; large olla; p’uño; ceramic jar (yuro); chuiayuro; calabash bowl (tutuma)</td>
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<tr>
<td>FOOD/WATER CONTAINERS</td>
<td>bucket; jerry can; alcohol can; bottle; basket; wash basin; plastic bag; gunny sack</td>
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<tr>
<td>KITCHEN UTENSILS AND ACCESSORIES</td>
<td>knife; spoon; ladle; cutting board; grater; funnel; blow pipe; stove; brazier; grill; fire rod; dust pan; matches; rags; broom; dust pan; mortar and mano; flat metate and mano; anvil; pecking stone; hand axe; candle; oil lamp</td>
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<tr>
<td>WEAVING TOOLS</td>
<td>spindle; stationary Spanish loom; portable field loom; metal stakes; weaving accessories; industrial dye</td>
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<tr>
<td>WEAVINGS - CLOTH ITEMS GENERAL</td>
<td>personal clothing; blanket; bag for coca leaves (ch’uspa); burden-carrying cloth (awayo)</td>
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<tr>
<td>PASTORAL-CARAVAN TOOLS</td>
<td>shearing scissors; rope; saddle bag; fruit carrying rack; sling shot; bell (animero); coloured wool</td>
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<tr>
<td>OTHER TOOLS</td>
<td>sieve; shovel; axe; pick; chissel; saw; hose; hammer; pliers; adobe brick cast</td>
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<tr>
<td>CONSTRUCTION SUPPLIES</td>
<td>wire; lumber; pipes; door; window; nails; tin sheet for roofing; adobe brick; tin chimney.</td>
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<tr>
<td>FURNITURE</td>
<td>bed; mattress; cupboard; suitcase; wooden box; stool; shelve; low chair</td>
</tr>
<tr>
<td>MISCELLANEOUS OBJECTS</td>
<td>bicycle; bicycle pump; radio; tape recorder; batteries; musical instrument; clock; pen; notebook; confetti; Tata Rey</td>
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</table>
artifacts; other tools; construction supplies; furniture; and miscellaneous objects. In Table 7.2 the main items included under each category are listed.

It is worth noting that apart from pastoral products, clothes and other objects made of wool, locally gathered wild plants, and some construction supplies, all other items come from agricultural areas to the east, salt-extracting communities around Salar de Uyuni, or urban markets. These "complementary resources," that constitute most of the items llameros use, consume, and discard, can be extracted or produced directly by pastoralists in the valleys and other areas; purchased in the city, at mining centers, or from truckers and "bicycle peddlers" that come to Cerrillos; traded during caravan journeys at salt-extracting, pottery-making, or agricultural communities and fairs; and/or received as presents from relatives living away from the canton (see Chapter 9).

Both metal and clay vessels are currently used. Metal ones are lighter, more durable, and shock resistant. All these characteristics make them easier to transport, therefore, they have replaced ceramic ones in caravan trips long time ago. Clay pots, however, continue to be consistently used at home because they are cheaper, technically and culturally necessary for a number of activities (e.g., chicha brewing, storing, and serving, various libations), and according to some, give food a better taste. Some people even believe rust to be poissonous and therefore consider metal pots inadequate for cooking. The main classes of ceramic pots currently used in Cerrillos for daily cooking are illustrated in Figure 7.4. Chicha-related vessels and large ollas used for preparing food for many people at feasts are all made of clay. These artifacts, that show clear differences of shape and size with those used in more mundane contexts, are illustrated in
Figure 7.4: Cooking vessels used daily.

- **olla for mote** (corn)
  - 1.6 l

- **small olla**
  - cooking stews, soups
  - 3.4 l

- **medium olla**
  - cooking stews, soups
  - 6 l

- **olla for aji** (hot peppers)
  - 0.6 l
virque: kneading cornmeal for chicha 100lts

large olla: boiling water for chicha (17lts)

large olla: food preparation for feasts 21lts

p'ño: chicha storage-serving 18lts

yuro: chicha serving 3.5lts

chuia yuro: ritual libations 0.5lt

Figure 7.5: Vessels used for chicha and feasts.
Figure 7.5. Metal and plastic items, however, have entirely replaced ceramic ones for serving and storing liquids other than *chicha*.

In the next section, when describing the activity areas at residential locations I will make reference to the places where different kinds of items are used, stored, and discarded.

**Activity Areas**

All residential locations combine in various ways a limited number of structural components or activity areas; some of them are defined by formal structures while others have no associated features. These are: (1) courtyard; (2) outdoor kitchen;³ (3) indoor kitchens; (4) storage rooms; (5) *kawildu*; (6) sleeping areas; (7) discard areas; (8) ritual areas; and (9) animal enclosures and sleeping area. Less frequently, other activity areas may develop in relation to windbreaks, stationary looms, and waterholes.

**Courtyard**

All main residences have at least one courtyard or well-maintained open area defined by the arrangement of rooms in a U pattern open toward the rising sun. Room doorways face this area which centralizes the circulation within the domestic space. On occasion, courtyards may be closed in all four sides, leaving one or two entryways, or may have buildings in only two sides (in Table 7.3 called "closed" and "incomplete", respectively). The only features sometimes found in these areas are benches along the walls, and perhaps a stone altar or *mesa* ("table") on the southwest quadrant, near the
Table 7.3: Activity area composition of main residences.

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Table 7.3: Activity area composition of main residences (continued).

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Notes: Main residences of households 24, 32, and 33 were not mapped. Households 34, 36, and 39 reside in town. Household 35 occupies temporarily the main residence of a household living in Tupiza. unrf bldg = old rooms without roof. * = main residences occupied only for brief periods during the summer. courtyard: U = U shaped; C = closed; I = incomplete.
doorway of the *kawildu*. Some of them have a wire running across where meat is hung for sun-drying. Some courtyards have small recesses formed by spaces left between rooms which are used as outdoor storage areas for hides, bones, various containers, firewood, construction supplies, tools, and a variety of broken or useless artifacts that are kept for future recycling.

Courtyards provide a space that is protected from the west winds that prevail during the dry season but has the benefit of direct sun light. They stage a number of activities carried out during the day such as spinning and weaving, processing hides, butchering, grinding corn, eating, repairing clothes, tools, or bicycles, washing clothes, bathing, children's play, interacting with visitors, or resting. The U shape of courtyards also make them suitable for corralling the herd when it is convenient to have it close to the storage areas; for instance, when butchering, shearing, or loading and unloading caravans. In these opportunities, the animals are driven into the courtyard, closing the open side of the U with a rope and perhaps a couple of blankets hanging from it. This possibility is so important that residences that only have a closed courtyard may have a corral specially built against the habitation compound for this purpose. Meat drying is also an activity normally carried out in this area; boneless pieces of meat, animal heads, and distal portions of limbs (metapodia and phalanx) are hung from a wire running across the courtyard, specially during the first few months of the dry season, when most of the butchering for later consumption takes place.

Courtyards also play a central role in some ceremonies. In All Saints Day, the stone *mesa* or a wooden table if this feature is not present, is used to offer a supper for the
dead; neighbours that visit the house during Carnival dance, eat, drink, and play music in the courtyard; while the departure and arrival of caravans are celebrated in this area.

Artifacts like grinding stones, wash basins, axes, shovels, field looms, unprocessed wool, hides for sitting, small wooden stools, storage vessels, and braziers, among others, may be kept in this area while people are staying at main residences. These objects, however, are usually put away when moving to grazing posts or leaving the settlement for several days. Given the variety of activities that take place in courtyards, and their importance for circulation and as reception areas for visitors, they are well maintained, regularly wetted, and kept free of debris, except for small amounts of refuse produced by the activities mentioned above, that may temporarily sit there before final disposal. Most courtyards are regularly swept.

**Outdoor Kitchen**

Most outdoor kitchens have a circular, 0.80 to 1 m-high windbreak built by piling up bundles of *t'ula*. These features, called *llanteros* (*llanta* = firewood) and used to protect other activity areas as well, can be up to one meter wide and so dense that they do not let any wind go through. In a few cases the *llantero* has been replaced by an adobe brick or stone wall of similar height. Outdoor kitchens are between 2.5 and 3 m in diameter, usually have an entrance facing east or north, and sometimes have a slightly depressed floor dug 10-20 cms below the surrounding surface. They always have a central hearth, or *q'oncha*. This is a mud-plastered shallow pit, with four mud appendices that protrude toward the center, dividing the hearth opening into four circular
quadrants where the base of cooking pots can fit in a stable position. Immediately outside these structures or near them, most houses have a domed oven used to bake bread or roast meat.

Outdoor kitchens are used during the day during the dry season, mostly for cooking and eating, but also for repairing tools and clothes, spinning, weaving, and socializing with close friends or relatives that may come to visit. They are also used in the evening when cooking for a lot of people (for ceremonies, cooperative labor parties, or during simple visits). Some households prepare maize beer or chicha in this area as well, while others have specially designated areas for this purpose. These are one of the most intensively used areas in residential locations and usually have a number of artifacts in them. While the household is staying at the settlement, it is common to observe here several cooking pots of different sizes and with different contents (boiling water, maize, soup, food for the dogs) on and around the hearth, storage vessels, plates, cups, silverware, ladles, a bucket or jerry can with water, wash basins, cans and small bags with sugar, salt, flour, and spices, stone mortars, blow pipes, firewood, fire rods, old pieces of clothing, spindles, yarn balls, and perhaps a field loom. When staying in this area, people sit on top of hides around the hearth with their backs against the windbreak.

In addition to the actively used artifacts just mentioned, a number of objects for future use or recycling (e.g., empty cans, rags, pieces of rubber, bottles, cracked pots, bones, grills, wire) are stored on top of the llantero or stuck in it. Unlike the functional elements mentioned before, these items usually remain here during seasonal and even
permanent abandonment. The outside of outdoor kitchens serve also as open storage areas for bones, hides, construction supplies, and firewood.

A lot of refuse is produced in outdoor kitchens. This may be directly tossed on top of the llantero or over it; while some is temporarily stored inside the structure or immediately outside it in small dumps or collected in old cans, pots, and buckets. Food waste and leftovers are then given to chickens and dogs who spread them around the habitation area, while the rest is deposited in generalized discard areas. Hearths are cleaned daily, discarding ashes in special dumps located far away and downwind from the compound. Even when these areas are regularly maintained, it is common to observe a number of small items on the ground that escape cleaning.

**Indoor Kitchen**

Every main residence has at least one of these structures: some have two or three. They occupy one of the two arms of the U that defines the courtyard. The majority are rectangular adobe-brick rooms (range 3-6 m²) with a metal stove with chimney located against a wall in front of the doorway. One out of four main residences have – in use or just recently abandoned – small (1.5 x 2 mts), oval wattle and daub kitchens with q'oncha hearths in the middle of the structure (e.g., Figure 7.1). Additional common features at indoor kitchens (in the adobe-brik versions at least) are storage niches, shelves, small ventilation openings in the upper part of the wall, and low platforms in one or both ends of the room, used for sitting, storing, and sometimes for sleeping.
Indoor kitchens are mainly used for cooking, eating, and resting in the evening; more rarely they are used for sleeping. It is common for all family members to gather here at the end of the day to share supper. If a relative or close friend arrives at this time, he or she will be received in this area. This is also the place where people have their first meal of the day, usually before dawn. During the rainy season, daytime activities that usually take place in the courtyard or outdoor kitchen may also be moved indoors to this structure. They also serve to store most of the artifacts used in outdoor kitchens when the main residence is temporarily abandoned.

Artifacts used in this area are similar to those listed for outdoor kitchens. The main differences are in the occasional presence of furniture (shelves, stools) and candles or oil lamps. Like in their outdoor counterparts, refuse is usually collected in old containers, plastic bags, or piled for later discard in the same general areas.

"Kawildu" or "Mesawasi"

This is typically the largest room of the compound (range 10-21 m²) and occupies the bottom part of the U-pattern, with its doorway facing east. The only feature commonly found inside kawildus is a bench running along the wall, usually in the southern half of the structure. Some of them also have niches.

The kawildu is the formal reception area of main residences. Here is where feasts and ceremonies are held, where strangers or important visitors are received, and where ritual paraphernalia is kept. Among "traditionalists," a small wooden table that serves as an altar or mesa (hence the name of mesawasi) is kept in the southern end of the room.
Llama bells, richly decorated woven bags or *ch'uspas* filled with coca leaves, flamingo feathers, cornmeal, and confetti, candles, kneedles and coloured yarn, small bottles with alcohol, *k'ichiras* (a dry tissue bag filled with small cuts from different parts of the llama), chicha pitchers and calabashes to drink it, are just some of the objects normally found on this altar. Musical instruments (cornet, drums, *charango*) and llama fetuses (*sullis*) may be hanging from rods or wooden pegs driven in the walls around it. The two individuals who own *Tata Reyes* in Cerrillos, keep them wrapped in a white cloth in the southeast corner of their *kawildus*, surrounded by their "favourite" offerings (alcohol, *ch'uspa* with coca leaves, special foods made with wild plants). The northern half of the *mesahuasi* is usually devoted to storage or, in the smallest residences, can serve as a sleeping area (Figure 7.1). Items commonly stored in these structures are ropes, wool, hides, saddle bags, salt bloks, and bicycles. If used as a sleeping area, it may also have a bed or sleeping platform, blankets, a cupboard, suitcases, and old recycled dinamite boxes,* commonly used to keep clothes.

**Storage Areas**

All main residences have at least one storage room and most have several. They are quite variable in size, with a range of 6-12 m² for adobe structures, and smaller sizes (e.g., 3 m²) for wattle-and-daub ones. When only one storage room is present, it contains all kinds of items, including pastoral and agricultural products, medicinal plants, salt, ropes, saddle bags, weavings, *chicha* brewing and storage pots, cooking and serving vessels not used, and a variety of tools. When more of these structures are built they
tend to become more specialized. Food; hides, wool, and weaving tools; caravan gear and salt; pottery, specially chicha brewing and other seldom used vessels which are not kept in the kitchen areas; and general tools and construction supplies, tend to be stored separately. Storage rooms usually do not have any features inside: boxes, sacks, cans, pots, wool bundles, wheel barrows, or salt blocks are just piled along the walls on the ground and up to the ceiling, while ropes, meat, plants, loom parts, bicycle wheels, clothes, and tools hang from nails or pegs in the walls and from the beams. Spindles, needles, knives, and other pointed objects are directly stuck in the roof thatch. The only two cases of storage rooms built in wattle and daub I observed were used for chicha brewing vessels.

In addition to these, most houses have one or more open areas where construction supplies, hides, old containers, and a variety of items kept for future recycling are stored. Dead spaces between rooms, the back side of the habitation compound, or the outside of llaneros are places commonly used for this purpose. On occasion, an open one-by-one meter square feature with a low (0.6-1 m) adobe wall is built to protect the stored artifacts from animals. When the residence is temporarily abandoned, these structures are covered with tin sheets or hides.

**Sleeping Areas**

The areas used for sleeping are quite variable. In small residences, there may be no "bedroom" as a separate structure. People sleep in the kawildu, in what is conceived primarily as a storage room, or in the indoor kitchen. As houses are expanded, a separate
room for this purpose may be built. As a rule, however, it is always associated with a significant amount of storage, not only of clothes and personal belongings (which are always associated with sleeping areas), but of wool, salt, groceries, or specially valued items, such as bicycles or wall clocks. Extended family residences may have more than one bedroom, usually one per nuclear family, while those having old persons living with them may have a separate sleeping area (if not a formal bedroom) for them. Older households may have one or more bedrooms or sleeping areas prepared within storage rooms for close relatives, mostly married offspring living away from Cerrillos, who regularly come back for short periods.

The only features sometimes found in bedrooms are sleeping platforms. These are solid adobe benches, about 0.6 m high by 1 m wide that ran from wall to wall in one or both extremes of the room. Bedroom walls are commonly decorated with newspapers and posters. Besides blankets and clothing, artifacts that are commonly found in sleeping areas are candles, oil lamps, and radios. The only refuse found in these areas are small, lost items.

Discard Areas

Four kinds of discard areas can be recognized at main residences: a general discard area, an ash dump, a bone burning area, and a dung heap. General discard areas are large (up to 1,000 m²) concentrations of trash, mostly located east (i.e., downwind) of the main compound, where useless items and the refuse from most activities taking place in the habitation area are haphazardly thrown. The action of gravity, dogs, and trampling
further extend and mix up the content of these areas, which in old houses can reach densities of hundreds of items per square meter. Natural depressions or pits left when making adobe bricks for house construction, are also filled with trash. Among the residues commonly found here are food waste (specially seeds and bones, burned and unburned), wool, pieces of rope and colored yarn from the animals' earmarks, fragments of old clothes, saddle bags, and other weavings, shoes, fur, lumber, wire, metal fragments, whole bottles and shards, cracked pots and sherds, empty cans, strainers, graters, metal plates, lids, silverware, pieces of salt, paper, rubber, and plastic, pencils, batteries, etc. General discard areas also serve as sources of items for recycling; it is not uncommon to see people reclaiming an old piece of rubber or wire, or a large sherd to feed the dog in or to use as a censor.

As mentioned before, ashes tend to be dumped in a separate place, usually farther away and downwind from the habitation area, taking advantage of crevices, pits, and other features that may prevent ashes from spreading with the wind. Another specialized discard area that can be observed near habitation compounds, usually to the west, are concentrations of burned bone, one or two meters in diameter. Formerly, people used to collect all llama bones, even those found accidentally in the countryside, and burn them "behind" the house. It was thought that in this way, these dead llamas would come back to the herd. In the last few years, this practice has been discontinued since most people have begun to sell bones to truckers who take them to fertilizer manufacturers.

Finally, most residences and other locations where livestock is slaughtered (i.e., altars, the town) have an area where the entrails are emptied. These features are
conceived as analogous to the dung concentrations that mark llamas’ sleeping areas: in the same way that live animals return daily from the field to their sleeping areas, slaughtered ones return to the house as *multiplico* (offspring). Moreover, it is believed that if the dung is not kept in one place, the herd may disperse and animals may get lost during their caravan journeys. Over time, large heaps of dung are formed in this way; some people may even build a stone circular feature around them to prevent it from dispersion.

**Ritual Areas**

I have mentioned the presence of ceremonial features in several structures, like the stone *mesas* in courtyards or the *caravanners mesas* in *kawildus*. Other features occupy discrete areas which are only used in ceremonial activities. These include *virgines*, *kuyuris*, *talvaritas*, and chapels. It should be noted that these features are only present in main residences belonging to what I have called "traditionalist households" in a previous chapter; several informants asserted that, as part of their conversion process, evangelical Christians got rid of this kind of features and associated objects.

*Virgines* are small altars located east of the residential compound or the corrals, used mainly for the fertility ceremony of *inflorada*, but also in other ritually-charged events during the year. About one half of them keep separate *virgines* for llamas and sheep. Pastoralists relate these features to Pachamama, therefore, to the reproduction and sustenance of the herd. They consist of several white rocks (usually unmodified quartz cobbles) with shapes similar to llamas or sheep. Dung is usually piled against these
rocks, which mimic a white herd marching toward the rising sun. During inflorada, wirgines are smoked with k'owa using a large ceramic fragment as a censer, hence the frequent presence of sherds around these features. Wirgines also receive offerings of grass, blood, and dung during the rest of the year whenever an animal is slaughtered, and they are smoked in these and other occasions as well (e.g., Pachamama's day [August 1st] or Espíritu).

A closely related altar is known as kuyuri or k'owana punta. This is a small cairn of white cobbles located on some elevation or small hill near the house. In the same way that Wirgines are material referents of Pachamama in the domestic space, kuyuris are related to the Mallkus. The day before inflorada is held, or the same day at dawn, men go up to this point and offer alcohol, incense, coca, and lard to the Mountain Spirits (vid Chapter 8).

Talvaritas are rock cairns located east residential locations, sometimes at several hundred meters. This is the point were family members formally bid farewell to caravans when they leave for the eastern valleys and the place where they are formally welcome. I have seen these features in only two cases; both had ceramic fragments associated.

Two main residences have also Catholic Chapels devoted to the cult of the patron saints. These are isolated adobe rooms facing east, located on high places near the habitation compound (e.g., Figure 7.14). They are only large enough to accommodate the saint's image and one or two persons. They are used during Christian rites of passage and the day of the particular saint to which they are devoted, when household members and neighbours offer incense, coca, alcohol, and candles to the image.
Animal Enclosures and Sleeping Areas

The first feature that one notices when approaching pastoralists' settlements are the extense accummulations of dung that mark the sleeping areas for llamas. These dark stained areas can be up to 200 mts long and they are typically located on a sheltered slope next to the residential compound. Frequently, a windbreak is added for extra protection. These features, which can take the form of a 10-20 m straight line, an L. or a U open to the east, are made with 'tula. stones, or adobe bricks. Most llamas spend the night free in these areas.

Most main residences have also one or more llama and sheep corrals, together with goat shelters, chicken coops, and dog dens if they happen to have these animals (see Table 7.3). Llama corrals have usually a square or rectangular plan, with sizes that range between 30 and 300 m², and tend to be made with adobe bricks or packed mud (tapia), although stone, dung, and wattle are occasionally used as well. When the entrance is not placed on the lowest part of the structure, they may have small openings at the bottom in this part to facilitate draining during the intense summer rains. Llama corrals serve mainly to keep the females and crias overnight between December and June, when they are more vulnerable to the attack of predators. They are also used to enclose the rest of the herd for castration, shearing, earmarking, and sometimes for slaughtering.

Sheep corrals are smaller (range 20-70 m²); they tend to be circular and built of wattle. Frequently, they have one or more shelters connected to them or pecariously roofed areas to protect the lambs from the morning cold. Goat enclosures are similar but
smaller and invariably have shelters which are sometimes semisubterranean. Both sheep and goat herds spend the night in their corrals. In some cases, both kinds of animals are kept together.

Finally, most houses have chicken coops and dog dens in the vicinity of the habitation compound, usually built against the back walls of rooms.

**Other Activity Areas**

Many residences (69%) have additional places near the habitation compound, protected with t'ula windbreaks or llaneros, where people spend part of the day. Unlike outdoor kitchens, they usually do not have hearths, although a brazier may be taken there for heating. Activities commonly carried out in these areas are washing and repairing clothes, bathing, spinning, and weaving.

Eight out of the 32 main residences mapped had (up to three) additional outdoor hearths, with or without windbreak to protect them. Most of them are used for making chicha and cooking for feasts. Unlike q'onchas, these hearths tend to be larger sometimes rectangular in shape (up to one meter in their long side) and are not plastered. Some are slab-lined and others have a series of unmodified rocks to support the weight of the large cooking vessels used in these activities.

It was mentioned previously that, unlike women, men weave with the Spanish, stationary loom. These artifacts are usually placed near the main residence but away from the habitation compound and most intensively occupied areas. It is common to see them between 100 and 300 m from the compound, on high places with good visibility.
Another activity carried out in the periphery of main residences is hide drying. Hides are extended directly on the ground and secured in this position by tying them to four pegs driven in the ground or putting a few rocks on top of them along its edge. Tomka (1994:207) reports the presence of stone circles resulting from this activity around pastoral residences in North López.

If there are no permanent sources of water (cienegos, springs) in the vicinity, both main residences and grazing posts build a water hole nearby where they extract water for drinking and other uses. They tend to be located in dry stream beds, where the water table is high. Their openings are wedged with stones or cement and covered with tin sheets or a wooden board. The water is extracted with a bucket or recycled can hanging from a rope or a chain. Washing clothes and dishes and personal hygiene are some of the activities that frequently take place next to water holes or springs if there are any near the residence. Small windbreaks may be built next to them to shelter people during these chores.

Finally, five residential locations include fenced cultivated areas. Except for hh#1, that has almost one hectare of alfalfa (which is not cultivated every year), these are small garden plots (15-80 m²) used to grow fodder (barley, alfalfa). Toward the end of my fieldwork period, several households received from a non-governmental organization raw materials to build greenhouses, and began to grow small amounts of garden vegetables (e.g., tomatoes, lettuce, carrots) for domestic consumption.
The Life Cycle of Main Residences

As I mentioned before, residential locations show considerable diversity in size and complexity, even when they maintain a very regular basic structure. As far as the human habitation sector is concerned, this variability can be reduced to three or four fundamental schemes which correspond to different stages residences go through in their life cycle. This cycle is related in part to the regular development of domestic groups, which experience patterned changes in size, composition, and demands, and also to the history of the settlement itself, e.g., whether it was inherited, total occupation length, etc. Settlement cycles can only be fully appreciated in medium time scales; a good approximation to these patterns, however, can be obtained by relating formal schemes to the composition of households occupying them and some of the information they can give about the history of their dwelling (see Table 7.4). Variability in the number and size of animal enclosures and shelters are probably the result of similar cycles experienced by herds, but these are more difficult to reconstruct from informants' accounts.

Stage I residences comprise a minimum of three roofed structures (indoor kitchen, kawildu, and storage room) arranged in a U-pattern, and an outdoor hearth area. Some of them may have an additional room for sleeping and or storage, and a second outdoor activity area. They correspond to young households who have recently built they first house (Figures 7.1, 7.6); mature, nuclear-family households who have built a second house, abandoning the original one (Figures 7.7, 7.8); or mature households who have migrated time ago to the city or to the valleys, occupying their residences sporadically.
Table 7.4: Life cycle of main residences.

<table>
<thead>
<tr>
<th>Stage</th>
<th>formal characteristics</th>
<th>occupants</th>
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<tr>
<td>Stage I</td>
<td>simple U pattern</td>
<td>- young, nuclear family households</td>
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<tr>
<td></td>
<td>3-4 roofed structures</td>
<td>- mature households' 2\textsuperscript{nd} or 3\textsuperscript{rd} m.r.</td>
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<tr>
<td></td>
<td></td>
<td>- mature households living outside</td>
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<tr>
<td>Stage II</td>
<td>complex U pattern</td>
<td>- mature households with or w/o</td>
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<td></td>
<td>specialized outdoor activity areas</td>
<td>migration offspring</td>
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<tr>
<td></td>
<td>5-7 roofed structures</td>
<td></td>
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<tr>
<td>Stage III</td>
<td>more than one indoor or outdoor kitchen; (2 courtyards)</td>
<td>- extended family households</td>
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<tr>
<td>Stage IV</td>
<td>remodeling</td>
<td>- old households</td>
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<tr>
<td></td>
<td>partial abandonment</td>
<td>- young or mature households with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inherited residence</td>
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</tbody>
</table>
Figure 7.6: Main residence of household 6.

Figure 7.7: Main residence of household 31.
Figure 7.8: Main residence of household 22.
Figure 7.9: Main residences of household 10 (A) and of a relative currently living outside the cantón (B).

Figure 7.10: Main residence of household 27 and 28.
Figure 7.11: Main residence of household 37.

Figure 7.12: Main residence of household 15.
Figure 7.13: Main residence of household 13.

Figure 7.14: Main residence of household 8.
Figure 7.15: Main residence of household 23.

Figure 7.16: Main residence of household 29.
Figure 7.17: Main residence of household 3.
Figure 7.18: Main residence of household 16.
Figure 7.19: Main residence of household 7.

Figure 7.20: Main residence of household 25.
and for short periods (Figures 7.9B, 7.10A), or who keep only a few of their members in Cerrillos looking after their animals (Figures 7.9A, 7.11).

Stage II residences have several roofed structures used as bedrooms and for different kinds of storage and perhaps more specialized outdoor areas than Stage I dwellings, but maintain only the two basic kitchen areas (indoor and outdoor) and a single courtyard. Some of the sleeping/storage rooms may belong to married sons or daughters who use them only sporadically because they spend most of their time away from the canton engaged in complementary economic activities. They belong to mature households residing permanently in Cerrillos, who have been occupying them for a while (Figures 7.12-7.14, 7.10B).

Stage III residential locations are characterized by more than one indoor (sometimes also outdoor) kitchen area, reflecting the presence of more than one nuclear family in the domestic group. They may also have a second courtyard, usually an incomplete one (Figures 7.15, 7.16), or may even develop into two separate habitation compounds (Figure 7.17).

Stage IV is last stage in the life cycle of main residences. Habitation compounds in this stage are relatively large, have the same basic structure as those in stage II or III (depending on whether they housed nuclear or extended family households at some point of their history), but show many traces of reuse in the form of abandoned structures (rooms without roof, foundations of old corrals) or major remodeling. These correspond to old people whose children have married away, migrated, or built their own separate
dwelling in Cerrillos (Figure 7.18), or to inherited houses that have been modified to suit the needs of their new occupants (Figures 7.19, 7.20).

Only eight of the 39 currently occupied residences (20%) where inherited, and none of them has been used for more than two generations. This establishes a maximum use-life period of about 70-80 years for this kind of settlement. Most of them, however, are never occupied this long. Several domestic groups are living in their second or even third residence. The reasons given for these relatively frequent changes are varied. Houses may be abandoned because they are hit by lightning, a member of the family dies, there are too many neighbours in the area so the animals do not have enough space to graze, it is too cold, or the llamas simply "don't like the place." These rejected residences, like some inherited ones, may become grazing posts or be maintained for several years, even when not used, as a way of sustaining rights over surrounding grazing areas.

In addition to the houses effectively occupied, I recorded 16 main residences that were kept functional (i.e., had their roofs in good conditions, their doors locked, and stored a number of usable items) but were not inhabited on a permanent basis. These belong to community members who do not live in Cerrillos anymore, but sporadically return to visit relatives and check on animals they may still own. If all functional settlements are considered, these vacant residences represent 29% of the total (N = 55).
HERDING POSTS (ESTANCIAS)

Most herders have at least one more settlement (up to seven), where they can move their livestock in order to take advantage of additional grazing opportunities, simultaneously allowing the range around main residences to recuperate. I recorded 33 of these settlements that were actually in use (Table 7.5); they belonged to 21 (54 %) of the domestic units effectively residing in Cerrillos during the fieldwork period. Almost every household, however, declared to own one or more estancias, even when they did not occupy them, so the actual number of usable settlements of this kind in the canton is much higher.

Herding posts are occupied by entire households or by only one or two of their members (usually adults). Some of them move there with all their animals, others may take only their llamas or even only their male llamas. They are used between the end of the rainy season and during the first part of the dry season (March-July),\(^5\) for lapses that range between two weeks and three months. As I mentioned before, three households stay most of the year at what they call their estancias; in addition to these, five herding posts function in what used to be main residences, of the same household or of some relative from whom they were inherited. This means that eight of these settlements (24 %) show the size and functional characteristics of main residences (e.g., Figure 7.21).

The range of activities that take place in these locations is narrower than in casas. They include: (1) herd monitoring; (2) food processing and consumption; (3) limited storage (only food, artifacts, and raw materials needed during the limited period when these settlements are occupied); (4) tool maintenance and repair; and (5) some
Table 7.5: Locational attributes of herding posts.

<table>
<thead>
<tr>
<th>hh #</th>
<th>masl</th>
<th>aspect</th>
<th>water</th>
<th>dis-mr</th>
<th>nst mr</th>
<th>nst set</th>
<th>reuse</th>
<th>redc</th>
<th>comments</th>
</tr>
</thead>
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<tr>
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<td>4.230</td>
<td>65</td>
<td>nd</td>
<td>1.8</td>
<td>=</td>
<td>1.7</td>
<td>R</td>
<td>-</td>
<td>formerly relative's main residence</td>
</tr>
<tr>
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<td>80</td>
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<td>=</td>
<td>3.2</td>
<td>nd</td>
<td>nd</td>
<td></td>
</tr>
<tr>
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<td>4.210</td>
<td>0</td>
<td>nd</td>
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<td>=</td>
<td>3.8</td>
<td>1.3</td>
<td>nd</td>
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</tr>
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</tr>
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<td>nd</td>
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<td>255</td>
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<td>0.6</td>
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<td>nd</td>
</tr>
<tr>
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<td>wh</td>
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<td>=</td>
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<td>2.5</td>
<td>nd</td>
<td>stay here most of the year</td>
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<tr>
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<tr>
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<td>river</td>
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<td>=</td>
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<td>1.4</td>
<td>N</td>
<td>P</td>
</tr>
<tr>
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<td>302</td>
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<td>1.4</td>
<td>N</td>
<td>P</td>
</tr>
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<td>=</td>
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<td>1.4</td>
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</tr>
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<td>0.6</td>
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</tr>
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<td>nd</td>
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<td>66</td>
<td>wh</td>
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<td>=</td>
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<td>P</td>
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<td>N</td>
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<td></td>
</tr>
<tr>
<td>34</td>
<td>4.150</td>
<td>70</td>
<td>spring</td>
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<td>1.7</td>
<td>R</td>
<td>-</td>
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</tr>
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<td>=</td>
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<td>=</td>
<td>0.8</td>
<td>N</td>
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</tr>
<tr>
<td>37c</td>
<td>4.100</td>
<td>120</td>
<td>river</td>
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<td>=</td>
<td>1.3</td>
<td>N</td>
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<td></td>
</tr>
<tr>
<td>37d</td>
<td>4.100</td>
<td>180</td>
<td>wh</td>
<td>4.2</td>
<td>=</td>
<td>0.8</td>
<td>0.8</td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

Notes: aspect=terrain aspect in degrees from north; water= water source (wh: water hole); dis mr=distance in kilometers to the household’s main residence; nst mr=distance in kilometers to the nearest main residence (= if the same as before); nst set=distance to the nearest settlement (main residence or grazing post) which does not belong to the household; reuse=residence was built from start by current occupants (N) or was inherited (R); redc=the location shows traces of a previous occupation in the recent past (H) or in prehistoric times (P); nd=no data available. HH# 7, 16, and 39 own grazing posts but do not use them. HH#2 has a grazing post in canton Cieneguillas.
Figure 7.21: Herding post of household 30.
manufacture activities, mainly spinning and weaving. Most herd management-related activities (shearing, castrating, slaughtering), together with the elaboration of pastoral products (charki, cheese, hides) take place at main residences, where storage is clearly concentrated. The limited storage that takes place at herding posts is further facilitated by the relative proximity between them and residential locations. The mean distance between herding posts and main residences belonging to the same household is only 3 kms (range 0.7 – 5.9 km). This means that, while staying at their estancias, people may visit their main residences several times a week; therefore, there is no need to keep at herding posts anything beyond what is strictly needed on a daily basis. Herd monitoring can be very monotonous and usually leaves people a considerable amount of free time that can be invested in spinning, weaving, and making ropes and sling shots. These activities, which take place at night in the settlement and during the day while watching the livestock graze, are preferred because both wool and the tools used to process it (spindles, looms) are light and portable. Finally, no ritual or any significant social activity beyond sporadic visits among friends or neighbours, seem to take place at these locations.

Although generally herding posts tend to show similar construction techniques as main residences (adobe brik or stone walls, thatched roofs, t’ula windbreaks), some of them are more precariously built. There are estancias built entirely in wattle-and-daub, or including pit-like structures (e.g., Figure 7.22), and one of them (37b in Table 7.5) is totally made of tin sheets from recycled alcohol containers and cardboard. A reasonable explanation for this difference is that, besides being occupied for only a few weeks or
Figure 7.22: Herding post of household 21. Detail of semisubterranean structure.
months a year, they also tend to be used for shorter periods due to medium-term processes to be discussed later in this chapter. Therefore, construction techniques that have shorter use-lives but demand lower initial investments are preferred (MacGuire and Schiffer 1983).

**Location**

Herding posts in Cerrillos seem to be associated with similar kinds of pasture as main residences, a phenomenon that could be attributed to the relative homogeneity of the vegetation cover throughout the canton. This marks a difference with other Andean pastoralists described in the literature (e.g., Gundermann 1984:116; Webster 1973), who live in more heterogeneous areas where seasonal mobility is more directly tied to the exploitation of different, usually altitude-dependent environmental patches. In fact, as mentioned before, one fourth of the estancias recorded served as main residences in the past, or are currently being used as such, indicating that the same locations are apt for both uses. Altitude ranges are similar for both kinds of settlements (4,070-4,370 m.a.s.l. vs 4,025-4,370 m.a.s.l. for main residences); moreover, one half of the herding posts (17) are placed below the household's main residence and the other half are above (Table 7.5). The cienego area is the main exception to this trend; households living there have their main residences by the marsh, moving to their estancias away from it in the winter, when the herds live mainly on "dry pastures." A similar mobility pattern can be observed in other communities of Southeast Lipez, that have large marshy areas, like Polulos and Quetena (see Gundermann 1984:116 for a similar pattern in the highlands of Arica).
Herding posts, however, are more dispersed over the territory than main residences (Figure 7.2). When the variance-to-mean ratio is calculated (1.08), their distribution appears as more random, less clustered than casas. The mean distance between herding posts and the nearest neighbour settlements of any kind not belonging to the same social unit is higher (mean = 1.43 km; sd = 0.77) than that between neighbour residential locations, a difference that becomes statistically significant ($t = -2.9; p < 0.05$) when usable but temporarily not occupied residences are included in the comparison. This contrast is mainly due to the fact that unlike what happens with casas, there are never two of these settlements next to each other. Since the main purpose of herding posts is to obtain additional forage before the highly palatable annual plants (malvas) that prosper everywhere during the rainy season are gone, they tend to be located in relatively isolated places where the competition over this resource is not as severe.

If finding relative isolation rather than different resource quality is the main purpose of mobility associated with herding posts, it follows that these settlements will tend to be located in areas that, while meeting this condition, are still relatively close to main residences, facilitating in this way the access to resources stored there, and perhaps the communication among household members that stay at different locations. Table 7.5 shows this to be the case; herding posts are as close as 0.7 kilometer from the household's main residence and are never farther than 5.9 km (mean = 3 km). Moreover, in 12 cases (36 %) the same household's main residence is the closest settlement of this kind.

Like main residences, estancias tend to be located on warm, east/north facing slopes (Figure 7.3). There is no statistically significant association between these
settlements and permanent surface water sources, although none of them is farther than 2.5 km from this resource. This fact does not pose significant difficulties for herding since animals may be taken to drink only once every other day. Some of them, however, don't even have places suitable for building waterholes, so their occupants may bring drinking water in jerry cans from as far as one kilometer away.

Structure and Content

Herding posts are occupied for shorter periods, usually by fewer persons, and host a more limited range of activities than main residences; therefore, they have fewer and less diverse artifacts, they are smaller and show a simpler structure (Table 7.6). Obviously, this statement (and the following discussion) only applies to grazing posts that serve or have only served this function in the past. By contrast, I have not identified any activity area or artifact type at herding post that is not present at main residences.

Beginning with artifacts (see functional categories in Table 7.2), chicha brewing/storage vessels, together with other ritual and feasting-related items (e.g., caravan bells, musical instruments, etc.) are absent from herding posts. Non-weaving tools, furniture, and construction supplies may be present but only in very limited quantity. Pastoral and agricultural products, serving and cooking vessels, kitchen utensils, and clothing are always found but only in limited quantities, to satisfy the needs of the occupants during a limited period of time. Large cooking pots and storage vessels are lacking, reflecting the limited number of people that usually stay at these settlements and the absence of feasts and other expressions of social life. Yacobaccio et al. (1998:51).
Table 7.6: Activity area composition of herding posts.

<table>
<thead>
<tr>
<th>hh#</th>
<th>court yard</th>
<th>strg/bedr</th>
<th>indr kitch</th>
<th>outdr kitch</th>
<th>outdr hrth</th>
<th>wind brk</th>
<th>outdr strg</th>
<th>animal enclosures</th>
<th>llama</th>
<th>sheep</th>
<th>goat</th>
<th>llama wrk</th>
<th>chkn coop</th>
<th>comments</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>1</td>
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<td>37a</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>37b</td>
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<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
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<td>39</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Only herding posts that never served as main residences where tabulated. courtyard: U = U shaped; C = closed; I = incomplete.
working among pastoralists in Susques (Argentine Puna), report a majority of cooking vessels smaller than three liters in "temporary sites." analogous to Cerrillos' grazing posts. Saddle bags, ropes, or salt blocks in quantity, and other items related with the activity of caravans are not present at herding posts.

Like casas, all estancias have two continuous sectors, one of them is devoted to human habitation, the other one to the herds. The total number of roofed structures ranges from 1 to 3 (mean = 1.8). Only half of these locations have a general outdoor activity area comparable to a courtyard, and with one exception (a closed courtyard, Figure 7.23), these are always incomplete (e.g., Figure 7.24).

Most herding posts have an indoor kitchen (85 %. N = 20) — never more than one — and an outdoor hearth area (75 %). The latter can be a formal structure (Figure 7.25), like in the case of indoor kitchens at main residences, or not (Figure 7.26). Two of them have two outside hearths which are used for similar purposes (daily cooking). Both indoor and outdoor hearths can be of the plastered type (q'oncha) or simple basins surrounded with rocks where the pots can be placed. I have not observed metal and other more elaborated stoves at this kind of settlement. Additional outdoor activity areas include a windbreak area used for weaving and a fenced area with cultivated fodder (ca. 1,000 m²).

In four of the herding posts mapped (20 %), indoor kitchens were the only roofed structure (e.g., Figure 7.27), so they also staged all other activities that require this kind of protection, e.g., storage, sleeping. Another 65 % had one additional structure used for sleeping and storing a few items for immediate use. Only three of them (15 %) had a
Figure 7.23: Herding post of household 34.

Figure 7.24: Herding post of household 25.
Figure 7.25: Herding post of household 29.

Figure 7.26: Herding post of household 1.
Figure 7.27: Herding post of household 28.
Figure 7.28: Herding post of household 11.
room specially for storage; one of them was sealed and out of use. A second one was used to store fodder grown in a small plot cultivated taking advantage of a water spring. Herding posts have no kawildus or any ritual feature such as wirgines, kuyuris, mesas, or chapels.

Both indoor and outdoor kitchen areas are regularly maintained, although cleaning and ground-wetting activities are less frequent than at main residences. Herding posts have one generalized discard area, usually east of the habitation structures (Figure 7.24). Given lower discard rates, this is usually smaller and less dense than those at main residences. In some cases, refuse may be so scarce that it does not form a discrete, continuous midden area, but only small, isolated dumps. When estancias are abandoned until the next season, all usable items are usually stored inside the roofed structures. Only objets awaiting future recycling and other items of little value may remain outside, stored against the walls or inside the outdoor kitchen.

Turning to the animal keeping sector, all of them have llama sleeping areas similar to any main residence, but some of them (25%) do not have any animal enclosure. Like the absence of U-shape courtyards, this reflects that many herd management-related activities never take place at these settlements. Moreover, some households may not move here the reproductive segments of their llama herds or their sheeps and goats, so they may not need to corral their animals at night to protect them from predators. Most of them, however, have between one and four animal enclosures (Figure 7.28). Table 7.7 summarizes the contrasts between the architecture of main residences and herding posts.
Table 7.7: The architecture of main residences and herding posts.

<table>
<thead>
<tr>
<th>attributes</th>
<th>main residences (N = 32)</th>
<th>herding posts (N = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>roofed structures</td>
<td>number</td>
<td>3-14 (mean 5.8)</td>
</tr>
<tr>
<td></td>
<td>total area</td>
<td>25-112 m²</td>
</tr>
<tr>
<td>indoor hearths</td>
<td></td>
<td>1-3</td>
</tr>
<tr>
<td>outdoor hearths</td>
<td></td>
<td>1-4</td>
</tr>
<tr>
<td>courtyard</td>
<td>number</td>
<td>1-2</td>
</tr>
<tr>
<td></td>
<td>type</td>
<td>mostly U, also I and C</td>
</tr>
<tr>
<td>kawildu</td>
<td></td>
<td>0-1</td>
</tr>
<tr>
<td>ritual features</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>corrals</td>
<td>number*</td>
<td>1-5 (mean 3.1)</td>
</tr>
<tr>
<td></td>
<td>total area</td>
<td>75-1,200 m²</td>
</tr>
</tbody>
</table>

Note: * includes llama windbreaks.
There is less variation in size and structural complexity among herding posts than there is among residences. and it is unrelated to household life-cycles, because these settlements rarely accommodate the entire domestic group (specially when it is large, as in the case of extended family households). The variation they show, seems to be mostly related to the particular mobility pattern followed by different households (e.g., whether they move with all their animals or not, duration of stay).

Except for the cases of inherited main residences recycled as herding posts, all settlements of this type in use at the time of fieldwork had been constructed anew by their owners, even when in some cases the places chosen had traces of previous human occupation (Table 7.5). This indicates a shorter uselife for estancias than for casas. If one considers that new families only build a separate, neolocal residence after the household head is about 30, only building herding posts some time after, and that they give up the management (and usually the ownership) of their herds by the age of 70-75, the maximum lifespan of these settlements would be approximately 40 years. If one considers that most herders have one or several estancias that currently they do not use, it follows that their actual period of use may be considerably shorter.

**GRAZING AREAS**

Except for the areas occupied by settlements and the most inaccessible parts of the landscape, all the territory of Cerrillos is used for grazing. There are two kinds of grazing areas: the highest portions of the canton (>4,300 m.a.s.l. or cerro) together with its northern and western sides, which are thought to have slightly lower quality pastures, are
mostly occupied by the male segments of llama herds; while the rest of the community's land is used by sheep, goats, and the reproductive segments of llama herds. These two areas are subject to different uses that could potentially leave different material traces.

Areas occupied by male llamas do not have settlements, and are only sporadically visited by humans. The animals are there by themselves; periodically they go down to rivers and cienegos to drink, and usually return every night to the same sleeping areas, which are marked by discrete concentrations of dung. Pastoralists (usually adult men) go to check on them once every one or two weeks, making sure no animal is missing and they stay within their designated territory. Discard rates are extremely low during these expeditions; men carry food that does not need any further processing (or may not eat at all) and usually return back to their casas or estancias within the day. Monitoring of these segments may have been more intense in the past, particularly if the llapucha managing strategy was practiced, but I doubt that these areas ever included any substantial human settlement.

Grazing areas used by the rest of the herds are accessed daily from main residences and estancias. Animals are guided every morning by a household member (most frequently women, a child, or an old man), who usually stays there to prevent them from dispersing (specially sheep) and to protect them from foxes or mountain lions (pumas). Those who only have llamas may leave the animals by themselves in the field, returning in the late afternoon to drive them back to the settlement. People are frequently assisted in all these tasks by dogs.
While monitoring the herds in the field, pastoralists may carry out a number of activities. Prominent among them are eating, spinning, weaving, collecting wild plants (specially roots), firewood, and eggs hunting, and playing. Pastoralists have their main meals early in the morning and in the evening at their residence or herding post; they may take to the grazing fields some food ready to be consumed wrapped in cloth or in a can, so this activity does not usually involve any cooking and associated refuse. Spinning is probably the most common activity carried out (specially by women) in the fields: less frequently, and specially when the same general area is to be used several consecutive days, women may take their looms out, perhaps leaving them there overnight. If men are in charge of this task they may spend their time braiding ropes. Collecting firewood is another activity embedded in herd monitoring. At the end of the day, it is common to see herders carrying large bundles of t'ula while driving their animals back to the house. Other activities, like plant collecting (edible roots, medicinal herbs), hunting (e.g., armadillo), and egg gathering (water fowl, ostrich) are occasionally carried out in the grazing fields when the opportunity arises.

Even though grazing areas are among the most important and regularly used locations among pastoralists, they are characterized by very few features and extremely low discard rates. I have observed only four kinds of features in Cerrillos grazing fields: (1) herd-monitoring windbreaks; (2) children's games; (3) fox traps; and (4) stone "scarecrows."

Semicircular or straight windbreaks, also known as kanchitas, are frequently built by herders to protect themselves in cold winter mornings or during windy days, while
Figure 7.29: Herd-monitoring windbreak (Cerrillos).
they watch over the animals. They are 1-2 m in diameter and 0.4-0.9 m high, expediently made with field stones (Figure 7.29). They are always open to the east, so as to receive direct sun light in the morning and offer protection against the prevalent western winds. Some of them have an S shape, so they can be used on one side in the morning and on the opposite side in the afternoon. They are always located on high points with good visibility over grazing areas, specially in open landscapes that offer no natural protection.

When present, these features tend to concentrate some of the activities embedded in herd monitoring that were mentioned before and the small refuse they may generate. During a survey conducted on the northern slopes of Cerro Tangani, 42 of these features were located (Table 7.8); 22 of them had no associated refuse, and the others had between one and 69 items that could be classified as food residues (bone fragments, seeds, fruit remains), firewood, container fragments (shards, sherds, plastic bags), textiles (wool, yarn), and entertainment-related items (batteries, toys). Two of them had hearths, three had stone seats or benches, and one of them had a small metate used for grinding salt. All these items ultimately relate to three activities, food consumption, spinning/weaving, and entertainment.

There is considerable variation in the frequency of these features in various parts of the canton, differences that cannot be accounted by terrain characteristics. They are totally absent in some places, while in others every elevation in the landscape may have one of them. A possible explanation is that, besides their obvious function as shelters, these features may be playing a role in the maintenance of exclusive use rights over grazing areas as well. This practice would find its ultimate rationale on the shared view
Table 7.8: Herd-monitoring windbreaks and associated refuse.

<table>
<thead>
<tr>
<th>wind brk #</th>
<th>feature</th>
<th>food remains*</th>
<th>container fragments</th>
<th>textile</th>
<th>other items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>bone fr</td>
<td>fruit/vg</td>
<td>tin can</td>
<td>cer/gl</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>bench</td>
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<td></td>
<td></td>
<td></td>
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<td>5</td>
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<td></td>
<td>1</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>hearth</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
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<td>12</td>
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</tr>
<tr>
<td>19</td>
<td>hearth</td>
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<td>3</td>
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</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
22 other windbreaks with no refuse or features not included in table.
a: bone fragments = phallanx, metapodia, ribs, and vertebrae (camelid and sheep/goat). fruit/vg = corn, lima beans, peach core, garlic, apple.
that people have exclusive rights over the fruits of their labor, a principle that creates an important connection between a variety of features that serve as material referents of people's labor (and potentially have archaeological visibility) and competition over range as a basic structural characteristic of pastoral systems. As I mentioned in last chapter, this strategy of territorial control through land improvements is well exemplified by Mario Rm (hh#37); during our survey we located 22 herd-monitoring windbreaks in a 3 km area around his main residence.

Herding is frequently in the hands of children. This means that grazing areas may contain the material remains of their games. Examples of these I have observed include rock alignments, piles of bones classified by type (e.g., phallanx, astragali, etc.), and clay animal figurines. Some of these objects are present in other locations as well.

The other two features sometimes found in grazing areas are related to the control of predators. "Scarecrows" can take the form of one or more large (ca. one meter long), elongated rocks, set in an upright position, or tall rock cairns, 1-1.5 m high. According to my informants, fox and condors stay away from these features because they perceive them as persons watching over the herd.

Another feature consistently present in grazing areas is the fox trap. These are small stone domes built over a passage (ca. 0.2 x 0.2 x 1 m) that is closed in one end. A bait is put at the end of the passage, tied with a string to a stick that holds a flat stone over the entrance; when the fox pulls the bait, this stone slides down closing the entrance, leaving the fox trapped inside the passage. Fox traps are usually located in relatively high, rocky places (mountain slopes or on top of low hills), "where fox lives." I have
never seen one of these features in use although they are very frequent, not only in Cerrillos, but throughout Lípez, in the Puna of Argentina, and in northern Chile. According to pastoralists, they were used "in the old days."

THE TOWN OF CERRILLOS

Every canton or minimum district in Lípez has at least one centrally located town that concentrates state-related services (school, sanitary post, telegraph) and administration (corregimiento or alcaldía offices). They also have a Catholic church, a cemetery, and, more recently, an evangelical Christian temple. Among the specialized pastoral communities of southeast Lípez, there is only one of these locations per canton which are occupied only by persons who are temporarily serving administrative positions (communal authorities), who enjoy a state salary (sanitary agents, teachers), children in school age, and perhaps one or two households who may hold grazing rights over the surrounding area. The rest of the households usually keep a house in town which they use only sporadically for communal meetings and other special events (Carnival, patron saints' feasts, national elections, and patriotic celebrations organized by the school).

Cerrillos' school and other public buildings were built between the late 1970s and early 1980s — the time when it was promoted as an independent canton — and the domestic part of town has been growing around them since. In the mid-1990s the town occupied a total area close to two hectares and was shaped in a typical Spanish grid pattern, with nine or 10 city blocks arranged around a central plaza (Figure 7.30). Only about one fourth of this area (5,153 m²) was occupied by architecture, i.e., roofed
Figure 7.30: The town of Cerrillos.
structures and associated courtyards or enclosed outdoor activity areas; the rest corresponds to the plaza, streets, and vacant lots. Immediately to the south, between the town and the river bed, there is a general discard area used by the whole community. The only source of drinking water for the town is a waterhole located on the edge of this area. The Catholic church is placed on a slightly higher place in the west side: it faces east, overlooking the town. The cemetery is one kilometer to the east.

Of the total space occupied by buildings, 28 % corresponds to public areas (22 % of the roofed structures) and the rest is devoted to domestic activities (Table 7.9). The latter sector is divided between the main residences of households living in town and the houses of other comunarios who live dispersed across the canton. By contrast with dispersed settlements, habitation areas in town – of both kinds – are more compact and tend to form closed spaces surrounded by adobe walls or fences, that serve as barriers both for vision and access, usually with a single doorway that serves as the only entry to these compounds. This "introverted" character of habitation areas in town, that contrasts with the open structure of countryside dwellings, is also reflected in the low frequency of outdoor hearths and activity areas in general.

Each one of the three domestic groups that live in town occupies one of these compounds (200-440 m²) that comprise indoor and outdoor kitchens, storage rooms, and bedrooms distributed around a closed courtyard. Only one of them has a kawildu. Two of these households keep their animals at their estancias nearby; the other one has them immediately north of town. This household’s llama corral was the only animal enclosure in town at the time of fieldwork. These residences are the only ones that incorporate
Table 7.9: Public and domestic architecture in the town of Cerrillos.

<table>
<thead>
<tr>
<th>Public architecture</th>
<th>area in m²</th>
<th>roofed buildings</th>
<th>indoor hearths</th>
<th>outdoor hearths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary post</td>
<td>100</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>School</td>
<td>750</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Gov. facilities</td>
<td>387</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Telegraph cabin</td>
<td>8</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Catholic Church</td>
<td>195</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Christian Temple</td>
<td>20</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total public arch.</td>
<td>1,460</td>
<td>23</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domestic architecture</th>
<th>area in m²</th>
<th>roofed buildings</th>
<th>indoor hearths</th>
<th>outdoor hearths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main residences</td>
<td>851</td>
<td>17</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Town houses</td>
<td>2,842</td>
<td>66</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Total domestic arch.</td>
<td>3,693</td>
<td>83</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>Central plaza</td>
<td>1,225</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Town</td>
<td>ca. 18,000</td>
<td>106</td>
<td>37</td>
<td>5</td>
</tr>
</tbody>
</table>

Notes:

- includes roofed and unroofed (e.g., courtyards) areas.
- include a habitation area for teachers and for visiting government representatives.
- main residences of three domestic units permanently living in town.
- houses belonging to domestic units who reside dispersed in the canton.
elements from urban architecture (e.g., wall paint, cement floors, windows with glasses, and tin roofs) and furniture (e.g., metal beds, kitchen cabinets, tables, chairs, etc.). The assemblages observed in these dwellings are similar to those present at dispersed residences, except that – as mentioned before – they include higher proportions of industrial items, revealing the easier access to cash of these groups and the incorporation of certain elements of urban lifestyles and consumption patterns.

The rest of the houses (N = 31) are more compact and made with adobe and thatch roofs. They range between 20 and 100 m² in area and have between one and three roofed structures. The simplest ones have only one multifunctional room with a hearth or stove and an associated outdoor area. In some cases, several of these multifunctional rooms with hearths belonging to different households form a single compound, sharing a common courtyard that serves as an outdoor activity area for all of them. The largest examples have a couple of storage/sleeping rooms and a private courtyard. Only a minimum number of artifacts are kept in these structures; usually only a basic kitchen set (serving and cooking vessels, some silverware, and a couple of water containers), bedding, and a few clothes.

Not all domestic groups in the community own a house in town, perhaps because it is a relatively young settlement. In fact, several structures were in the process of building toward the end of May fieldwork period. By that time there were 34 dwellings (including the three main residences), and some of them belonged to community members leaving outside the canton.
As a recently established settlement, Cerrillos is not the best case to evaluate aspects related to the occupation length of these communal central locations. We know from historical sources that many similar towns in Lípez date back at least to the 17th century (e.g., San Pablo, Polulos, San Cristóbal). Others have been moved at least once since their original foundation as Spanish colonial settlements (e.g., San Antonio de Lípez, Cocani, San Pedro de Quemes), usually because their original locations were considered disadvantageous for some environmental reason (too cold or lacking good water).

OTHER LOCATIONS

Besides the four regularly occupied locations described thus far, pastoralists in Cerrillos (or some of them at least) sporadically use other, special purpose areas, such as ritual sites: mineral extracting areas, and anti-mange baths. The first of these locations will be analyzed in detail in next chapter. I will just describe briefly the other two to illustrate the nature of these locations.

There are at least two old mining camps in Cerrillos, one near Jatun Cienego, the other one close to the western limit of the canton. These copper mines have been abandoned since the middle of the 20th century at least, although the former continues to be worked by a solitary man. A more active area where mineral is currently being extracted is located on the border between Cerrillos and Cieneguillas. the next community to the north. As I mentioned in last chapter, a group of men that live in the area, together with some comunarios from Cieneguillas extract gold nuggets from the
They usually take a meal around noon, which they usually bring ready to be consumed. Sometimes they may cook at the site or heat water for tea; material consequences of these activities are two or three hearths in the sides of the river, expediently made with a few rocks that help to place the pots over the fire. There is also a rock cairn made with white quartz cobbles devoted to El Tío ("the Evil One"), a particularly whimsical entity from the underworld that governs mineral wealth. Every Friday and during Carnival, men who exploit this source will offer ch'allas (alcohol libations) and coca leaves on this feature located on the western bank of the river.

Three anti-mange baths for llamas were built in Cerrillos in the early 1990s with the support of a non-governmental organization. These consist in two adobe corrals communicated by a 2 m-deep ditch, which is filled with water and the anti-mange medicine. The animals enter one corral, are pushed into the ditch along a cement slide, and come out to the other corral in the opposite end through a stair way. Since the medicine containers are reused, no refuse has been observed at these locations.

THE SETTLEMENT SYSTEM

Having described the main locations regularly occupied by pastoralists in Cerrillos, I would like now to discuss some rules that synthesize the spatial organization of the behavioral system, not only within the annual cycle (the short-term perspective)
but also in medium and long temporal scales. In so doing, I will emphasize how, given certain constraints derived from the nature of the local environment (Chapter 5) and of the animals bred (Chapter 6), their land use practices and the organization of their built environment enable *llameros* to cope with fundamental demands posed by pastoral production and lifestyle (Chapters 2 and 6). Through this functional approach, the settlement system of our project community (and selected aspects of its material consequences) can be related to some necessary properties of pastoral systems in general – or to the bodies of theory that account for those properties. As argued in Chapter 4, it is the relative strength of these kinds of links that supports the general relevance of our observations of particular, present day practices, and therefore, their pertinence to understand past behavior and the archaeological records it may have generated.

Three important demands of pastoralism pointed out in previous chapters includes the provision of pasture, water, and protection (against adverse climatic conditions, disease, and predators) for the herd. A fourth characteristic I have repeatedly stressed concerns the need to access non-pastoral, complementary resources on a regular basis. Given the limitations to economic diversification in the study region, this necessarily takes the form of interaction with other regions and involves periodic long-distance mobility.

A considerable emphasis on storage is a fifth functional demand of this kind of system for several reasons. Pastoral products tend to be appropriated in certain times of the year (e.g., wool in November, meat, hides, and milk during the rainy season) and need to be stored for later use or consumption. Likewise, agricultural and other non-
local products are obtained through a few complementarity mechanisms that are also differentially distributed in the annual cycle (e.g., caravan journeys, seasonal migrations). Since these vital resources cannot be obtained whenever they are needed, they may be stocked up to prevent situations of stress that could emerge if they were exhausted in times of the year when they could not be replenished. Finally, it may be necessary to store temporarily a number of items (e.g., salt, weavings, herbs) not for self consumption, but for later use in trade and other complementarity practices.

A sixth important demand concerns the production and circulation of prestige. The limitations to the expansion of individual herds that characterize pastoral systems underscore the importance of non-economic forms of wealth and power in these and other seemingly "egalitarian" societies. Furthermore, since the main restrictions on economic accumulation derive from communal checks, the success of herders in their strategies of economic growth is largely dependent on the social and symbolic assets they can mobilize in order to bend those controls.

Finally, as any other human group, pastoralists need to carry out basic activities related to their biological and social reproduction, such as food processing and consumption, resting, artifact maintenance, socializing, etc. The functional demands of these activities in terms of light, shelter, or acoustic insulation, together with some characteristics of the local climate (e.g., low minimum temperatures year round, daily thermal amplitude, marked seasonality of rainfall, dominant western winds) and kinds of construction materials available (mud, stone, shrubs, straw) also need to be considered
when analyzing the organization of the build environment, specially at the intra-location level.

A Short-Term Perspective

Four aspects of the short-term organization of llameros' settlement system in Cerrillos will be considered: settlement distribution; mobility; location types; and location structure and content.

Settlement Distribution

The search of favorable conditions for animals is the most important factor conditioning the distribution of both main residences and herding posts. This criterion is reflected in a number of attributes of the settlement pattern such as the preference for warm, east or north facing slopes; the relative proximity to permanent water sources; and specially, the dispersed residential pattern which allows for adequate herd monitoring and protection while facilitating access to pasture. The latter characteristic, in turn, has a number of consequences, not only for mobility and social interaction among herdsmen, but also for the internal structure of their settlements (to be considered later).

The normative framework that regulates the transmission of grazing rights, is another important factor constraining the position of main residences and, to a lesser extent, herding posts. This results in the tendency of settlements belonging to members of the same patrilineage to concentrate in discrete areas (Figure 7.31; for similar observations see Albó 1972; Custred 1977a, 1977b; Flores Ochoa 1979:120, 1977:139;
Figure 7.31: Main residences and herding posts by lineage.
Hickman and Stuart 1977:58; Palacios 1977:168). These agnatic territories, which are independent from administrative canton limits, seem to be quite stable over time, creating variable settlement concentrations as result of the changing number of households of each lineage that have to share a common territory.

A dispersed settlement pattern characterizes pastoralism throughout the Andes. Limited concentrations of main residences or caseríos, usually grouping agnatically related households, are reported in association with high-productivity bofedales mainly in the Central Andes (e.g., Flores Ochoa 1979:46; Inamura 1986:158; Palacios 1988b).

**Mobility**

Three general kinds of mobility can be observed among llameros, pastoral, complementary, and related to social interaction. Since each one of them has different goals, they differ in patterns and underlying logic.

Pastoral mobility is motivated by the search for forage, and to a lesser extent, water, therefore it will be pattern in accordance to variations in the temporal and spatial distribution of these resources. In Cerrillos, it comprises three regular kinds of moves. The first one is the daily movement of the herd, accompanied by one or two household members, between main residences or herding posts and surrounding grazing areas and water sources, usually located within a one-hour radius. The second one takes place at intervals of 5-10 days, between main residences or herding posts and the cerro areas where the male segments of llama herds are kept. These movements, which do not affect every domestic unit because not all of them follow this herding strategy, involve mostly
adult male members of the household and involve up to 4 or 5-hour hikes. The third one is the seasonal movement between main residences and herding posts located less than three hours away from one another. This practice is currently followed by about one half of the households, some of them moving more than once in order to take advantage of two or more estancias. Given the relative environmental homogeneity in the project community, the purposes of these seasonal movements are limited to allow the recuperation of range around main residences, to access more but similar pastures by taking advantage of opportunities derived from lower levels of competition in discrete points of the territory, and to reassure (or create) usufruct rights over the land. They tend to be shorter than those reported for other Andean pastoralists who also access different environmental patches through this practice (e.g., Gundermann 1984).

Complementary mobility is geared toward obtaining non-pastoral resources for self-consumption or trade. In Cerrillos, this usually involves long-distance, interregional displacements, which assume a variety of forms, e.g., caravan journeys, seasonal migrations, periodic visits of relatives living away, etc. As a rule, they are undertaken by only some household members (mostly adult men), but in the case of several-year migrations, they may affect entire domestic units.  

Social interaction-related mobility, geared toward the reproduction of social networks and the circulation of symbolic capital, is particularly important given the dispersed nature of pastoral residential patterns. It includes two kinds of regular local displacements. One of them, which allows for the direct interaction among households, involves informal visits among neighbours, friends, and relatives, but also quite formal
encounters (usually at main residences) associated with reciprocal labour exchanges and domestic rites. The other one is centripetal, periodically gathering in town members from households that live dispersed throughout the territory for political assemblies, patriotic celebrations, feasts, and public rituals. These encounters are the only occasions in which the community can be perceived as a visibly operating group.

**Functional Differentiation among Locations**

The local forms of mobility just described regularly connect three general kinds of locations that, it can be argued, are always present in specialized pastoral settlement systems given the functional demands of pastoral systems listed before, i.e., grazing areas, domestic habitation settlements, and sporadically occupied central locations.

Only two types of grazing areas can be recognized in Cerrillos. One of them is used by sheep, goats, and reproductive segments of llama herds throughout the year. It occupies between 80 and 85 % of the territory, corresponding to cienego and campo environmental units, and associated with both main residences and grazing posts. Given the nature of seasonal mobility in this case, the only further division that can be recognized within this area, is that between the cienego (used only during the summer) and the rest of the pastures which are used year round. The second type of grazing area is occupied by the male llamas and corresponds to the cerro environment, usually devoid of human settlement. The separate herding of males seems to be an ancient Andean practice (cf. Murra 1965:191).
Seasonal herding mobility and the corresponding structure of grazing areas is a quite variable aspect of pastoral lifestyle (e.g., Gundermann 1984; Inamura 1986: 154-156; Palacios Ríos 1988a). This variability responds to a number of factors including the distribution of pastures of different quality and seasonality, species composition of herds, particular forms of land tenure, and relative demographic pressure. Given the uniform productivity of the land within the confines of the community and the relatively high number of households competing over the exploitation of this limited territory, Cerrillos' case falls toward the simple end of this range of variability — both in terms of the number of seasonal moves and differentiated grazing zones.

Seasonally occupied habitation settlements in Cerrillos fall within two classes which I have termed main residences and herding posts, both of them associated with basic domestic activities (food processing and consumption, resting, artifact maintenance, etc.) and herd monitoring. The main functional differences between them, besides occupation length — a rather variable attribute itself — lie in the concentration of storage, herd management-related tasks, social interaction, and ritual activity at main residences. Main residences are always one per household, while the number of herding posts is quite variable: some have none, others have several. The main purpose of herding posts is to provide logistical support for the acquisition of additional (mostly dry) pastures, so they tend to be more isolated than main residences. Beyond this basic function, in Cerrillos these settlements play an important role in the creation and maintenance of land rights, even if they are not actually used. Similar distinctions between main, multifunctional residences, and grazing-oriented, more briefly occupied posts, are reported for other
Andean pastoralists, although the specific names given to these locations show considerable regional variation (e.g., Flannery et al. 1989; Flores Ochoa 1979:45-46; 91; 1983:185; Göbel 1994:48; Gundermann 1984; Inamura 1986:151; Kuznar 1991; Merlino and Rabey 1983; Nasti 1993; Orlove 1981:101; Palacios 1988b:181; Rabey 1989; Yacobaccio et al. 1998).

An important characteristic of both *casas* and *estancias* in the study region is that a significant proportion of them are regularly maintained but are only sporadically occupied if used at all. These belong to migrant households who reside more or less permanently (i.e., for several years at least) outside the *canton*. These individuals may occupy their houses briefly when they come to the altiplano to check on their herd (if they still have animals under a relative's care), or may not use them at all, but keep them as a way of maintaining membership and associated rights over communal resources. As I mentioned before, these settlements amounted to almost one third of the functional main residences recorded in Cerrillos during fieldwork.

Can this functional scheme (i.e., a main residence and a variable number of secondary ones) be assumed to be a universal characteristic of pastoral settlement systems in the Andes? The use of more than one residential location is almost implicit in the notion that seasonal mobility related to forage acquisition is a universal characteristic of pastoral systems. The existence of functional (even hierarchical) differences among these residences, however, seems to respond to other factors. I think that at least one of these, the need for centralized storage facilities, can be generalized quite safely.
It has been pointed out that two of the most effective mechanisms that can buffer productive risks derived from environmental variability, storage and mobility, tend to be incompatible (Halstead and O'Shea 1989:4). Consequently, pastoral nomads, who depend on high degrees of mobility – in terms of distances involved, number of moves, and interannual variability of migratory routes – typically make a very limited use of storage. Examples of these are African pastoralists (e.g., Legge 1989) who have to cope with extreme variation and unpredictability in the distribution of pastures and water sources. In the Andes, even when overall productivity can vary significantly from one year to another depending on precipitation, the spatial distribution of pastures of various qualities is quite regular and predictable. As a result, pastoralists tend to follow more regular transhumant circuits (Inamura 1986:180), a phenomenon that facilitates the use of storage and of richer and more bulky assemblages – with all the advantages that this implies – without compromising mobility.9 Households repeatedly occupy the same locations year after year and they can predict where they will be at various points in the annual cycle, so resources can be stored at those locations where surplus production is normally generated or where resources and artifacts are needed. Security, efficiency, and cost considerations would all favour the centralization of this activity, rather than its dispersion across seasonally occupied settlements. In turn, other activities that produce significant amounts of bulky, storable items, or depend on the use or consumption of these products and assemblages, would also tend to be associated with these locations. Some examples of these activities are shearing, butchering for delayed consumption.
caravan preparation, departure, and arrival (Chapter 10), and domestic feasting (if this is part of the behavioral repertoire of the group).

A final question concerns the existence of central locations where community members periodically meet. Presently, in Cerrillos and other Andean pastoral communities (e.g., Boman 1991 [1908]:446; Flores Ochoa 1979:52; Göbel 1994:47; Gundermann 1984:120; Orlove 1981:101; Webster 1973:120), these locations take the form of semi-empty towns that centralize not only functions derived from their articulation with the State (e.g., school education, local administration of justice, health monitoring, church-related activities), but also activities that are crucial for the reproduction of the community as a corporate group, from communal assemblies (where economic and political decisions of communal importance are made) to feasts devoted to patron saints and other celebrations. The fact that the current structure of these centers is clearly shaped by European models and by the secular and religious administrative demands of colonial and national states, does not necessarily imply that centralized locations like these only exist as result of the integration of pastoralists to states. By staging socially important activities and the physical gathering of otherwise permanently dispersed households, these temporarily occupied ceremonial centers, markas, "hieropolis" (Van Kessel 1993:48), or some other kind of central location (such as the communal ritual site to be analyzed in next chapter), may have always been a necessary element for the social and cultural reproduction of specialized pastoral communities in the Andes – provided that such communities actually existed before the European conquest.
**Structure and Content of Locations**

Cerrillos' *casas* and *estancias* tend to be open, loosely bound settlements, formed by a number of features, activity loci, and trash accumulations distributed over large areas. This can be mainly related to the dispersed nature of the settlement pattern which results in low competition over settlement space and turns domestic boundaries (visual, acoustic, territorial) unnecessary. In Cerrillos, the size range for main residences, including buildings, corrals, outdoor activity loci, discard areas, and empty spaces in between, is approximately 0.18 - 1 hectares (llamas' sleeping areas not included). By contrast, town houses are highly compact (< 0.01 ha) and organized around central courtyards (sometimes shared by two or more houses), with one access only, secluded from public areas by outer walls.

Both main residences and herding posts serve habitation and herd monitoring functions, so they are divided in two adjacent sectors accordingly. The sector devoted to animals includes a sleeping area for llamas and enclosures for the various species herded; the latter structures tend to be more numerous in the case of *casas* (Table 7.7) and may not be present at all in some *estancias* which are occupied very briefly or located very close to their owner's main residence. Additional features present in these areas are east-facing windbreaks or "open corrals" that protect llamas from the cold western winds that prevail during the dry season (cf. Inamura 1986:152). The relative absence of animal enclosures around town is a clear indication of the fact that most houses there are only
sporadically occupied by a few household members, but are not integrated into the pastoral productive and mobility cycle.

Habitation sectors at dispersed settlements usually comprise at least one indoor (nighttime) and one outdoor (daytime) hearth and associated activity areas. This dual structure, observed in every main residence and in 60% of the herding posts recorded, allows to take advantage of diurnal light and warmth providing also shelter against low temperatures at night. All weather conditions that are quite regular throughout the dry season (cf. Libermann et al. 1989:102). Western winds are also a daily, predictable phenomenon that can interfere with a number of tasks, so most outdoor activity areas (hearth-related or not) are protected with windbreaks. Town houses, on the other hand, tend to include only one multifunctional roofed structure with a hearth (kitchen, bedroom, storage room) and few (if any) outdoor activity areas, revealing a different form of use for these dwellings. When people are in town, they spend most of the day in public areas, attending meetings, participating of celebrations, or just socializing in the streets, retreating to their private areas only at night, or briefly during the day just to have a quick meal. The same is true of children in school age who spend the whole day in school, occupying their houses only at night.

The functional differences between main residences and herding posts pointed out before are reflected in their internal structure and content. The use of herding posts for shorter periods, by fewer people, and for a more limited range of activities, translates in fewer and smaller structures, smaller and less varied assemblages, and smaller and less dense discard areas. Since only artifacts and resources that may be needed (e.g., kitchen
utensils, food, bedding) or processed (e.g., wool) during their relatively short period of occupation are stored at these settlements. They usually do not include specialized storage structures. Since they tend to be used for not very long periods, they may be built more precariously or with perishable materials.

Main residences not only tend to be larger and have more structures, artifacts, and refuse, but they include functional classes of structures and/or artifacts that are not present at estancias. First among them are storage spaces, which represent at least 50% of the roofed area (usually much more) and outdoor features or designated areas for this purpose. Pastoral and agricultural products, a variety of items for trade, and most household possessions are concentrated at these settlements. The presence of areas and artifacts related to ritual, feasting, and social gatherings in general, are a second distinctive attribute of main residences. In Cerrillos, these include a special structure (kawildu), several features (stone mesa in the courtyard, wirgin, kuyuri), and a number of artifacts (Tata Rey, musical instruments, k'ichiras, calabash drinking cups or tutumas, etc.). Prominent among these are large ollas and pottery assemblages used for chicha brewing, storing, and serving, which include a number of distinctive forms and size classes that are not used for daily domestic activities (cf. Figures 7.4 and 7.5). In a recent ethnoarchaeological study among specialized pastoralists in Puna de Jujuy (Argentina), Menacho (2000) has demonstrated that these vessels, which are only used for ceremonies (rites of passage, patron saints celebrations, inflorada, Carnival) or to entertain extra-household work parties that may help on special occasions (e.g., house roofing), constitute about 50% of all vessels owned by the household. Some main residences in
Cerrillos have a whole structure used only for storing these seldom used assemblages (e.g., Figure 7.17).

A third important characteristic of main residences is their association with a number of activities related to herd management, including shearing, ear marking, and butchering. One aspect of site structure that seems related to these activities is the arrangement of buildings in a U-shape pattern so the herd can be corraled inside the habitation compound. This feature, which is not present in grazing posts, is also important for handling caravans, since enclosing the animals next to the storage structures greatly facilitates the operations of unloading and loading. Caravan gear (ropes, saddle bags, bells) is mostly kept at main residences as well.

Windbreaks and fox traps are the main features found at grazing areas in Cerrillos, but they are not present in some parts of the territory or appear with variable frequency. These features are rarely mentioned in the literature (e.g., Zaburlín 1998), although I have seen them throughout the highlands of Bolivia, Northwest Argentina, and Northern Chile. They satisfy in a simple and easy way two basic needs of pastoralism in the region, i.e., protecting herders from the wind while monitoring their livestock and controlling the main local predator, so their use may be more widespread than we know at present.

Medium-Term Processes

As argued in Chapter 4, medium-term processes are important to bridge the gap between short-term ethnographic observations and their potential archaeological consequences, since "the archaeological record is seldom the product of a brief episode of
behavior, but is the prolonged accumulation of repeated events" (Foley 1981:8; cf. Ebert 1992:28). At least three points are important to understand the organization of settlement systems at this temporal scale: (1) the internal transformation of locations along their lifecycle; (2) location lifespan; and (3) spatial redundancy.

**Settlement Lifecycles**

The stages main residences tend to go through along their lifecycles have already been discussed (Table 7.4). Certainly, not all of them will go through every stage; some of them may be abandoned earlier, others may skip a stage, e.g., if they are never inhabited by an extended family household (stage III). Residential locations, however, show considerable variability in size, internal complexity, and reuse (e.g., remodelling, partial abandonment) as a result of this patterned process of change they regularly go through. By contrast, herding posts do not seem to vary so much in their internal structure or experience comparable amounts of reuse. First, because they do not last as long, and second, because since they rarely house the entire domestic group, they do not respond to the different demands derived from changes in household composition. As households grow, they tend to split seasonally in order to use their labor force more efficiently. Thus, at the beginning of the rainy season some members may move to the herding post with the herds, others may migrate temporarily to the valleys or travel with caravans, while still others may stay at main residences to look after their belongings. The variation observed in these locations seems to reflect rather the duration of use (both total age of the settlement and length of seasonal occupation), the particular mobility
pattern followed by the household (e.g., what segments of the herd are moved), or special activities besides herding that may take place there (e.g., hh#27 who cultivates a small plot with fodder at this location). It should be remembered, however, that since both casas and estancias are associated with similar environmental contexts, they can also switch functions quite easily. Fifteen percent of the herding posts active at the time of fieldwork had previously served as main residences, and at least three settlements effectively used as residences were former estancias.

Sporadically-occupied town houses seem to show even more limited variation (as expected given the narrow range of functions they serve), although this is difficult to assess since it is a relatively recent settlement. The town itself is experiencing a rapid expansion as a number of households that had not built their own townhouses yet began to do so. Over time, this kind of growth would result in a gradual increase of the ratio between domestic and public areas, since the latter remain more stable. This would be consistent with what can be observed in older, similarly used towns in the region (e.g., Polulos, San Pablo) that show a higher proportion of domestic to public space than Cerrillos.

Settlement Life Span

Herding posts and main residences differ also in their use-lives: I estimated a maximum of 40 years for the former and 80 years for the latter, although actual mean lifespan is probably quite shorter in both cases. As a consequence, while households build (or inherit) one main residence and perhaps build a second one during their life, in
the same period they build and abandon (even buy and sell) several herding posts in different parts of the territory. These contrasts are the combined result of the different roles played by each type of location in the settlement system and their relative replacement costs. Given the considerable durability of the materials used (adobe and stone), I do not consider this to be an important constrain on settlement life span, although it probably was in the past, when wattle and daub were the main materials employed.

The obligation of the youngest daughter or son to stay with his/her parents until their death, frequently results in these individuals inheriting the paternal house. Older siblings usually build their own main residence in their early 30s, a very important action through which the new household claims its own rights over strategic communal resources and assumes a position of their own in a network of social relations, a status that is given social recognition through the participation of neighbors and relatives in the domestic rituals that are held at the new residence. Given all these connotations, the choice of a place to build a main residences is subject to a number of social constrains - like the virilocal rule and its various exceptions (Chapter 6) - that also make it difficult to move these locations, although certainly not impossible since several households do change residence.

The main purpose of herding posts, on the other hand, is limited to securing access to additional pastures, either facilitating access to them when they are too far or creating rights over portions of the land that are not being used. Since the right to access the forage that is needed stays above other rules, their placement seems to be less
constrained, although as discussed previously, lineage rights may occasionally be invoked to resist the attempts of certain comunarios to build estancias and graze their animals beyond what is considered to be their agnatic territory. Given the characteristics of the local environment, differential forage availability is not so much a consequence of variability in the natural environment, but of the number of animals that compete over this resource in various portions of the territory, a phenomenon that is constantly changing (in medium time scales at least) as a result of the relative success of particular herders, demographic expansion of certain lineages, or the migration of others. Herding posts then serve as a more flexible and dynamic component of the settlement system that allows to correct for these localized imbalances between livestock numbers and available forage.

Replacement costs are also different for these two kinds of location. My informants estimate that, with the construction techniques currently employed, a man needs between 10 days and two weeks of full time work to build an average size adobe room, including the acquisition of raw materials except wood. After this, the only important maintenance job required is the repair or replacement of the thatch roof every fourth or fifth year. Animal enclosures demand variably amounts of time to build, depending on size and materials used, but a week of work for one person is a fair cost estimation for a medium size adobe corral. For comparative purposes only, the replacement cost for a basic main residence (three rooms and a corral) could be roughly estimated in about seven weeks, vs. three weeks or less for a herding post. In most cases.
the actual difference will probably be higher since *casas* that have been in use for some time have many more facilities, while *estancias* are frequently built more precariously.

When people abandon main residences or herding posts for good because they move to a new location in the canton, they take with them all usable items, even heavy ones (e.g., ground stone). Lumber, tin sheets, and other scarce construction materials are systematically removed by their owners or scavenged by neighbors. Given the large number of items involved, the abandonment of main residences is usually a gradual process, in which the old settlement may be kept for several years as a storage place for less valuable or seldom used items. Removing the roof is the final step in the process of abandoning a settlement; in the same way that building a structure may create rights over the land, *destechar* ("unroofing") is interpreted as a way of giving up such claims. By the same token, destroying a settlement is a way of contesting the legitimacy of territorial claims sustained in this way.

**Spatial Redundancy**

Spatial redundancy, or the relative overlap of successive activities in space, is a medium term organizational feature of settlement systems that strongly conditions the archaeological consequences of behavior (Binford 1980, 1982). Even if an activity generates only small amounts of refuse, these residues can acquire high archaeological visibility if the activity in question is redundantly positioned over successive repetitions, or virtually imperceptible if they are not. The notion of spatial redundancy can be applied at both regional (i.e., location overlap) and intra-location scales (i.e., activity area
"reuse will refer to instances in which space is organized and used in a pattern which is spatially congruent with previous occupations of the same space. Redundant use of space without spatial congruence will be referred to as reoccupation" (Brooks and Yellen 1987:69; cf. Foley 1981).

Spatial redundancy is conditioned by a combination of environmental and organizational factors (ibid:68). Beginning with the former, the most concentrated resources in the study are associated with cienegos, which offer water, good summer pasture, and a variety of wild resources, that have only secondary importance nowadays, but may have been crucial for local populations in the past (see infra). Other permanent sources of water (e.g., rivers, springs) are also important resources unevenly distributed in the area, although they are not scarce or necessary enough (at least on a daily basis and in the presence of alternative ways of extracting water for human consumption) to determine high levels of spatial redundancy by themselves. Some authors have reported the repeated use of caves for habitation (e.g., Kuznar 1990; Nasti 1993; Tomka 1994; Yacobaccio et al. 1998). These features, that may generate considerable spatial redundancy in other areas, are very rare in Cerrillos.

Organizational factors conditioning spatial redundancy include social restrictions to settlement (as those derived from the patrilineal transmission of grazing rights) and the various ways in which previous occupation may alter the attractiveness of a place for subsequent users (cf. Dewar and McBride 1992:232). The ruins of old dwellings that belonged to some ancestor are frequently invoked in support of land claims, but since refuse and specially architectural remains interfere with new settlements and domestic
activities, the specific locations where these remains are present tend to be avoided. If the place is considered particularly favorable for some reason (e.g., temperature, permanent water, or good pasture), the new structures may be built near the old ones – perhaps mining some of their materials for the new construction – but in a different spot. Only some of the old corrals, which are associated with lower standards of "cleanness," may be recycled if they are well preserved. Reoccupation of "historically used" locations by main residences was observed in 20% of the cases (Table 7.1); if prehistoric uses are also considered, reoccupation rates go up to 36%, but none of them are spatially congruent.

The existence of agnatic territories – that are quite stable over time – and other social restrictions on the use of space, may result in differential reoccupation rates for places which are otherwise equivalent in environmental terms. Thus, a particular place may be repeatedly occupied not because it is the most favorable point in a "naturally defined" zone, but perhaps because it is the best place within the area controlled by the lineage or some higher-order socio-territorial unit (e.g., community, ayllu).

Long-Term Transformations

To conclude this chapter, I would like to point out some organizational changes apparently experienced by pastoral systems in the study region since the European invasion. These changes, some of which are historically documented, will serve to define some boundary conditions for our ethnoarchaeological observations, highlighting
important aspects in which present day land-use practices may differ from prehistoric ones.

One of them concerns the effects of demographic growth on the subsistence-settlement system. Given the limited potential for intensification of pastoralism, we can assume that the animal population remains approximately constant once the carrying capacity of an area has been reached. If human population continues to grow, and it is quite clear that it has until recent times at least, the average herd size per management unit has to decrease, leading to overstocking, intensified competition over pastures, and more instability. If alternative productive activities are not developed, as average herd size approaches the minimum necessary for subsistence, increasing numbers of people are forced to leave the system because they find impossible to make a living (Chapter 2). In fact, pastoralism in the study region may have already reached this point. My informants considered that a herd of 100-150 animals is the minimum needed to sustain an average nuclear family household. Mean herd size at the time of fieldwork was 158 LLU, or only 126 LLU if the two wealthiest households are removed from the sample. The actual figure may have been even lower, since some of the herds include animals that belong to community members living outside the canton. Population growth also leads to increasing territorial compartmentalization. In the mid-19th century, the area of what today is Sud Li'pez was a single canton (San Pablo) within the Province of Li'pez that included even an area north of Salar de Uyuni (Platt 1987a). Currently, the same space is divided in 12-14 cantones, Cerrillos being just one of them.
Under these conditions a number of practices that may have been efficient in the past. cease to be viable. I mentioned before the abandonment of the llapucha system that required to keep separate female and whole male llama herds in different areas. The most important consequence for our interest in this monograph is a general reduction in pastoral mobility due to intensified competition and to the administrative disarticulation of areas that were formerly integrated through transhumant circuits. It is perhaps in this process that seasonal mobility in some communities of Lípez lost the "multi-ecological" character that tends to have in other regions. These changes lead to a less efficient use of pastures, simultaneously increasing system instability, specially for those herders that find themselves confined to unpredictably fluctuating dry pastures. The replacement of wattle and daub by adobe may also be related to this process. Wattle and daub architecture does not endure very long, but demands minimal labor investments for construction. Its replacement by adobe brick masonry, which has high initial costs but is more durable and easier to maintain (McGuire and Schiffer 1983), could be a response to a general decrease in mobility.

Another important long-term change concerns the decreasing importance of hunting, gathering, and perhaps mining in the economy of the local population. As I mentioned before, llameros occasionally hunt (Vicugna, Lagidium), gather eggs, herbs, or wild roots, and extract minerals, but all these activities presently have a very secondary economic importance. Historical sources, however, suggest that these may have been far more important activities in the past. In 1580, in a letter addressed to Peru's Viceroy.
Lozano Machuca, a Spanish Colonial officer at Potosí, describes the population of our study region in the following terms:

"next to the hill of Escala, there are four towns of uru indians called Pololo, Notuma, Horomita, Sochusa, which are four and five and seven and ten leagues from the hill of Escala, and all of them belong to Your Majesty, and they do not pay any tribute because they have never been censed and because that land is famed for being inhospitable and the indians for being poor... poor people who do not farm or harvest and support themselves hunting guanacos and vicuñas, with fish and roots they find in their marshes that they call coroma." (Lozano Machuca 1885 [1581]:Apendix III:xxiii)

Pastoralism is not even mentioned, probably in an attempt to emphasize the "savage" character of these groups that kept themselves in the fringes of Colonial administration; hence the label of "urus" given to them, which probably does not denote and ethnic identity in this context but a low social condition that may have been generically attached (mainly by aymaras) to people who did not "farm or harvest." In a later passage, the author refers to the same indians as coming to Potosí with livestock and other commodities for trade, and later he mentions that indians throughout the region have silver melting furnaces.

Given the lack of autarky inherent to pastoralism, a diversified economic strategy like this is exactly what would be expected from populations living in a place like Li'pez.
What needs to be explained is, rather, why this diversification was lost. Mining was probably the first activity to decline among the local population, as Colonial powers and later the national state and associated mining companies seized control of the mineral reserves of the region. The exploitation of wild resources for self-consumption and trade were still significant in the 19th century (Platt 1987a:513). The overexploitation of these resources, mainly because of their demand for trade – specially *Vicugna* and *Chinchilla* fur – resulted in the decline of wild animal populations. The extinction of chinchillas took place in the late 19th century, while vicuña, guanaco, ostrich, and a variety of waterfowl have become endangered species, resulting in a number of restrictions over hunting and egg collecting during the past decades.

It is worth noting that both wild resources and minerals are more concentrated toward Cordillera de Lípez (Figure 5.3). For the more diversified economy practiced in the past, then, the productive contrast between the Lípez mountain range and the central plains must have been stronger than it is now, a fact that must have been reflected in land use strategies. The combined effect of all these changes (demographic pressure, territorial compartmentalization, reduced pastoral mobility, increasing pastoral specialization) on settlement systems should be taken into account when attempting to generalize from ethnoarchaeological observations.
ENDNOTES

1. The V/m index was calculated using the Quadrat module of IDRISI 3.1. The three main residences located in town were taken as one point to avoid an overrepresentation of this particular case of clustering on the general result.

2. Only residences effectively occupied during the period of fieldwork were considered in the quantitative analyses. If main residences of comunarios temporarily living away from Cerrillos are included, the distribution is more clustered and the mean distance to nearest neighbours is smaller.

3. I use the term "kitchen" to refer to these multifunctional activity areas (instead of a more neutral term such as "hearth area") because my informants referred to them with the Spanish word "cocina."

4. These boxes are obtained at the mining centers of the region and are used for a variety of purposes, from storage to building coffins.

5. Household 22 has a different mobility scheme, living all year round in the "dry" area and moving to an estancia on the cienego during the summer.

6. It has been noted that, by taking away a portion of the herds, caravan traffic releases some of the pressure over highland pastures during the most critical time of the year (Platt 1987:521). The search for forage, however, is not the primary goal of these movements and therefore does not determine their direction and destinations. This is not to say that grazing opportunities do not play an important role in the configuration of caravan journeys, since it largely shapes the routes that are followed and the distribution of campsites and resting locations along the trip (Chapter 10).

7. Exceptions to this pattern are the three households who reside more permanently at their estancias, thus occupying two locations that have most characteristics of main residences. In last chapter I proposed an explanation for this phenomenon.

8. This is not to say that every single pastoral household will have more than one residence: in Cerrillos only about one half of them do. Still, the use of multiple residences is a central characteristic of the settlement system that herders can resort to whenever they need to take advantage of additional grazing opportunities.

9. Similar regularity is observed in the territorial behavior of both wild and domestic South American camelids (e.g., Franklin 1983; Rabey 1989).

In the southern altiplano, vizcachas (*Lagidium sp.*) were still used intensively for self consumption and trade during the first decades of the 20th century (Cipolletti 1984:517).
CHAPTER 8:

PRACTICAL LOGIC AND RITUAL ACTION

When asking informants why they do things the way they do (e.g., build a house in a certain way or place), one commonly gets two kinds of answers. One of them is typically a reference to the advantages of the choice in question, e.g., "it's warmer here," "adobe rooms last longer than pauchis," or "it's easier this way." Examples of the second kind are "I like it here," "it's always been this way," or "it's just the way it is." These two ways of addressing explanatory questions illustrate different but complementary forms of approaching human action that could be termed "functional" and "practical." In last chapter I analyzed llameros' settlement system from the former perspective, discussing how its functional organization allowed them to cope effectively with basic demands posed by the biological, material, and social reproduction of pastoralism in this part of the Altiplano. In this chapter I would like to explore a practical approach to some of their activities and to the internal organization of some of their locations.

PRACTICAL LOGIC AND HABITUS

One of the objections commonly raised against functionalist explanations is that there are usually many ways of coping with functional demands like the ones just considered. Relating specific aspects of reality to certain "needs," does not explain why they are satisfied in a particular way. Practice theory addresses this problem by showing
that the particular forms of perception and action shared by the members of a group or class in their multiple practices, can all be reduced to a limited number of schemes (habitus) and underlying generative principles. These principles synthesize a distinctive practical logic that is brought into play by the members of the group in all their actions, including their understanding of new junctures and their creative ways of coping with them.

Analyzing llameros' behavior from this perspective, means searching for generative principles and practical taxonomies that underlie their actions in multiple settings, giving practical coherence to the multiple domains of their social life. These principles can be reduced in the last analysis to a limited number of simple, polysemous oppositions. These dichotomies and resulting schemes are not arbitrary or purely mental, but grounded in the practical experience of concrete conditions of existence:

"Produced by the practice of successive generations, in conditions of existence of determinate type, these schemes of perception, appreciation, and action, which are acquired through practice and applied in their practical state without acceding to explicit representation, function as practical operators through which the objective structures of which they are the product, tend to reproduce themselves in practices." (Bourdieu 1977:97, my emphasis)
Certainly, reducing a great amount of functionally underdetermined variation to a few, culturally-specific generative principles, and establishing their importance in social and cultural reproduction, does not solve the problem of explanation in the last instance, since the origin of these principles remains unaccounted for. Ultimately, habitus as it exists among concrete people in particular times, is the result of a history of active "invention with limits" (Bourdieu 1977:96), a contingent process of interaction between actors and structures (or "structuration" sensu Giddens 1984).

What is more important from an ethnoarchaeological perspective, however, is that the redundant operation of these principles in different settings should result in homologous "behavioral structures," offering the possibility of relating several, perhaps distant locations to the activity of a single group, or groups with a similar background, and conversely, to identify the intervention of different groups (i.e., of different practical logics) in analogous locations.

Even when, the generative principles of habitus are brought into play in every activity and location, the structure of residential areas and their use seem to offer the best setting for their exploration:

"[I]t is in the dialectical relationship between the body and a space structured according to the mythico-ritual oppositions that one finds the form par excellence of the structural apprenticeship which leads to the em-bodying of the structures of the world... In a social formation in which the absence of the symbolic-product-
conserving techniques associated with literacy retards the objectification of symbolic and particularly cultural capital, inhabited space – and above all the house – is the principal locus for the objectification of the generative schemes; and, through the intermediary of the divisions and hierarchies it sets up between things, persons, and practices, this tangible classifying system continuously inculcates and reinforces the taxonomic principles underlying all the arbitrary provisions of this culture." (Bourdieu 1977:89)

With variations in the ways they conceive of underlying generative schemes (i.e., whether they are understood as primarily mental or practical), analogous approaches to the analysis of the built environment have been taken by a number of authors (e.g., Bourdieu 1973; Douglas 1972; Lawrence and Low 1990; Levi-Strauss 1977; Rapoport 1990), including archaeologists (e.g., Donley-Reid 1990; Hodder 1994; Leone 1984; Locock [ed.] 1994; Parker Pearson and Richards 1994). Closer to our project community, Arnold (1992), Gose (1991), Palacios (1990), and Van Kessel (1992:58), among others, have looked at the structure of Andean dwellings and associated construction rituals from a similar perspective. An indepth analysis of Cerrillos’ settlements along these lines is certainly beyond the possibilities of this monograph (and the skills of the author). My purpose in this chapter is just to define some of the generative principles that seem to underlie llameros’ use of space and ritual actions, as they can be inductively derived by observing the structure and use of main residences and ritual locations. These principles will later allow us to recognize the redundant operation
of the same practical logic in other settings *llameros* occupy during their caravan journeys, outside the altiplano.

Perhaps my emphasis on the analysis of rituals in this context deserves an explanation. Ritual, more than any other kind of action, reveals the fact that practical structures exist and are reproduced, not in symbolic codes or meanings, but in the direct interaction between people and the built environment – "behavior" as defined in Chapter 4 (cf. Schiffer 1992:2):

"Rites, more than any other type of practice, serve to underline the mistake of enclosing in concepts a logic made to dispense with concepts; of treating movements of the body and practical manipulations as purely logical operations; of speaking of analogies and homologies (as one sometimes has to, in order to understand and to convey that understanding) when all that is involved is the practical transference of incorporated, quasi-postural schemes. Rite is indeed in some cases no more than a practical *mimesis* of the natural process which needs to be facilitated... the most characteristic operations of its "logic" – inverting, transferring, uniting, separating, etc. – take the form of movements of the body, turning to the right or left, putting things upside down, going in, coming out, tying, cutting, etc." (Bourdieu 1977:116)
Ritual behavior, then, may offer an ideal point of departure to discuss those practical schemes that underlie pastoralists' actions in a wide variety of settings. The emphasis on rites is further supported by the fact that most of the archaeological remains that have been attributed to activity of caravans are considered to be ritual, e.g., rock art, geoglyphs, walls-and-boxes features, and apachetas or rock cairns.

To provide the reader with the empirical material that supports the analysis of the last section, I will start by describing in some detail three important ritualized actions that take place at residential locations (inflorada, llama slaughtering, and funerals) and the most important "traditional" public ceremony still practiced in the community, known as Espiritu.

DOMESTIC RITES

Inflorada

Inflorada, celebrated anytime between New Year's Eve and Carnival in the middle of camelid's birth and mating season, is the most important domestic ceremony of the pastoral cycle in Cerrillos. It is rite of exchange in which llameros plead for the reproduction of their herds. Similar practices (also called Agustukuy or Señalakuy) have been reported for pastoral communities throughout the Andes, with a number of variations in timing, details of ritual action, and in the interpretation given to them (e.g.; Boman 1991 [1908]:489-497; Flores Ochoa 1977; Gow and Gow 1975; MacQuarrie 1994; Merlino 1983; Merlino and Rabey 1978; Nachtigall 1975; Quispe 1988; Taipei
Pastoralists in Cerrillos believe that all their animals are ultimately gifts from the Mallkus (analogous to the Central Andean Apus), to whom they return after death. These are masculine entities, associated with mountains and high places in general, where male llamas (also called orqo llamakuna, "llamas of the mountain" [Concha Contreras 1975:67]) are kept. Mallkus, sometimes represented as breeding males or jañachos, provide the seeds for the reproduction of the herd. Pastoralists address them when they ask for multiplico; if they want particular fleece colors, they make offerings to specific Mallkus who are known to provide them; when a llama is slaughtered, it is "sent back" to the local Mallku with the hope that if the proper ritual is followed, he will eventually return it to the herd. Pachamama (Mother Earth), on the other hand, is a female entity associated with low, flat, open portions of the landscape (campo), where the reproductive segments of the herds graze; it is credited with the fertility of the land, with rain and with the growth of plants. By providing pastures, she is the sustainer of the flocks and is invoked to protect the animals from starvation during the dry season.¹ The relationship between Mallku and Pachamama is described by llameros as one between spouses. Besides them, there are a number of other lesser forces associated with the underworld or Ukuh Pacha (Bouysse-Cassagne and Harris 1987) that can take their toll from the herd, apparently in a rather capricious way. These include illapa (lightning), q’ochas (water springs), and wak’as (usually associated with quartz and other white stones). Herdsmen
try to appease them with special offerings, so they do not harm their animals. The
inflorada, like other ceremonies to be described later (e.g., Espíritu or the k'owakos
during caravan journeys [Chapter 10]), are meant to invoke the favor of these entities.

I participated of inflorada at Carmelo Wy's residence on January 1st, 1998. The
ritual action started on the eve of the day chosen for the ceremony (actually New Year's
Eve), although some related activities, like chicha brewing, had begun a couple of weeks
before. Early that morning, after circumambulating with smoking k'owa the house,
corral, and altar, Carmelo chose a white llama from the herd and took it to the wirgin,
where it was blinded, laid down facing east, given coca leaves, and sacrificed. While the
blood was thrown eastward in repeated right-to-left movements, the wirgin was "opened"
removing the quartz cobbles (the miniature "herd"), uncovering a pit covered with a slab
beneath it. Carmelo buried there the llama's heart with some coca leaves, put back the
miniature herd and "fed" it with bunches of straw, then poured blood and dung. Finally,
red yarn was tied around every stone figurine, mimicking what was to be done the next
day. The carcass was then butchered following the regular procedure (vid infra); the
meat was taken to the kawildu and hung from the roof beams.

In the afternoon, the household members and some of Carmelo's godchildren that
were present, gathered in the south side of the kawildu to prepare the offerings. They
made a thick dough mixing llama fat (tujtuca) with cornmeal (llompaqa) which was then
shaped into small figurines resembling llamas and sheep known as virauñas. They were
tied in "mating pairs" and distributed inside two washbasins ("one for llamas, one for
sheep”); in one of them, they put two dozens of llama pairs together with bundles of white and red wool, *k'owa*, and two *k'ichiras*; in the second, one dozen of sheep pairs, white wool, and *k'owa*. They also made two bigger llama figurines which were said to represent the two whole males of their herd (*jañachos*). Then, they prepared a *mesa* placing them on top of an *awayo* spread on the ground, next to the *kawildu’s* altar, together with the two washbasins, a miniature saddle-bag filled with cornmeal, a *ch'uspa* with coca leaves, red yarn (for the llamas’ ear “flowers”), a chunk of fat, a pitcher (*yuro*) and two cups filled with *chicha*, one bottle with cane alcohol and one with wine, candles (always in even numbers), a wooden goblet (*k'eri*) with *k'owa* used as censor, and a flat, square piece of sugar with the image of a *Tata Rey* on relief, called *suplico*.²

After sunset, a couple of neighbours arrived, joining us around the *mesa*. At one point, Carmelo kneeled facing east in front of the *Tata Rey* (which was sitting on a *Cavia* skin in the corner of the room) and raised the smoking censer in small counterclockwise motions, then put coca leaves in the Rey’s *ch’uspa*, and poured *chicha* on it. Everyone followed this procedure. After that, Carmelo’s wife and one of his god daughters served for dinner roasted meat from the animal sacrificed in the morning. We spent the rest of the night repeating a ritual action known as *acullicay* which is part of pastoral ceremonies throughout Lípez. It can take two forms. The first one is “circular;” every person in the round passes her or his *ch’uspa* to the person sitting to the right, who takes a few leaves and passes the bag again, repeating this act until every *ch’uspa* returns to the owner. An alternative design for this same action could be termed “diametrical;” the exchange of
*ch'uspas* is completed between pairs of persons, beginning with the person sitting right across in the round, then repeating it with the person sitting to the right of the first one, and so on until everybody has exchanged with everyone. If the *acullicay* is devoted to an entity or purpose, everyone keeps some leaves from all the *ch'uspas*, which are collected at the end and placed on the *mesa*. In this case, *acullicays* were carried out for *Tata Rey*, *mesa*, llamas, sheep, for *Tres Cerrillos* and for all the important Mallkus in the region. Each one of these rounds was alternated with drinking *chicha*, wine, or pure alcohol in the caravan bells or *animeros*, an act that has to be followed by shaking the bell energetically.

At sunrise, Carmelo wrapped the offerings and his caravan bells in the *awayo* and climbed up to the altar of *Espíritu*, which he referred to as "his kuyuri." He only left the two *jañacho* figurines, which were burned next to the *virgin* during his absence. Once there (see Figure 8.2), he lit a fire on the east side and circumambulated the altar sprinkling cornmeal (*llompaqa*) following the usual counterclockwise direction. This action is known as *llompaqay*. He displayed the offerings on the stone platform, then took the bottles and washbasins and threw their content to the fire, except for the wool, that was separated in several pieces and tied around the llama-shaped slabs on top of the boulder and around the quartz crystal or *wak'a*. He wrapped all the items back in the *awayo*, sprinkled *confetti* over the altar, repeated the circumambulation and left.

Back at the house, we had a meal (ca. 10 am). After this, the llama herd was driven into the corral (others use the courtyard for this purpose). This time a *mesa* with
chicha, coca, cornmeal, animeros, the censor, and the red yarn "flowers" was set up in the southwest corner of the corral. By noon, after several acullico rounds about a dozen more neighbours and relatives had arrived. The corral was circumambulated with the smoking censor, Carmelo threw several small pitchers (chuyayuros [Figure 7.4]) full of chicha over the animals and the inflorada began. Men grabbed the animals by their ears and women sewed there a few pieces of red yarn using a kneedle. Meanwhile, Carmelo did the earmarking assisted by two men. He cut two notches in the ears of each one of his yearlings, wrapping the pieces with wool soaked in blood, and collecting these little bundles in a ch'uspa. When he finished, he buried them next to the wirgin. The inflorada lasted until dusk, with a few breaks for drinking chicha. Once all the animals had their new "flowers," the herd was released.

Some of the women had been busy cooking all afternoon in the outdoor kitchen and roasting meat in the oven. Once the activities in the corral were finished, everybody moved to the kawildu, where a lavish meal was served. Chicha, alcohol, and coca leaves were served all night. As they left in morning, Carmelo gave every person a sizeable piece of meat in recognition for their help.

Slaughtering

According to custom, butchering for self consumption and for ceremonies must take place in the courtyard, a rule that does not necessarily apply when "killing for business." In the case of llamas, it is a highly ritualized event, as I could witness one
morning at Eleuterio Ch’s house (hh#12). His brother Santos, who had been living permanently in Tupiza for several years but still kept his herd and community membership in Cerrillos, wanted to sacrifice his last two castrated llamas for sale in the city. The male segment of Eleuterio’s herd (about 10 head including his brother’s animals) was brought down from the cerro the day before and gathered them in the courtyard early that morning. Santos separated his two llamas and tied their rear limbs, while the rest was released. They were then blinded, wrapping white rags around their heads, and put down on their left side, facing east.

Eleuterio then put on his poncho, a ritual garment that llameros always wear in ceremonial contexts, brought out his ritual artifacts from the kawildu and prepared the mesa in the middle of the courtyard. He spread out a saddle bag on the ground, placed two caravan bells or animeros (his and his brother’s) across and on top of it, a rope and a ch’uspa with coca leaves (on the right side), and put a small bag with comnmeal behind him. They all kneeled behind this altar, facing east – Cecilia (Eleuterio’s wife) on the far left – chewing coca for few minutes, while exchanging their ch’uspas at regular intervals. Next, Cecilia brought a clay bowl with coals and k’owa and each person took turns to circumambulate counterclockwise the lying animals holding the smoking bowl (an action known as sahumar) which was then left “in front” of the courtyard, outside the compound. They took pieces of wool and added coca leaves, making two bundles that, were introduced into the llamas’ mouths. Eleuterio and Santos then tied the animeros to the right front limb of each animal and slit their throats. The blood was collected in two
wash basins. While Santos kept whisking the blood with a stick to prevent coagulation, his brother took some of it in a sherd, put coca leaves and, after Cecilia had added some cornmeal to the mixture, threw it toward the east, repeating several times this operation ("first for the Mallkus, then for Pachamama" they explained). The same mixture was then thrown with a right-to-left motion to the walls and lintels of all the rooms facing the courtyard ("for the house"), beginning with the storage room. They put their ch'uspas close to the dead animals' mouth ("so they can breath") and shook the animeros ("so they find their way"). Then, they returned all ritual objects to the mesa, including their ponchos, and began to butcher, assisted by a neighbor that came to visit at this point.

First, the skin was removed, taking with it the head and metapodia, which are usually dried for later consumption in soups and stews. The entrails were extracted and cleaned; part of the content of the bowels was poured on the wirgin east of the house, the rest on the dung pile south of the storage room. The pericardial tissues of the two animals were removed and stuffed with the coca bundles taken from their mouths and small pieces cut from their tongues, eyelids, noses, ears, feet, tails, skin, and entrails; then placed on a ch'uspa next to the mesa. When dry, these pintus or k'ichiras as they are called, serve as offerings to the Mallkus and Tata Reyes in multiple ceremonies (cf. Rasnake 1989:202). Finally, the carcasses were split in seven parts: the neck or cervical column; two front limbs together with scapulae and ribs from each side; two rear limbs with the corresponding halves of the pelvis attached; the rest of the vertebral column; and the "chest" or sternum, including the abdomen. Santos gave his brother one of these
parts and a fair amount of boneless meat to the neighbor that helped them; the rest of the meat was wrapped in several *awayos* (weavings) and put away in the storage room. Concluded the butchering, the mesa and its content (*k'ichiras* included) were returned to the *kawildu* and we all gathered in the open kitchen to eat the entrails that in the meantime Eleuterio’s wife had broiled.

**Funerals**

Traditionally, funerals include three different stages.\(^3\) The first one, directly related to the demands of the catholic cult, involves waking for the deceased at the house, bathing and dressing up the corpse in the morning, and carrying it in procession to the cemetery near town where it is buried.

The second step, known as *dispachu*, takes place back at the main residence eight days later (cf. Van Kessel 1992:87-93, also Boman 1991 [1908]:518-521). Friends and relatives collect all the dead person’s belongings, including pots and pans, clothes, and tools, old and new. They make a model house in cardboard and small baskets, filling them with noodles, corn, cornmeal, and other foodstuffs. In the meantime, others prepare food, serve alcohol, and collect great amounts of firewood which is piled 200-300 meters west of the house. Men spend the day playing a game known as *palomeada*, in which two teams compete over who hits more times a target, usually a piece of white quartz. At sunset, one or two llamas marked with blue "flowers" (instead of the usual red ones) are loaded with all the objects, baskets, cardboard house, and dragged westward to the wood
pile, where they are sacrificed. Their meat is distributed among those who have helped, while the load and the bones are burned in the pile. According to tradition, these animals will accompany the deceased and carry his belongings in his last journey to "the other world," beyond the Pacific Ocean or "great Q'ocha." Some people hear at night the bells of this caravan heading west; others have seen from the distance the dead's trail going across the central plains of Lípez, toward Colcha and beyond, but it always disappears when one gets closer.

The third stage takes place the following November 1st, for All Saints Day. Again, friends and relatives gather at the house the day before to share food and drink and play palomeada. A special dinner is served for the deceased on the stone mesa in the courtyard, with all the food that she or he liked. Branches of churqui (Prosopis ferox) brought from the valley are used to build a "tree" in the kawildu, hanging from it pieces of bread as if they were fruits. The visitors spend the night around the tree, praying, drinking, and playing music. The next morning, the bread is distributed and the tree is burned behind the house together with the defunct's food, giving way to a party that lasts the rest of the day.

COMMUNAL CEREMONIES: ESPÍRITU

Espíritu is an example of annual community ceremonies devoted to the Mountain Spirits or Mallkus that were held in the past throughout Lípez, and probably in the Central Altiplano as well (e.g., Izko 1992). These rites used to bring together all
households living in a given area (minimum ayllus?) to make animal sacrifices (wilanchas) and other offerings to the most prominent local mountains in order to invoke their favour – whether it be multiplication of the herd, rain, or protection against disease. Organizing these events was responsibility of local jilaqatas. In the case of "powerful" Mallkus, they would also be attended by higher-order ethnic authorities and members of more distant communities. They also played (and continue playing where still practiced) and important role in the reproduction of social relations within communities; since they gathered local groups who held key resources in common and competed over their usufruct, offering important opportunities where social power could be displayed and contested.

Espíritu is held at Tres Cerrillos for Pentecost Day (late May-early June) and is attended by those living on the eastern side of canton Cerrillos and members of neighbouring communities (Cieneguillas, Viluyo) who live near the mountain. A similar rite was held until few decades ago by those living on the western side of Cerrillos on top of Tangani, the other prominent mountain of the canton.
The Altars

Tres Cerrillos owes its name to the fact that it is crowned by three small, contiguous peaks that give this mountain a characteristic shape. The ritual takes place in three altars; the main one is located on a flat area at the base of the three peaks, the others are on two of the summits (Figure 8.1).

The main altar comprises six features roughly aligned from west to east (Figure 8.2): (1) a curved windbreak (0.8 m high, 3 m in diameter) made of dry-laid stones, with a low bench inside, where people protect themselves from the wind during the ceremony; (2) a rectangular stone platform, where the offerings are displayed; (3) a large (ca. 1.5 x 1.5 m and 1 m high) boulder with several slabs naturally shaped like llamas stuck on top of it, like a stone herd marching toward the peaks; (4) a white quartz crystal also shaped like an animal, called wak'a; (5) several hearths; and (6) a pile of dung north of this alignment. To the east, the three peaks of the mountain rise about 200 meters above the altar.

The second altar is on the northernmost peak and is dedicated to the llamas. It comprises a small rock cairn where the Tata Rey is set up, a hearth, and three pits filled with loose rocks. The third altar, devoted to sheep, is on top of the central peak and resembles the second one, except that it only has one pit next to the hearth.
Figure 8.1: Location of the altars of Espiritu at Tres Cerrillos.
Figure 8.2: Communal altar used for the Ceremony of Espiritu at Tres Cerrillos.
The Espíritu Ceremony

I attended Espíritu for the first time in May, 1995. As it happens with other Andean ceremonies, it can be divided in three stages: (1) Espíritu’s eve, or the preparation of offerings; (2) the sacrifices or wilanchas at the mountain altars; and (3) the feast back at the alferez’ house.

I arrived to Luis Wy’s house (hh#2, Figure 8.1), who was the alferez that year, at sunset on Espíritu’s eve. Carmelo Wy and about ten other comunarios were already gathered in the kawildu. In the south end of the room was an altar, with the usual items on top, i.e., ropes, animeros, ch’uspas with coca, flamingo feathers, red yarn. In the corner next to it, was Carmelo’s Tata Rey, with its ch’uspas, surrounded by candles. On the floor, in the middle of the room, there was a blanket with all the ingredients necessary to prepare the offerings: llama and vicuña fat (tujtuca), a wild root known as ancañuca, incense and k’owa, cinnamon, clove, rosemary, candy, cornmeal (llompaqa), coca leaves, red and white wool, sugar images (suplicos), mica fragments, and several k’ichiras. There were also several bottles and clay pitchers containing chicha, wine, and cane alcohol.

The alferez sat on a stool behind the altar and delivered a speech on the importance of ancient traditions (costumbres), about how honored he was to be given the opportunity of sponsoring the feast and having us all as guests, and wished that the celebration brought benefits to all members of the community that were not present. When he finished, everyone knelted in front of the Tata Rey giving alcohol and coca
leaves to it. Concluded this introduction, men sat on the floor around the blanket and began to prepare the offerings, while women went out to cook.

Like in inflorada, cornmeal and fat were kneaded to make llama figurines or virauñas. Each pair was this time accompanied by pairs of small cones of the same material known as chukas, which are believed to protect them. They were arranged in three plastic washbasins; one for the Mallku with four dozens of llama pairs and four k'ichiras; one for the mesa with two dozens of pairs and two k'ichiras; and one for sheep with two dozens of lamb pairs. They also made one figurine with vicuña lard and ancañuca that was wrapped with vicuña wool and placed in clay bowl. All figurines were “corralled” with wool and accompanied by an equal number of chukas. The basins were also filled with k'owa, coca leaves, suplicos, and confetti. Twelve suplicos were then ground with candy and poured in numbered paper envelopes. Carmelo directed the whole operation, while one of his young godsons he referred to as reemplazo (“replacement”), sat next to him writing down carefully his instructions in a notebook.

At midnight, Sinforosa (the alferez’ wife) assisted by several women neighbors served supper.

During all this time, a man was constantly going around with a pitcher and a cup serving chicha and other alcoholic beverages, something he kept doing for the whole duration of the ceremony. Before drinking, every person poured a few drops on the ground, the altar, and toward the Tata Rey, a ritual gesture known as ch’allay. At regular intervals they made the ritual exchange of ch’uspas or acullicay; after each round, the
alferez offered cigarettes and passed around a large bag with coca leaves for everyone to re-fill their ch’uspas. These activities continued until sunrise, when a kind of soup named khalapari, cooked by introducing hot quartz cobbles inside, was served. After this, men put on their ponchos, packed the offerings and objects on the altar in their awayos, and began hiking up the mountain accompanied by some of the women. Carmelo took his Tata Rey with him. There were more than 20 persons in the group at this point.

An hour later we reached the main altar, where the fire was immediately lit. After this, everyone circumambulated the altar three times; the first time sprinkling cornmeal (llompaqay); the second, holding up a smoking censor (k’owando) while invoking the spirit of Tres Cerrillos and other important Mallkus in the region (Chorolque, Cubincho, Lípez, Bonete); the third sprinkling alcohol around the altar (ch’allay). As in other life-related rituals, this and all other circular motions followed a counterclock direction. These actions were performed by every new person that arrived during the day, were repeated each time the ritual proceeded to new areas (e.g., when arriving to the altars on the two peaks) and again before leaving them.

The Tata Rey was then placed next to the wak’a; the stone platform was covered with an awayo and the offerings distributed on top of it, together with the animeros, ropes, miniature saddle bags, ch’uspas, quartz cobbles, mica fragments, and several bottles and pitchers with chicha and alcohol. Some men that arrived later added their own bells to this altar. Several containers with chicha and alcohol were placed around it on the ground. The clay bowl with the vicuña figurine and the censor were placed next to the Tata Rey. Most people sat on the bench inside the windbreak, women to the left, men
at the center and to the right, and spent some time talking, drinking, and chewing coca leaves waiting for more people to arrive.

Around 10 a.m., the male segment of the alferéz' herd arrived to the altar, driven by two boys. Carmelo chose a white llama that was put down next to the dung heap (Figure 8.2), facing east, its eyes wrapped with a scarf and coca leaves in its mouth. They hung an animero around its neck and tied an empty saddle on its back, as if it was loaded for a journey. All men gathered around the animal pouring chicha and dropping coca leaves on it, while Carmelo addressed it crying, apologizing for what they were about to do. Then he opened the llama’s chest with a knife and took out the throbbing heart,\(^4\) which was wrapped in an awayo, and put in a trough together with everybody’s ch’uspas. He collected the blood of the sacrificed animal in a cup, to which the women added llompaqa, and threw it eastward several times; then poured blood on the Tata Rey, the "stone herd" on the boulder, the offerings, and the wak’a – reciting in this case the name of water springs and other dangerous places in the canton. Next, all married couples kneeled in a circle around the Tata Rey, their heads and backs covered with ponchos and awayos, and passed around the trough with the heart and ch’uspas, each couple raising it, first to the staff, then to the mountain, pleading for animals, wealth, and good luck (intenciones).

Carmelo then selected a few men to go up to the “llama peak” (Figure 8.1). They took the trough with the heart, the washbasin with the offerings for the Mallku, the bowl with the vicuña figurine, the Tata Rey and a bag with a live cuy or guinea pig (Cavia
porcellus) that a man had brought from Carmelo’s house. We climbed the steep hillside following the usual counterclock motion. Once on top, we circumambulated the altar llompaqueando, set up the Tata Rey on the rock cairn, lit the fire and placed the offerings near it. Next, we circumambulated the staff seven times on our knees and opened the three pits. In the first one, Carmelo sacrificed the cuy and poured its blood. In the second, he “killed” the vicuña figurine, cutting its head with a knife, simulating that it was alive and that this action took him a lot of effort, while the others around him cried and jumped around pretending the “animal” was trying to escape. In the third pit they buried the llama heart. The three pits were then covered back with rocks. After this, Carmelo threw the content of the Mallku washbasin to the fire; as it burned, he mixed each one of the 12 ground suplicos with chicha, throwing them over the fire, repeating the same operation with sugar, candy, cinnamon, clove, and rosemary.

During all this time, two men had been sitting around the Tata Rey, drinking and chewing coca "with him," periodically pouring alcohol on its silver top and adding a few coca leaves to its ch'uspa, an act known as sink'ay. Once the offerings had concluded, we all joined them. Carmelo delivered a short sermon for us. He said that llamas are just gifts from the Mallku; the more one has, the more one must kill for him, because in this way even more will be received back. He recalled with nostalgia the old days when jilaqatas from all over the province would be sitting around their staffs on the summit, like we were then. He lamented the abolition of ethnic authorities; “but it doesn’t matter,” he added “as long as we have Tata Rey.” Then he picked up the staff and we all
followed him down to the main altar, where the rest of the group was. Half way down a short stop was made, sticking the Rey upright in the ground and drinking around it. By the time we got back to the main altar, the sacrificed llama had been butchered and the pieces packed to be taken down to the house. The llama herd was gone, but the sheep herd of the alferez had been driven up.

After a short break, we climbed up the second peak. This time, a man carried on his back a live lamb wrapped in a blanket all the way to the top. After sprinkling llompaqa around the altar, lighting the fire, setting up the Rey on the rock cairn and circumambulating it six times on our knees, the pit was opened uncovering a few bones inside. The lamb was tied down facing east and sacrificed next to it. While its blood was thrown several times eastward, the heart was extracted, sprinkled with llompaqa and alcohol, deposited inside the pit, and covered with rocks. Some men started dismembering the carcass, while others burned the offerings inside the trough and threw eastward 12 ground suplicos mixed with chicha. The entrails were expediently emptied on a small, pre-existing dung pile, thrown to the coals for a few seconds, and quickly eaten. We stayed for a while sharing alcohol and coca in a circle around the Tata Rey and then went down. As in the first case, we descended the opposite side of the peak, completing in this way a counterclockwise rotation.

When we returned to the altar, people were "inflorando" the "stone llamas" on the boulder and the wak’a, i.e., tying pieces of red yarn around them. Carmelo and the rest of the men joined them. When they finished, the sun was setting. Before going down, the
alferez for the following year had to be elected. Some proposed Carmelo’s godson (the “replacement”), but the majority thought he was still too young (20). After some discussion, Feliciano Ch (hh#5) asked for the right to speak and delivered a solemn speech. He recalled he had been born in Cocani, where he was very poor; then he came to live with his wife (lineage A) in Cerrillos, where people had been very generous with him, and where he had become a well-respected person; he therefore requested the honor of hosting the following year’s costumbre. After a short round of discussion, Carmelo appointed officially he and his wife alferez for next year and everybody clapped. To conclude, men drank in their animeros, shaking them vigorously. Before leaving, everybody circumambulated the altars sprinkling cornmeal.

It was dark when we returned to the house. Four women, who had been specifically recruited for this purpose, had been cooking all day over two large hearths built in the courtyard. Two young men were roasting the sacrificed animals in the oven; one of them had gone up to the altars twice during the day with a donkey to load the meat and carry it back to the house. People gathered in the kawildu, putting back in place the Tata Rey and the ritual paraphernalia. Carmelo and the alferez (old and new) sat in the place of honor, behind the mesa, while the rest of the people sat in a circle. Two blankets filled with roasted meat, corn ears, and potatoes were placed on the ground in the middle of the room, surrounded by dozens of bowls full of stew. As we all contemplated the steaming food, the passing alferez delivered a long discourse, emphasizing the amount of effort invested in the preparation of this feast and the great honor it was for him to host it.
Carmelo then blessed the banquet with the staff and the food was served. As we ate, two bags were passed around to collect the bones of each animal. All the bones had to be collected unbroken; the next day they would be taken back to the altar and burned in two different hearths (Figure 8.2). After everybody had eaten as much as they could, a tape recorder was brought in and everybody spent the rest of the night dancing and drinking. Most people stayed until the next morning. As they lived, they were all given large cuts of meat, corn, and potatoes, that were carried in plastic bags everyone had brought with them, specially for this purpose.

SPACE, RITUAL GESTURE, AND PRACTICAL LOGIC

religion is danced, not believed

(R. R. Marett, in Kluckhohn 1979:v)

For a behavioral observer, the ceremonies just described take the form of highly patterned and repetitive sequences of acts I will refer to as "ritual gestures" (i.e., simple and very formalized body gestures and object manipulations [cf. Urbano 1976]) and structured movements of people and objects in space. In this section I discuss a limited number of principles that underlie these actions, linking them by analogy with other behavioral domains (social relations, economic production and complementarity, etc.). These associations are not intended to reflect the subjective dimension of these acts, capture their deep meanings,5 or summarize the rendering that the actors themselves give of the symbolic connotations of their behavior:
"Understanding ritual practice is not a question of decoding the internal logic of a symbolism but of restoring its practical necessity by relating it to the real conditions of its genesis, that is, to the conditions in which its functions, and the means it uses to attain them, are defined." (Bourdieu 1977:114)

The following analysis then is just meant to highlight relations of correspondence with objective conditions (natural or social) from where ritual acts take their form and other practical settings where the same structuring logic seems to apply (i.e., where homologous schemes of action are found). Principles and associated behavioral patterns and gestures will be summarized in three models that synthesize aspects of the practical logic played out by llameros in their use of space, in social relations, and in economic production. Finally, a number of gestures are conceived as "ritualizing acts" that serve to differentiate ritual from other domains of practice (Bell 1992).

The Logic of Space

The practical logic underlying the use of main residences and ritual locations can be synthesized as a series of interrelated oppositions along five spatial axes that could be termed frontal, radial, lateral, vertical, and circular. These dichotomies express basic categories through which llameros order the world around them.
A first dichotomy ("frontal") is that between east and west, the rising and the setting sun. U-shaped courtyards, open kitchens, windbreaks, and corrals all open to the east. The structuring significance of this orientation beyond its obvious functional advantages is put in evidence by the eastward position of wirgines and chapels in relation to the house and their orientation, and the linear arrangement of Espiritu's main altar. In fact, herders seem to perceive themselves and the world around them as primarily oriented eastward; in the house or in any other location, this direction is referred to as "the front," as west is "the back," north is "left," and south is "right." Thus, when one asks a herder where should the garbage be thrown, a common answer is "to the front." The practical relevance of this direction does not only derive from the movement of the sun, but is rooted in a number of daily experiences of people in Cerrillos. The east is where the valleys, the city, and other places where llameros get their vital complementary resources are; it is where the most important Mallkus revered by llameros dwell (i.e., high mountains of Cordillera Oriental); the summer rains that replenish the exhausted range, are brought by the eastern winds. West of Cerrillos are the arid central plains of Lípez that drovers dread to cross when they go to get salt from Patana; the cold western wind, Wasayaya (literally "the wind from behind"), is the one that prolongs the dry season and starves the animals to death.

This opposition acquires various connotations in different contexts; east is associated with life, health, and prosperity, while west is death, sickness, and scarcity. In both Espiritu and inflorada, for example, propitiatory gestures such as burning fat,
k'owa, or coca leaves, burying hearts, pouring dung, raising a smoking censor, or throwing alcohol, blood, or chicha, are all addressed eastward. Conversely, burning the bones of dead animals or a dead person's belongings is done behind the house. In "the old days," when the jilaqata was called to heal a person, he would stand "in front of the house" and pray to the Tata Rey for the persons' health.

The second spatial opposition takes place along a "radial" axis, contrasting inside and outside. This dichotomy is played out at different scales; regionally, between the Altiplano and other ecozones; locally, between the private, domestic space and its open, communal surroundings; and within residential locations, between more intimate activity areas reserved to household members or close friends and relatives (e.g., the kitchens), and social areas open to strangers, like the courtyard and the kawildu. This opposition is also related closely to that between female and male. Kitchens (indoor and outdoor) and associated assemblages are primarily considered female spaces, while kawildus are viewed as male. Cooking is primarily a female activity, so women use kitchens more than anyone else; women will visit other women in this area; if spouses quarrel, wives may move to sleep in the kitchen and may not even allow their husbands in. Field looms (female artifacts of pre-Hispanic origin) are usually located in the open kitchen or close to it. On the other hand, male items such as caravan gear, Tata Reyes, and other ritual paraphernalia are kept in kawildus, where men receive strangers or host parties and ceremonies in which other comunarios participate. Men's loom (unlike women's loom, an artifact of foreign [Spanish] origin itself) is placed outside the domestic area. Moving
Figure 8.3: The practical compass.
to a larger scale, women are the ones that stay the most at main residences, while men, even when they are in the canton, spend most of their time outside, looking after the animals, monitoring the male segments of llama herds in the cerro, or busy in community offices or faenas. Finally, most women stay in the altiplano in charge of the herd (the reproductive segments in the case of llamas) throughout the year, while men spend long periods in other areas engaged in various complementarity practices.

The third, lateral opposition, right:left, also refers to a male:female dichotomy. When informants are asked to give an ideal rendering of residences ("how they should be"), most of them consider that kitchens (female) should be in the left side, the kawildu in the center, and storage rooms (also considered male since they largely store the products that men acquire or trade with their caravans) to the right — of course some also answer that people build them anyway they want. This lateral division repeats itself within the kawildu. Although considered a male area, it is typically divided in two halves; on the right side, ritual and related paraphernalia (i.e., musical instruments) are kept, while the left side may be used for sleeping and miscellaneous storage. Likewise, the stone ritual mesa is always on the right side of the courtyard, opposite to the kitchen side; the same relative position was assumed by the mesa inside the corral during inflorada. During Espíritu, women always sit on the left side of the windbreak and men on the right.

The fourth spatial dichotomy is vertical, contrasting "up" and "down." It has several transpositions such as mountain:plain, Mallku:Pachamama, male:female,
Altiplano:valley, herding:farming, cold:warm, etc. For example, the wirgines, devoted to Pachamama and fertility, are located in a low, flat area next to the house, where women and the reproductive segments of the herd are: kuyuris, on the other hand, devoted to Mallkus ("the seed givers"), are on top of an elevation and outside the domestic space, where men and the male segments of the herd stay most of the time. Likewise, offerings to Pachamama are buried or poured "down" (like the ear pieces and the blood at the wirgin), while those given to the Mallkus go "up" through fire (like the fat and the k'ichiras burned at the kuyuri or the various offerings burned during Espíritu) or taken up by men to the top of the mountain, where women are not allowed to go.

Finally, the direction followed in circular motions also have connotations within this spatial logic. Counterclockwise movements are always associated with life-related rituals and clockwise movements with death-related ones. Thus, when the courtyard is circumambulated with burning k'owa to purify the enclosed animals the day of caravan departure, this movement is counterclockwise, as are the circular motions of the censor when it is raised, or the circulation of bells with alcohol or of ch'uspas in acullicay. By contrast, when a dead body has been cleaned and dressed, the funerary procession only leaves the house toward the cemetery after carrying it around the courtyard a couple of times in a clockwise direction; the same procedure is followed when "the dead's caravan" leaves the house westward the day of the dispachu (cf. Van Kessel 1992:87-101).

Figure 8.3 synthesizes the five structuring oppositions discussed thus far in an abstract spatial model, which could be called "the practical compass." I use the concept of
compass in order to emphasize that, as noted in the case of the outside:inside axis, this is an actor-centered relational model whose reference point moves according to the practical context in which individuals act. In other words, the application of the same relative logic in different situations, may result in contrasting ways of classifying the same concrete entities. For example, I mentioned that the kawildu is divided in a right, male, ritual half and a left, female, domestic one; but the whole kawildu is considered male by contrast with female hearth-related areas of the house; shifting to a local scale, the entire residence and associated domestic areas are female in opposition to the open communal, male territory, which in turn is altogether female and domestic when compared to men's interregional ventures. Finally, when played out in the interaction with valley agriculturalists, this logic results in an inversion whereby llameros' own territory, the Altiplano, is given male attributes (mountain, Mallku, herding) in opposition to the female character of farming lifestyle and deities (Pachamama).

The Logic of Social Relations

A second dimension of analysis concerns the logic of social relations. These principles, which tend to be subsumed under the ideology of reciprocity, regulate social interaction in daily practice. During inflorada and Espíritu, they are repeatedly played out through a number of ritual gestures that involve the patterned exchange of valuable resources (e.g., coca, alcohol, food, various offerings) among participants, alferez, Tata Rey, and the supernatural entities invoked.
A common distinction is made in the Andean literature between two kinds of reciprocity, symmetrical and asymmetrical (e.g., Alberti and Mayer 1974). In symmetrical reciprocity, the same services or goods given are expected in return. It takes two forms, direct and generalized. The former, known as ayni or waje waje, is the balanced exchange of help between two individuals or domestic groups; the latter, yanapa or ayuda, refers to structural reciprocity within a whole group of people - usually relatives - who help each other when needed and count on each other's help, without keeping a strict account of individual transactions (Izko 1986:81). Egalitarian relationships of these kinds are established by relatives and compadres when they help each other with herding, house construction, or the organization of a funeral or feast. In ritual context, coca sharing through the acullicay gesture reflects very clearly the nature of symmetrical exchanges, with its two variants - "diametrical" and "circular" - corresponding quite graphically to the direct (ayni) and structural (yanapa) forms of this relationship.

Another kind of symmetrical exchange takes place at a communal level (Mayer 1974:55): all individuals give to the community by working in faenas, paying taxes, and serving in office, and receive in exchange rights over communal land and resources. This relationship has its ritual parallel during Espíritu in the interaction between people and the Tata Rey, the community symbol par excellence, e.g., in the sinkay and ch'allay gestures (giving coca and alcohol) or in the circular arrangement of individuals or couples around it at various points of the ceremony.
Figure 8.4: The exchange model in the Ceremony of Espíritu.
In the Andean literature, asymmetrical reciprocity is mostly associated with the retribution of services in goods or \textit{minka}. Examples of this are the transactions between Carmelo and the people that helped him at his \textit{inflorada} – who were "paid" in coca, chicha, food, and meat to take home – and between Santos and his brother and neighbour, who helped him butcher and were also compensated with meat. Alberti and Mayer (1974:23-25) argue that asymmetrical reciprocity can result in surplus appropriation, depending mainly on the value of the goods given in return. Examples of these unbalanced \textit{minka} relationships in Cerrillos are the \textit{al partir} (labor x 50\% of the off-take) contracts, poor pastoralists driving their wealthy neighbours' caravans to the eastern valleys, or individuals herding for comunarios living outside the canton and fulfilling their \textit{faena} obligations so they can keep community membership (see also Fonseca Martel 1974). When they converge in a person or institution (e.g., prehistoric ethnic lords or the Inka State), these kinds of transactions form the basis of redistributive systems that can result in considerable accumulation. Izko (1986:82) rightly points out, however, that in present day peasant contexts, the tendency toward an equivalence between goods and services in \textit{minka} exchange prevents it from becoming a significant mechanism of economic accumulation. This opinion is further supported by the fact that frequently, the labor recruited through \textit{minka} does not result in economic profit, as in the services provided to the \textit{alferez} by his assistants in \textit{Espíritu} (cooks, drovers, alcohol and food dispensers), or even by those who help in the earmarking ceremony. This calls attention to a different kind of asymmetrical reciprocity, frequently associated to the first, in which
a person gives food and drink in exchange for prestige and social support. When integrated in the form of redistributive feasts, this type of transaction result in significant accumulations of symbolic capital. As I argued before, among pastoralists these assets are crucial at the time of negotiating access to strategic resources with neighbours and with the community at large.  

Both facets of asymmetrical reciprocity – appropriation of labor and symbolic capital – are ritually enacted during Espíritu in the interaction between the alferez and the participants. Coca, alcoholic beverages, cigarettes, food, and meat gifts are distributed throughout the ceremony, through very structured gestures that combine the display of the gifts with formal speeches in which the alferez repeatedly disguises the nature of the transaction, presenting it as an act of disinterested generosity ("euphemization" sensu Bourdieu 1977:191). It could be argued that no economic surplus is appropriated at this event. But since the entire ceremony is understood as an "advance payment" made by the alferez to the Mallku in exchange for animals and other economic gains, the ritual does become a form of appropriating the benefits of the participant's labor, who help preparing the offerings or sacrificing the animals, and join the alferez in his plead.

This takes us to the fourth relationship established in Espíritu and other "rites of exchange" (sensu Bell 1997:108), between the people and the supernatural entities they invoke, which is also modeled as a reciprocity transaction. In the same way a person who benefits from a relative's help in ayni is obliged to give similar help when requested, by accepting the offerings or intenciones ("intentions") from the alferez (Espíritu) or the
host (*inflorada*), the Mallku and Pachamama are obliged to return the gifts (animals, agricultural products). The ultimate economic rationale of these acts is explicit in the word *pago* (literally "payment") with which they refer to the sacrifices. Offerings are given to the Mountain Spirits and Mother Earth through four ritual gestures: (1) "pouring" *chicha*, cane alcohol, blood, dung; (2) "burning" hearts, ears, figurines, feathers, coca leaves, *cuys*. (3) "throwing" blood, *chicha*; (4) "burning" *k'owa*, *k'ichiras*, fat, fetuses, hearts, wool, bones, coca leaves, spices, figurines, *suplicos*; and (5) "sprinkling" cornmeal, cane alcohol, coca leaves, or confetti.

Other social relationships find also their ritual expression in the ceremonies just described. Gender cooperation, for example, is enacted in the union of spouses under the *awayo* when the *intenciones* are presented to the *Mallku* in *Espíritu*, in their collaboration when sewing the yarn to the ears of llamas during *inflorada*, or in a number of references to the union of sexes (*vid infra*) while their asymmetries are ritually marked in the prohibition of women to reach the mountaintop altars in Tres Cerrillos. Figure 8.4 summarizes the principles of social relation discussed in this section (what I call "the exchange model") and their expression in patterned interactions and ritual gestures during *Espíritu* and *inflorada*.

### The Logic of Economic Production

Another series of characteristics of ritual action are related through *mimeosis* to productive processes — or rather, to *llameros'* understanding of these processes. A
number of gestures, for example, seem to propiciate economic success by imitating productive activities or manipulating elements of economic importance in the ceremonial context.

First of all, there are important references to the union of pastoral and agricultural production – economic complementarity – and related practices. Examples of these are the display of caravan gear (bells, ropes, and miniature saddle-bags) in ritual *mesas* and altars, drinking *chicha* (*maize beer*) in *animeros* (the ultimate emblem of the caravan), or the physical union of elements that represent what pastoralists value the most of each productive system, like in kneading fat (the best indicator of a well nourished animal and therefore of pastoral wealth) with cornmeal to make llama figurines. Complementarity is often conceived as a union of male (pastoral) and female (agricultural) principles, so ritual gestures may combine references to both, as in the mixing of (red) blood collected by men with (white) *llompaqa* added by women, during the sacrifice of an animal. There are also a few ritual references to the exploitation of wild resources that may have been more important in the past, when these activities played a significant role in the economy of these groups; e.g., the "killing" of a vicuña figurine made with this animal's fat and *ancañuca* (a wild root) or the inclusion of *ancañuca* in the intenciones for Espíritu.

The most important references, however, concern various aspects of herding: fertility and reproduction, as in the virauña "mating pairs," burning *jañacho* figurines (males) at *wirgines* (females), and in a number of references to the union of male and female principles (e.g., red and white wool in the offerings, pouring blood in wirgines);
nourishing, by bringing bunches of grass to the miniature stone llamas in the virgen at inflorada or in the altar of Espíritu; and protecting, as in the piling up of dung to prevent animals from dispersing or getting lost. Moreover, it can be argued that Espíritu altar is a physical model of llameros’ practical understanding of the complex forces that intervene in the creation of pastoral wealth, and the patterned behavior associated with it can be viewed as a ritual technique for bringing these various forces under control.

When discussing dynamic aspects of Cerrillos’ economy in Chapter 6, I pointed out several factors that condition herd size (Figure 8.5 left). Natural variables include: (1) the reproductive potential of the herd (in turn the result of herd size, proportion of fertile females, and random factors); (2) the quality and amount of pasture available (as conditioned by precipitation and spatial variability in vegetation patches); and (3) the random action of predators or disease. In llameros’ cosmology these natural forces beyond human control are governed by supernatural entities, i.e., Mallkus, Pachamama, and the whimful inhabitants of the underworld – like wak’as and q’ochas – respectively. Variables within the human or social domain are: (4) pastoral labor (nourishing, protecting, healing); (5) relative success in complementarity practices (that indirectly influences culling rates); (6) solidarity (gifts, inheritance, or access to additional labor or animals when needed through reciprocity); and (7) size of grazing areas under exclusive use (or intensity of competition over pasture).

Most of these forces have a material expression at the altars of Espíritu. The animals grazing are at the center, i.e., the "stone herd" on the boulder with grass bunches.
Figure 8.5: The ritual model of pastoral production
To the east (a direction that marks a progression toward the sources of life) are (1) the mountains where Mallkus (the seed givers that govern the reproduction of the herd) dwell; (2) the open terrain at their bottom where animals graze (Pachamama); and (3) the wak'a, the most whimsical supernatural being, source of unpredictable misfortune. To the west are (4) the platform where the offerings prepared with people's labor and pastoral tools (e.g., ropes), together with (5) caravan gear and other references to complementarity are displayed; and (6) the windbreak and bench as a "domestic area" that shelters people interacting during the ceremony. The Tata Rey, is placed between the human and supernatural domains, like the community that mediates between individuals and the supernatural sources of wealth, administering pasture and other key economic resources.

This scheme is repeated in the ritual gestures (Figure 8.5 right). Some of them attempt to control natural forces, inflicting debts on the Mallku and Pachamama through the pago or appeasing the wak'a through repeated ch'allas (libations). Others are references to people's contribution to production, as in the gathering of dung in the sacrifice area (a reference to herding), the acullicay as expression of cooperation and solidarity, and ritual allusions to complementarity, e.g., display of caravan gear, loading the llama for the sacrifice, and mixing blood and cornmeal. The ch'alla and sink'a to the Tata Rey, like the fulfilment of community obligations, serve to guarantee through the logic of reciprocity people's rights over the land. As it happens in daily practice, the competition among productive units for the control of pasture — as structurally determined by the contradiction between individual and communal forms of tenure — is
not overtly expressed, but concealed through gestures of solidarity, like the huddling of couples in a circle around the *Rey* when formulating their "intentions."

The ceremony at the mountain altar concludes with tying red yarn around the "stone llamas' necks" (*inflorar*), a gesture of ritual appropriation that mimics the sewing of coloured wool tassels to the actual llamas during the earmarking ceremony, when the herder takes possession of the annual production of his flock. With this act, the participants anticipate the success of the ritual productive sequence just described. Note that the gesture that expresses the relation between pastoralists and llamas is described as "decorating" or as a way of showing respect and appreciation, a fact that is consistent with the character of the whole form of interaction between herders and their animals, who are sometimes referred to as "children" or "brethren," given personal names, and treated as human beings. I find this to be a good synthesis of *llameros'* view of pastoral wealth, which cannot be controlled or secured, but only temporarily "lured."

**Ritualizing Gestures**

There are a number of gestures in all ceremonies whose main purpose is to "ritualize" (*sensu* Bell 1992) these actions by singularizing (Kopytoff 1986) the space, time, and actors of ritual, creating a boundary with the ordinary surroundings. They also act to qualitatively structure the physical environment in a way that it provides the actors an experience of the objective reality of the sacred (Bell 1997:81). One of these is *sahumar* or *k'oway*, the act of burning incense or aromatic shrubs (*k'owa*), usually
rendered as "purification." This is one of the first steps in many ceremonies, and it is so ubiquitous, that the term k’owaco refers generically to any ritual or costumbre. A second one, is llompaquear or sprinkle cornmeal on features, offerings, people, or around ritual settings. This gesture is performed at the start and at the end of rites (e.g., the arrival or departure of the jilaqata during his formal visits, arriving and leaving each one of the altars in Espíritu). Both k’oway and llompaqay are frequently combined with circumambulation, a patterned movement that marks not only the beginning and end, but also internal transitions or breaks in the ritual sequence, such as moving to a different plane or altar (e.g., climbing or coming down from the peaks). Repeated counterclockwise motions in general, seem to emphasize the ritual power of a number of actions, as in the kneeling circumambulations of the Tata Rey or when raising a smoking censor or an offering to the mountains or throwing the blood of slaughtered animals over the house.

Certain textiles also have the power of "ritualizing" those who wear them or the spaces they define and the objects on them. Examples of the former are ponchos (for men) and ch’uspas, which even when may still be worn sometimes during ordinary life, are always used in ceremonial contexts even by those who have completely given up traditional costume. The latter are represented by awayos and unkuñas, square weavings richly decorated with ethnically distinctive patterns used throughout the Andes to define a distinct sacred field (altar or mesa) where offerings and ritual paraphernalia can be displayed and manipulated. In repeatedly occupied locations, the use of this ritualizing
resource is accompanied by stone platforms, tables, or other features that serve to separate the ritual assemblage from the ground – as in domestic courtyards or in the Espíritu altar – although frequently the weaving itself serves this purpose. Once it is laid out, the mesa becomes an important structuring component of the ritual environment, concentrating gestures and multiple expressions of respect addressed to the supernatural entities invoked through the ceremony (e.g., llompaqay, ch'allay, sink'ay, k'oway).

The Tata Rey is endowed with similar structuring powers. The simple act of setting up the staff transforms an ordinary place in a ritual setting, subject to very formalized behavioral rules, simultaneously creating a break in the normal flow of time and events. A good example of both phenomena were the stops on our descend from the second and third altars on the peaks to the main one. Even when the distances to cover were short (ca. five minutes of downslope walk) in both cases we stopped half way; the Tata Rey was stuck in the ground and immediately all men formed a circle around it, a round of chicha was served, we shared coca, then the staff was picked up again and continued our way down. Through this simple resource, the behavioral experience of the distance between the altars was enlarged, emphasizing in a practical way the remotness and seclusion of the sancta sanctorum on the mountain top, together with the asymmetry between the Mallku and people at the bottom. The pre-established positions where the staff has to be placed are sometimes marked by rock cairns or other features. When it is not used – during profane time – the Rey has to rest on its own mesa (a cuy skin or an awayo), wrapped in white cloth.
The *Tata Rey* is the artifact that best represents the power of the community, as an emergent level of reality that stays above the daily interactions among individuals. The references to the presence of *jilaqatas* of various ranks with their staffs at *Espíritu*, suggests that in the past, the ritual manipulation of these emblems was also tied to the functioning of the segmentary *ayllu* structure (Rasnake 1989). It is worth emphasizing that even when the ethnic authority system has disappeared, the *Tata Rey* by itself continues to invoke ritual gestures and schemes of action that are intimately tied to the practical reproduction of political power.

**CONCLUSION: RITUAL, IDENTITY, AND ARCHAEOLOGY**

Once an Andean friend told me that he could tell where an individual was from by the way he or she poured *chicha* or alcohol into the pit during the Pachamama ceremony. For him, minor details in the way this simple act was performed – e.g., if it was accompanied by a circular or cruciform motion, if the cup was held with one or two hands, if it was twisted at the end, etc., carried significant information regarding identity. I never confirmed his statement, but I think it points out an interesting possibility for archaeology, i.e., to trace the cultural background of past people by looking at the patterned material arrangements that result from the distinctive and repetitive nature of their ritual actions, or even from the operation of the same practical logic in more "mundane" settings (dwellings, posts, campsites).
Many of the ritual gestures I just described for *llameros* have also been observed in other Andean peasant communities, including agropastoralists and even farmers. Similar cultural understandings of space, the ideology of reciprocity as the main regulator of social relations, and comparable economic principles, organize the daily practices of many Andean peoples and are repeatedly alluded to in their ceremonies. When comparing these practices more carefully, however, a number of differences of detail begin to emerge. These distinctions are to be found not only in matters of interpretation – which may vary dramatically even among informants participating of the same act – but more importantly from an ethnoarchaeological perspective, in systematic differences in the details of ritual behavior, artifacts, and features. I have observed some of these minor, but distinctive variations even when comparing communities in the Li'pez region. Given the formality, traditionalism, and invariance that characterizes ritual practice cross-culturally (Bell 1997), as a result of its role in the reproduction of *habitus* in a practical state (i.e., as structured sequences of acts and object manipulations), it can be expected that these differences will be consistently maintained through time and space. Since many of these gestures constitute acts of deposition, it is not unreasonable to expect them to leave distinctive archaeological signatures. The discussion of *llamero* rites during caravan journeys in Chapter 10 will offer an opportunity to assess this hypothesis.
ENDNOTES

1. Specific offerings to Pachamama are made in August, in the middle of the dry season. This is perceived as a "dangerous" time, when the herd is closest to death. Among other Andean herders, the main rites of the annual cycle take place in August, including actions that in Cerrillos are part of *inflorada* (e.g., Merlino and Rabey 1978; Tomoeda 1994; Webster 1973, among others).

2. *Suplicos* or *intenciones* (literally "intentions") are sold in marketplaces throughout Bolivia and Northwest Argentina and used in a number of rites. They come in various colors (yellow, pink, white) and with different images which are selected according to the ceremony, e.g., skull for All Saints Day, corn for Pachamama, and saints to be used in their celebrations. Three kinds of *suplicos* can be used for *inflorada*, "Tata Rey," "Mallku," or "house."

3. I have just witnessed the first step of funerals. For this reason, I describe this ceremony only in a brief, schematic way, following informant accounts. A similar and very detailed description of this ritual as held among ayamaras in Tarapaca (Chile) is given by Van Kessel (1992:87-101).

4. Note that the killing method in llamas' ritual sacrifice (opening the chest to extract the heart [cf. Miller 1977]) differs from that used in daily slaughtering (cutting the throat).

5. Good studies of contemporary South-Central Andean cosmology are Bouyssse-Cassagne and Harris (1987); Platt (1986, 1987); and Van Kessel (1992).

6. This particular aspect of the normative view of *casas* is less frequently followed than the others considered so far. Only 63% of the residences mapped (N = 38) actually had their kitchen areas "to the left." Note also, that no specific definition is given of where "bedrooms" should be; "you can sleep anywhere."

7. Boman (1991 [1908]:496) mentions that the yarn used for the llama ear "flowers" has to be spun "to the left," unlike normal yarn which is spun "to the right."

8. This is the basis of the notion that sponsoring feasts or engaging in some form of ritualized generosity is basic to community membership (i.e., to maintain rights over communal resources), even when it is not a formally established condition like paying taxes or participating in *faenas*. 
9. Given the current prohibition to kill vicuñas the figurine made with vicuña fat has replaced the actual animal.

10. It should be noted that, among other highland peasant communities, these conflictive aspects of communal life acquire ceremonial expression, as in the tinku or ritual fights of northern Potosí.

11. Boman (op.cit.) gives a different interpretation of this gesture that groups it with other forms of "ritual exchange" with Pachamama: "it is quite likely that llama 'flowers' are sacrifices to Pachamama, to implore her protection for the herd and to favour its growth" (p.497, my translation).
ECONOMIC COMPLEMENTARITY IN CERRILLOS

Like other pastoralists in the Andes and around the world, the llameros from Cerrillos have developed multiple ways to access resources from other ecozones and produced by other groups, caravan traffic being just one of them. Even when they practice a subsistence-oriented economy, only a narrow range of the goods they utilize or consume are produced or extracted in the canton or even in the Altiplano. These include pastoral products, wild animals (vicuña, chinchillon, armadillo) and resources taken from them (e.g., eggs), some construction materials (e.g., rocks, mud, thatch, t'ula), fuels (dung, t'ula) and wild plants used for food or medicinal purposes. All other products come from outside and are obtained, directly or indirectly through the mechanisms of economic complementarity to be described. These include most elements in the diet (which is based on agricultural produce such as wheat flour, maize, potatoes, garden vegetables, and groceries), salt for self consumption and trade, containers, kitchen utensils, clothes, most of the tools, some construction supplies, furniture, and other goods of cultural importance, such as alcohol and coca.

Certainly, Andean pastoralists consume today many more resources they do not produce than they used to, a condition they share with many other peasant groups around the world, including farmers. In the case of llameros, however, this strong dependency from the outside is not only a recent phenomenon derived from their progressive
integration to the market economy, although their consumption patterns have obviously changed as a result of this process. For example, in the past people did not have most of the tools and kitchen utensils used today, some of the construction materials, furniture, metal and plastic containers, industrial clothes, or groceries. All my informants, however, agreed that "in the old days," when no trucks came to Cerrillos and there was no money to buy groceries, the diet was less varied but still based primarily on agricultural products, especially maize. Men spent most of the time on caravan journeys or working in the valleys to get what they needed. They had to travel every year to the salt flats and to Tarija or they would have nothing to eat (cf. Cipolletti 1984:515); if they fell sick, they had to find someone to travel on their behalf. When they came back with their caravans, the storage rooms would be packed with saddle bags full of maize, flour, and vegetables. All cooking was done in ceramic vessels brought on animal back from Casiras and other pottery-making communities in Quebrada de Talina. In fact, even though most households still use mainly clay cooking pots, nobody makes ceramics in the region, and as far as people remember, nobody did in the past. A similar point could be made regarding all the musical instruments pastoralists play and their ritual artifacts (caravan bells, Tata Reyes) and consumables (cornmeal, cane alcohol, chicha, coca).

To discuss complementarity practices in Cerrillos I will use three concepts or levels of analysis, i.e., mechanism, strategy, and system. Complementarity mechanism is "a pattern of behavior which serves a collectivity to produce access to varied productive zones or their products" (Salomon 1985:512). In Chapter 2 I divided these in diversification and articulation, depending on whether they involve the direct
participation of household members in other productive activities or not. Complementarity strategy refers to regular combinations of mechanisms developed by particular social actors (in this case, pastoral households) in order to obtain the goods they do not produce. Finally, the notion of complementarity system, is reserved for the set of mechanisms and strategies, including their interrelations, regularly employed by a community or a larger social unit (e.g., a regional system) to guarantee its members access to resources from multiple ecozones or productive units. In the following sections I will discuss each one of these levels, in order to define the broader context of practice in which caravan trade currently takes place.

COMPLEMENTARITY MECHANISMS

One diversification and five articulation mechanisms are currently practiced in Cerrillos: (1) farming in the valleys; (2) temporary migration; (3) caravan trade; (4) lending pack animals to others who travel; (5) reciprocity with relatives living outside; and (6) salary or rent. Table 9.1 summarizes the mechanisms used by each household. I will now describe them in some detail.

Farming in the Valleys

Six families own farmland in the high valleys to the east (e.g., Ispicaya, Chapiwayco). These are prime maize-producing areas or keshwas. In all these cases, the land was purchased in relatively recent times (i.e., it was not inherited) by relatively
wealthy pastoralists, by selling a significant proportion of their flocks. Initially at least, the land is worked by the male family head, who moves seasonally to the valley, perhaps accompanied by an adult son and other family members, while adult women and older relatives stay in the Altiplano in charge of the herds. Over time, this practice develops in two alternative directions: (1) the whole group may migrate permanently to the valley, perhaps keeping some animals in Cerrillos in charge of a relative or friend; or (2) the domestic unit may split in two residential groups (i.e., separate households from the point of view of archaeological inference) still linked by a number of reciprocal obligations. Several times a year, including family and community celebrations (e.g., All Saints Day, carnival), those who live in the valley come back to Cerrillos, bringing all the necessary valley products for their relatives and taking meat and other pastoral goods with them. These activities, however, would amount to a form articulation between two social units who do not co-reside or share economic decisions, profits, and risks on a daily basis, closer to the relations with relatives living outside described later in this chapter.

Temporary Migration

Between April and November, taking advantage of the lower labor demands of pastoral production during the dry season, a number of adult members of the community, both men and women, leave the Altiplano in search of temporary employment in farms, cities, or mines. Those who go to the high agricultural valleys to the east (e.g., Talina, Tupiza, Cotagaita) help farmers with the harvest, staying from April through early June,
Table 9.1: Complementarity mechanisms by household.

<p>| House- | Diversif. | Articulation | Compl. |</p>
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<th>land in valleys</th>
<th>temporary migration</th>
<th>caravan trade</th>
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<tr>
<td>Total%</td>
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<td>7 (18%)</td>
<td>21 (55%)</td>
<td>7 (18%)</td>
<td>21 (55%)</td>
<td>2 (5%)</td>
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Note: no data available on household 18. Total percentages calculated on the basis of 38 households.
returning to Cerrillos in time to travel with caravans during the rest of the winter. Sometimes, they go to a relative's or to a former community member's farm, where on the basis of reciprocity principles they obtain better deals or may even be allowed to establish some form of productive partnership (cf. Karasik 1984:82). These services are paid directly in agricultural products, specially maize; if they are paid in cash, this is immediately used to buy maize. They may take llamas or burros with them, renting their services to farmers and using them to transport the products back to Cerrillos at the end of the season. Another migration pattern related to the agricultural sector, that has declined in the last decades but was very important in the past, took men and sometimes entire nuclear families from the Altiplano to the sugar harvest in the northern provinces of Argentina between June and October.

Those who go to urban centers like Tupiza or Uyuni, employ themselves as day laborers in a variety of activities, including construction, urban transport, commerce, and domestic service (mostly women). The earnings are invested mainly in agricultural products, but also in clothes, groceries, tools, and kitchen utensils. If they find a good job, they may stay until the beginning of the rainy season, paying short visits to Cerrillos during the winter to bring the necessary supplies to the other members of the household who stay with the herds –usually women or an old relative if both partners migrate. Something similar happens with those who go to mining settlements like Atocha, San Vicente, or Chilcobija. In this case, however, the possibility of obtaining better-paid positions acts as an incentive to stay for longer periods. Employment in mines, then,
frequently leads to permanent or semi-permanent migration (i.e., for several years although not necessarily for life).

Reciprocity with Relatives Living Outside

A third complementarity mechanism involves articulation through relations of reciprocity between pastoralists living in Cerrillos and close relatives (usually siblings or offspring) who have emigrated to cities, mining centers, or agricultural areas on a permanent or semi-permanent basis. These people living outside, usually keep their houses and comunario status, making use of their rights to pastures and fulfilling their membership obligations. They pay their taxes (tasa territorial), hire people in Cerrillos to work five or six days per year on their behalf in communal duties (faena), and periodically return to Cerrillos for a full year to pass cargos when they are required to do so. Many of them own animals, which are usually in charge of their relatives in Cerrillos, coming to the canton from time to time to check on them and to butcher, for their own consumption or for sale. By contrast with the previous mechanism, these households and their Altiplano relatives form separate economic and productive units, although they usually maintain a preferential economic relationship, exchanging herding services or meat for outside products. Practices of this kind could underlie the pattern of "territorial inter-digitation" identified by Martínez (1992, 1998; also Odone 1995) for the Circumpuna Area in the 17th century.
Table 9.2: Cerrillos' population compared to total community members (1993 data).

<table>
<thead>
<tr>
<th>Age Class</th>
<th>(a) People living in Cerrillos</th>
<th>(b) Regional census data</th>
<th>(b-a) Comunarios living outside</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td>total</td>
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<tr>
<td>&lt; 10</td>
<td>20</td>
<td>24</td>
<td>44</td>
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<td>10-19</td>
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<td>40-49</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>50-59</td>
<td>16</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>60-69</td>
<td>6</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>70</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>106</td>
<td>188</td>
</tr>
</tbody>
</table>
To appreciate the scope of this mechanism, consider the two censuses of the community summarized in Table 9.2. One of them was made by the sanitary agent of Cerrillos, who listed the people actually living in the canton and therefore under his responsibility; the other was an administrative document elaborated by the central hospital of the district in Tupiza, in which all individuals holding community membership were included. A comparison of these two data sets indicates that almost 45% of the comunarios do not live permanently in Cerrillos. During the fieldwork period some of them came back, especially after state-owned mines were privatized in 1993-94, others returned only for one year to serve as community officers, while some of those that were living in Cerrillos at the beginning left.

Households living outside keep their status for various reasons. They may do it in order to diversify their domestic economy through direct access to pastoral products. Those who migrated to a mine or city for good, may hold this as a reassurance in case they lose their job. Others take these periods of direct insertion into the outside economy as a strategy to increase their pastoral capital; perhaps, after few years working outside, they return to their home community and lifestyle with more animals and a motorcycle. For those who stay in Cerrillos, this relationship with relatives living away gives them access to additional animals—in the case of share-herding arrangements—and outside products, as well as a place to stay and a point of entry into other communities' social networks that they may need when going to other places to trade or find temporary employment.
Caravan Trade and Other Forms of Exchange

Over one half of the households living in Cerrillos engage in long and mid-distance trade using donkeys and llamas. The former are preferred for short trips because they can carry heavier burdens, walk faster and more hours per day. Llamas are thought to be more resistant for long journeys, such as the two or three-month trip to the eastern valleys; unlike donkeys, they do not need harness or any expensive gear, can march two or three days without water and survive on native forage alone, if they are given enough daytime to graze. The trade networks in which llameros engage involve different commodities, types of transactions, and circuits, which vary from one household to another according to their possibilities, and from one year to the next in response to changing conditions in the natural and social environment.

Besides satisfying household needs, all animal products are potentially traded out. The same is true of elaborated goods, like dry meat (charki or chalona), ropes, or textiles. Their effective use with this purpose depends on prevailing market conditions and bartering opportunities. This is also the case with other commodities that can be extracted in the region (e.g., medicinal plants, gold) or in neighboring areas (e.g., salt). Yareta (Azorella tomentella), for instance, experienced a boom toward the middle of the 20th century, when it was massively consumed as fuel by mines, driving many llameros into its extraction and distribution, while llama meat has become increasingly valued in the last few years, in response to a steady rise of its price in the urban market.
Figure 9.1: Main destinations of Cerrillos' caravans.

<table>
<thead>
<tr>
<th>Place</th>
<th>Product</th>
<th>=</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colchani</td>
<td>1 arroba(^1) of maize or Lima beans</td>
<td>10 loads(^2) of salt</td>
<td>150 loads of salt</td>
</tr>
<tr>
<td></td>
<td>1 live llama</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tupiza</td>
<td>1 arroba of potatoes</td>
<td></td>
<td>1 arrobas of maize</td>
</tr>
<tr>
<td>Iscayachi</td>
<td>2 arrobas of salt</td>
<td>2.5-3 arr. of potatoes</td>
<td></td>
</tr>
<tr>
<td>Rejara</td>
<td>1 arroba of salt</td>
<td>1 arr. oca or potatoes</td>
<td></td>
</tr>
<tr>
<td>Tarija</td>
<td>2 arroba of salt</td>
<td>2.5 arrobas of maize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot; 1 chimpu(^3) of khollpa</td>
<td></td>
<td>1 chimpu of maize</td>
</tr>
<tr>
<td></td>
<td>&quot; 1 kg of lard</td>
<td>1 arroba of maize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot; 1 kg charki</td>
<td>1 arroba of maize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot; 1 llamahide</td>
<td>1 arroba of maize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot; 1 llama fleece</td>
<td>2 arroba of maize</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot; 1 pair of trousers</td>
<td>6 arroba of maize</td>
<td></td>
</tr>
<tr>
<td>Pajonal(^4)</td>
<td>2 arrobas of salt</td>
<td></td>
<td>3 arrobas of maize</td>
</tr>
<tr>
<td>Valleys (general)</td>
<td>1 piece(^5) of meat</td>
<td></td>
<td>1 arroba of maize</td>
</tr>
<tr>
<td></td>
<td>&quot; 1 rope</td>
<td></td>
<td>1 arroba of maize</td>
</tr>
</tbody>
</table>

Notes:
1. arroba = 11.5 kg.
2. load of salt = two blocks of one arroba each.
3. chimpu = volume measure equivalent to approximately 30 cm full of a saddlebag.
4. East of Tarija.
5. piece of meat = each one of the seven segments in which the llama carcass is split (i.e., neck, arms [2x], legs [2x], chest, and back)
Table 9.4: Trade schedule.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
<th>Means of Transport</th>
<th>Duration $^4$ (round trip)</th>
<th>Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salt Flats (Uyuni, Patana)</td>
<td>March-April</td>
<td>llamas/burros</td>
<td>15 days</td>
<td>($)money x salt; (*)meat/maize x salt</td>
</tr>
<tr>
<td>2. Higher Valleys (Talina, Sococha)</td>
<td>April-May</td>
<td>burros</td>
<td>7-15 days</td>
<td>($)animal products x fruit, pots</td>
</tr>
<tr>
<td>3. Lower Valleys (Tarija, Villamontes)</td>
<td>May-August</td>
<td>llamas</td>
<td>2-3 months</td>
<td>(*)salt, animal prod. x maize, tubers</td>
</tr>
<tr>
<td>4. Fairs (Sta.Catalina, Manka Fiesta)</td>
<td>October, November</td>
<td>burros/llamas</td>
<td>7-10 days</td>
<td>($)wool, money x flour, pots, utensils</td>
</tr>
<tr>
<td>5. Mining Centers$^1$ (S.Vicente,Chilcobi)</td>
<td>October-March</td>
<td>burros</td>
<td>4-7 days</td>
<td>($)meat x cocoa, alcohol, groceries</td>
</tr>
<tr>
<td>6. Cities (Tupiza)</td>
<td>all year</td>
<td>burros</td>
<td>10-15 days</td>
<td>($)money x utensils, groceries,clothes,tools</td>
</tr>
<tr>
<td>7. Cerrillos</td>
<td>all year$^3$</td>
<td>(bicycle)$^2$</td>
<td>-</td>
<td>($)money,hides,sullis x pots-pans, clothes</td>
</tr>
<tr>
<td>8. Cerrillos</td>
<td>all year$^3$</td>
<td>(truck)</td>
<td>-</td>
<td>($)meat x money, groceries</td>
</tr>
</tbody>
</table>

Notes: $^1$ Conducted any time of the year, but intensified during the Spring and Summer in order to get the ritual paraphernalia for the Day of the Dead, inflorada, etc. (see Table 4.3).  
$^2$ In parenthesis means of transport used by those who come to Cerrillos to trade.  
$^3$ More frequent during the Summer and Fall, when the animals reach their maximum weight.  
($) market transactions at variable, bargained rates; (*) barter at set rates.
Transactions vary in the kind and number of elements involved. An animal product can be directly bartered for a desired good (e.g., ropes x fruit), or sequentially exchanged through a third, intermediate element (e.g., *charki* x salt x maize). Alternatively, *llameros* may sell their commodities for cash and then buy what they need (e.g., meat x money x coca) or combine all these forms of exchange in a long sequence (e.g., wool x money x salt x maize), particularly if they can obtain a better return at the end. Table 9.3 gives examples of barter rates in some of the areas commonly visited by caravans.

There are also differences in the terms in which transactions are made. On one hand, the acquisition of coca and alcohol at mining centers, fruits and groceries in Tupiza, or flour at the fair of Santa Catalina, all involve money or take the form of market exchange. Even if cash is not physically present in the operation (which may imply, for instance, simultaneously selling meat and buying alcohol for the same amount), it exists as a price that fluctuates, sometimes dramatically, according to forces that pastoralists do not control and, frequently, cannot predict. On the other hand, barter in the eastern valleys or at the salt-extracting communities (Colchani, San Juan) operate mainly on the basis of weight or volume equivalences, which are not totally fixed but are far more stable (and predictable) than prices (Browman 1994). Sometimes, these relations of reciprocity involve also other social obligations that serve to counteract eventual fluctuations in exchange rates or in the availability of certain products. This is the case of the lifetime "friendship" established between drovers and their trade partners in the valley, known as *caseros*; the former bring every year all the highland products that their friends need; the latter set apart a portion of
the harvest for llameros and provide them food and perhaps fodder for the animals during
their stay in the valley.

The trade schedule comprises a number of trips which are timed in relation to the
cycles of pastoral and agricultural production, the ritual cycle, and the calendar of fairs
(Table 9.4, Figure 9.1). Thus, journeys to the high valleys for fruit or to the lower valleys
for maize follow closely the fruit and corn harvest; the relative lack of trade outside the
canton during the summer coincides with the highest demands of pastoral labor during
the camelids birthing and mating season; while short trips to mining centers in February
and October are meant to acquire ritual supplies such as confetti, coca, alcohol, and
coloured wool, for inflorada, carnival, and All Saints celebrations. The main
destinations of caravans are: (1) Tarija valley; (2) salt flats of Uyuni and Patana; (3) mining
centers in the surrounding Altiplano, such as Santa Isabel, San Vicente, Candelaria, or
Chilcobija; (4) valleys of Tupiza or Talina, and occasionally the urban centers there located;
(5) annual fairs like Santa Catalina or Manka Fiesta in Villazón. This schedule offers
numerous alternatives that are constantly evaluated by llameros against other
complementarity mechanisms when designing their subsistence strategies. Caravan
journeys are described in detail in Chapter 10.

Another form of articulation through exchange involves individuals who come to
Cerrillos to trade. Some of them come by bicycle from as far as Uyuni and Oruro, offering
clothes, pots and pans, batteries, radios and other industrial commodities that are exchanged
for local products such as hides, sullis, textiles, k'owa or medicinal herbs. These
cambalacheros (peddlers) are similar to the wasaq’epi described by Flores Ochoa (1985:258) for the Cuzco area. A variant of this mechanism that has gained increasing popularity during the last few years, involves trucks that continuously traverse the Altiplano purchasing meat and bones in exchange for salt, groceries, or more frequently, money. Some informants recalled that in the past, donkey caravans organized by the potters of Casiras and other villages in Talina valley would come periodically to the Altiplano, offering ceramic vessels in exchange for meat, wool, and other pastoral goods.

Lending Animals to Others for Caravan Trips

A closely related mechanism is to lend pack animals (donkeys or llamas) to other pastoralists who do not have enough of their own, so they can use them in exchange journeys. This alternative is employed by rich herdsmen, who own enough animals for themselves and for lending to others, or by those who cannot travel themselves because of age, an illness, or the obligation to serve as authorities. In all these cases, the animals are given al partir, i.e., the owner has the right of using one half of the transport capacity of the beasts given to the drover who travels. The latter, in turn, runs with the entire risk, since he is fully responsible for the animals taken; if one of them dies in the trip, he has to take the fur back to the owner and refund him the value of the meat.

For older people, this is a way of obtaining complementary resources when they do not have the strength to travel anymore. Rich pastoralists, who some years lend animals to several drovers, can obtain a great amount of valley products in this way. Occasionally,
they sell or barter them to neighbors who do not travel at very high rates, making in this way a considerable profit.

**Salaried Work**

In 1995 only one household received a monthly salary (Table 6.1 #36, the sanitary agent); another one (#34) had a rent from the state. The availability of cash allows these families to purchase in the city or from merchants that come to the canton all the non-pastoral products they need. This advantage is reflected in very different consumption patterns reflected in their clothing, in the regular use of industrially produced objects (watch, radio, tape recorder, bicycle, motorcycle, propane stove, etc.), and even in the design of their dwellings, that show constructive details alien to most pastoral houses in the area (e.g., tin roof, cement floor, painted facade). Until 1994, a third household (#39) enjoyed a small monthly stipend for operating the telegraph. These three domestic units are the only ones that reside permanently in town.

**COMPLEMENTARITY STRATEGIES**

As Table 9.1 demonstrates, many households in Cerrillos use more than one complementarity mechanism. The particular combination of mechanisms adopted depends on several factors, both internal and external. The former include variables such as the availability of labor within the household, the seasonality of each activity and potential scheduling conflicts among them, the economic standing of the herders, and the
size of their reciprocity and kinship networks. Their conjunction result in a limited number of strategies or combinations of functionally compatible mechanisms that are described in this section. Within this framework, external forces (e.g., economic junctures, state politics, climatic fluctuations, changes in consumer behaviors), more complex and difficult to predict, translate in the relative importance given to each mechanism according to the juncture. Both aspects will be discussed in the next section, when considering the integration of strategies at the level of system.

Strategy A: Migration and Trade

A first strategy combines temporary migrations in search of employment with caravan trade. Adult men—and women also if there is an older relative who can look after the children and herd—move to the valleys during the Fall to work in the harvest (or in the city), returning to Cerrillos in late May; then they go with salt caravans to Tarija to get maize. For this purpose, young or poor herdsmen may borrow animals al partir from others. During the Spring, they may go with donkeys in shorter trips to fairs or mines, or seek temporary employment again. Some of these households also herd animals that belong to other comunarios not living in the canton, obtaining in this way some extra resources from outside or increasing their own flock.
**Strategy B: Caravan Specialization**

This strategy puts emphasis on articulation through caravan trade and other forms of exchange. After the rainy season, the most active period in the pastoral and ritual calendar, the household head, accompanied by an older son, a godson, or a neighbor, engages in a series of caravan journeys, which in the old days began right after Easter with the salt trek to Uyuni or Patana and concluded in late November with the trip to Santa Catalina, when the first llamas started to give birth. Those who follow this strategy usually kill more animals for sale in order to obtain cash to purchase necessary goods that cannot be obtained through barter. It is relatively common for the offspring of these herdsmen to migrate temporarily to work, or to be employed for longer periods in mining centers or in the city. A variety of this strategy is followed by older herdsmen who may lend animals to others instead of travelling themselves.

**Strategy C: Direct Control of Farmland**

This strategy is characterized by a diversification of the domestic economy through the direct control of farmland in the valleys, a mechanism that may be supplemented with some exchange trips. This is the most complete and complex strategy but it requires the ability to mobilize considerable amounts of labor to avoid scheduling conflicts. The combination of valley agriculture, herding, and trade results in a mutual reinforcement of all these activities. Direct access to non-pastoral products and cash to buy them (by selling the produce) reduces culling rates to the levels which are strictly necessary for domestic consumption, increasing in this way the reproductive potential of
the herd. The availability of pastoral products and pack animals in turn make it possible to take advantage of good trading opportunities or to give burden beasts \textit{al partir}, besides facilitating the logistics of this tight productive calendar.

\textbf{Strategy D: Reciprocity with Households Living Outside}

This strategy is based on relations of reciprocity with relatives (usually offspring) living outside the \textit{canton}. In most cases, this relationship involves herding animals that belong to the latter, who in return provide the necessary goods to their parents who stay in Cerrillos. This is most frequent among old men and women who do not travel or have enough animals to give to others \textit{al partir}, sometimes because they have already given them to their married children as advanced inheritance. Older people who do not have relatives outside the Altiplano, join the household of a son or son in law, thus participating of the benefits of one of the other complementarity strategies previously described.

\textbf{Strategy E: Salary and Full Market Integration}

The last strategy is linked to a dependable cash income in the form of salary or rent. All necessary products are purchased with money in the city or from the truckers and other mechants that periodically visit the \textit{canton}. Those who receive this kind of income do not engage in any other form of complementarity. Rather, they have specialized in herding for their own consumption and for the market.
THE COMPLEMENTARITY SYSTEM

Internal Organization

From an internal point of view, the complementarity system includes alternatives suited to households diversely positioned in the social structure of the community, both in terms of their developmental cycle and their economic success, reflected in the size of their flocks. This is illustrated by Figure 9.2, where each household with its complementarity strategy has been plotted in relation to herd size, expressed in "llama units," and position in its developmental cycle, a parameter that has been approached in terms of the age of the household head. To appreciate the influence of each one of these variables in the choice of complementarity strategies, the box plots of Figure 9.3 and 9.4 were elaborated. Strategy E is excluded from the following discussion because it depends exclusively from external variables pertaining to the World System which are not relevant to the subject of this monograph.

Figures 9.2 and 9.3 demonstrate that strategy A is more common among relatively young households (i.e., headed by herdsmen under 50 years of age). B and C are more frequent among "adult" households (> 40 years), while D is typical of "mature" ones (> 60 years). This trend is the combined effect of changes in the availability of domestic labor and in the size of the flock. Both strategy B, with its intensive calendar of journeys, and C, which involves participating simultaneously in two productive cycles, demand more labor than the others, a resource that is closely related to the developmental cycle of the
Figure 9.2: Complementarity strategies, herd size, and age of the household head.
Figure 9.3: Age of household head by complementarity strategy.

Figure 9.4: Herd size by complementarity strategy.
household. As they progress in this cycle, domestic groups tend to increase their ability to mobilize a labor force, not only because of their biological reproduction, but through the expansion of their social network. When they need it, older pastoralists can count on the help of ritual kin, neighbors, and other persons who do not belong to the household but have reciprocal obligations with them.

Strategies B and C also require a more solid pastoral capital (Figure 9.4). In the first case, because focusing on caravan traffic is more effective for those who own many pack animals and have enough pastoral products to exchange; in the second case, because selling a considerable number of animals is the only way of buying land. As discussed in Chapter 5, although herd size is partially related to the domestic cycle, it is also consequence of multiple independent factors that result in important differences of wealth among households of approximately the same age (Figure 9.2). Moreover, by directly influencing the number of animals that need to be slaughtered for cash to buy other commodities, the relative success in complementarity practices would also contribute to enhance these differences. This is particularly true of Strategy C, in which pastoral and agricultural activities are mutually reinforced; the larger herds of Cerrillos belong to pastoralists who practice this strategy (hh#1 and 8). It is also the most secure, since it involves the direct control of complementary resources. Consequently, it represents a sort of "ideal" expressed by many herders.

Figure 9.5 summarizes the relationships discussed so far. Beginning on the left side of the graph, young couples (represented in parenthesis) usually spend the first few years
Figure 9.5: Internal articulation of strategies in the complementarity system.
with the groom's parents, forming extended families who obtain complementary resources through strategies A, B, or C. These new couples only form a separate household when their flock has grown enough as to reproduce independently, and when their children have reach the age in which they can take economic responsibilities (8-12 years), making possible for adults to engage in the complementarity practices that are necessary to attain self-sufficiency. If they do not emigrate at this point, the new domestic units begin their independent economic life stressing seasonal migration as the main mechanism to obtain external resources directly or the money to buy them (strategy A). If they are successful and their herd grows enough, they can give up these temporary migrations, focusing on a combination of pastoral production and caravan trade, selling meat when they need cash (B). Adverse factors such as drought, diseases, or the activity of predators, can decimate the herd at any point, making it necessary to return to seasonal migrations in order to obtain additional resources (A). This instability is one of the reasons why wealthy herdsmen tend to transfer at least part of the capital amassed outside the pastoral system, e.g., buying farmland in the valleys (C). On occasion, this leads over time to emigration. If this happens, the emigrants may sustain their community membership, and even keep some animals in the canton in care of a relative or acquaintance, young (A) or old (D). Older households, whatever their economic condition, have two alternatives to satisfy their complementarity needs. They can look after the animals of close relatives who need help, getting in return the necessary goods or money to buy them (D), or they can join one of their
children's household—customarily, the youngest—collaborating in herding activities (A, B, or C on the right side of the graph).

This succession of strategies along the household developmental cycle can be illustrated with the life history of Carmelo Wy (hh#1). When he married, he had very few animals and inherited none when his parents passed away. At the beginning, he had to travel every year to the cane harvest in Argentina in order to support his family (A); later he stayed in this country for several years, working as a mobile rural labor in different areas. During these years, he sent all the money he could save to his wife and children in Cerrillos, who invested it in llamas and sheep. Twenty years later, when he was over 40 years old and had amassed a considerable pastoral capital, he returned to the canton, becoming a full-time herder and travelling every year with llama and donkey caravans to the eastern valleys, mining centers, and fairs (B). Ten years after, his herd was close to 700 llama units. He also acquired great prestige as the main defender of the most traditional customs of his community, threatened by the growth of evangelical Christian sects. Both factors contributed to extend his ritual kin network to the point that he always had one or more of his godchildren staying for long periods at his house, helping him with daily chores. Just before turning 60, Carmelo sold over one half of his animals and bought a farm in the valley, near Ispicaya, where he currently stays most of the year, cultivating the land with the help of some of his married children with their families (C). His wife, Leonarda, still looks after the herd in Cerrillos, where she lives with some of her young grandchildren, and is regularly assisted by her compadres and ahijados.
Carmelo plans to stay in the valley, but he hopes that some of his sons, currently employed in the city and mining centers, return to Cerrillos to inherit his flock and continue with the pastoral lifestyle (a possibility that exemplifies the cases of people returning to the canton, indicated in the upper part of the graph).

**External Factors**

Unlike the internal variables just analyzed, which are quite predictable and result in regular sequences of strategies, external forces are more complex, changing, and unpredictable. It is in this context that the heterogeneity and redundancy of the mechanisms becomes critical, together with the flexibility to activate and combine them in new ways according to the circumstances. Two aspects are relevant to understand the external dimension of this complementarity system: i.e., the demands of the social environment and the nature of the relationships between pastoralists and that environment.

The first group of factors refers to the external demand of labor and goods that pastoralists can provide. These demands change constantly in response to a number of variables, such as:

- market cycles and junctures, expressed as fluctuations in the prices of the products that herders can offer (e.g., wool, meat) and in the demands of labor in certain sectors of the economy where they usually seek employment (e.g., mining, sugar industry):
• economic policies adopted by the state (e.g., the sale of state-owned companies to private investors) or by non-governmental organizations (e.g., promotion of wool production for export);

• weather conditions, that some years can provoke crop failure (i.e., turn impossible to find maize or fruits in the valleys) or significant animal losses in the Altiplano, making it difficult to find the necessary pack animals to travel;

• political circumstances, such as the increase of border controls in Chile and Argentina during the past few years, which obstructs the traditional exchange of pastoral and agricultural products, but creates excellent economic opportunities for cocanis, caravanners devoted to the traffic of coca leaves;

• cultural factors, such as the relative continuity of certain traditional practices among people in the valley, who continue to demand goods that caravans can advantageously provide, like kollpa, k’owa, sullis (llama fetuses), tujuca (llama lard), and medicinal herbs.

Given the diversity and complexity of these variables, it is not surprising that conversations among pastoralists insistently revolve around prices, employment opportunities in Argentina, the weather and success of the harvest in the valleys, or the anticipated arrival of a truck to the area, all of them valuable pieces of information at the time of making economic decisions.
A few examples taken from the period in which my fieldwork was conducted will serve to illustrate the interaction among these factors and the capacity of llamos' complementarity system to handle the resulting challenges (cf. Browman 1990:341). In the early 1990s, when this project started, caravan traffic was about to disappear. A sharp drop in the international price of wool turned very difficult for herders who used to go to the annual fairs on the Argentina-Bolivia frontier, to get the wheat flour they needed in exchange for this product. It was becoming increasingly difficult to compete with truckers in the distribution of salt, a fact that created considerable uncertainty regarding the caravan journeys to Tarija. Since there was no demand for llama meat in urban markets, it was only used for domestic consumption or sold in mines and rural areas, where it was paid three times less than lamb. Many herders talked about reducing drastically their number of llamas, devoting themselves to raise sheep. Seasonal or permanent migration was the main mechanism of access to external resources. Many men, even entire families had moved to the mining camps of the state mining corporation (COMIBOL), while others tried their luck in the valleys and cities. It seemed to me that traditional llamos' lifestyle was fading away.

In 1993-94, however, with the dramatic personnel reduction that took place with the transference of COMIBOL mines to private hands, many people returned to Cerrillos after several years of absence. Some of them resumed their caravan ventures, some of them travelling along routes they had learned many years ago in their adolescence. This was favored by the progressive acceptance of llama meat in urban markets just about this time.
This phenomenon was partially the result of cultural changes, associated with the diffusion of "healthy life" stereotypes from the central countries, which increase the value of llama meat given its low cholesterol content. The influence of this fashion has been so strong, that has displaced prejudices deeply-rooted among valley and urban populations, who formerly regarded llama meat as dangerous because it could transmit parasites and other diseases.

In the mid-1990s, then, there was a revival of caravan trade among llameros in Sud Lípez. In response to a slight rise in the prices of wool, many resumed their journeys to Santa Catalina fair. Valley farmers preferred to get salt from drovers with the condition that they sold meat or charki at customary set rates. As meat prices continued rising, however, the latter kind of transaction became disadvantageous for pastoralists, who could get better returns selling the meat for cash in the market. In fact, around this time, the number of people coming to Cerrillos to buy meat increased significantly. While before the only vehicles that could be seen in the area belonged to miners or smugglers, in 1995 on, a minimum of two trucks from the meat market of Tupiza visited the canton weekly.

In 1995, during a trip to Tarija I participated in (Chapter 10), every person that approached our caravan along the way to barter asked for meat. They would even offer to buy the hides we were carrying and nobody seem to be interested in, hoping in this way to convince the drovers to slaughter some of their animals. They rejected all these offers, however, and even changed their original destination to avoid running across their traditional trade partners in the valleys, knowing that if they made similar requests, they could not refuse to sell.
In the winter of 1999, more than 10 men who traveled every year to the valleys with llama trains got together and rented a truck in Uyuni to go to Tarija, an alternative that was totally beyond their capability in the early 1990s given their difficulties to access money. This time, some of them bought their maize directly with cash; others bought salt at very good prices from the truckers in Cerrillos before the trip, speculating with the possibility of bartering it with farmers in Tarija at customary rates (i.e., the same weight in maize), obtaining in this way an additional profit.

If it continues, this phenomenon could put caravan traffic to an end. The possibility of getting money with relative ease and the convenience of selling their products for cash in Cerrillos or in the city rather than bartering them in traditional circuits, strongly favor the integration of pastoralists to the market as specialized meat producers. This process shows some analogies with what has already happened in other parts of the Altiplano, like Pampa Aullagas north of Salar de Uyuni, where the boom of firewood trade in the 1950s resulted in the extinction of caravans, even allowing some herdsmen to buy their own motor vehicles (West 1987).

The second point to consider is the nature of the relationships between pastoralists and other groups they contact in their search for complementary resources. The main characteristic of these relationships is their heterogeneity, which allows llamos to resort to different forms of interaction according to the circumstances. Ultimately, these alternatives can be subsumed under two fundamental principles of integration (Polanyi 1953), i.e., reciprocity and market, derived from traditional Andean forms of organization and the
capitalist system, respectively. The former principle underlie most transactions with other community members, with *caseros* or traditional trade partners during caravan journeys to the eastern valleys, with salt producers of Patana or Colchani, and with relatives and other community members living outside the *canton*. Market principles, on the other hand, regulate interaction at periodic fairs, mining centers, cities and agricultural areas under their influence (e.g., in the high valleys of Tupiza-Talina), as well as the access to outside land and work relationships away from the *canton*. The coexistence of these two forms of interaction and corresponding economic spheres should not be understood in terms of the "survival" of archaic customs despite the advance of modernity, but as an important property of the complementarity system that is strategically manipulated by pastoralists (cf. Love 1988). Some examples of this were considered before, when describing the changes in complementarity practices during the 1990s.

This section cannot conclude without making at least a brief reference to the ethnic or identity framework in which these relations are established. This framework tends to be structured around the opposition Altiplano-valley (cf. Rabey et al. 1986:132) or one of its transformations, e.g., *llamero* or *kolla* vs. *vallisto* (literally "valley dweller"), herding vs. farming, cold weather vs. warm weather, etc. In certain contexts, these identities are clearly played out, for example, in the encounters between drovers and their *caseros* in Tarija, at annual fairs that gather people who come from many different places to trade, or when *llameros* swap for supplies in the villages they traverse along their caravan routes. Caravan gear (bells, saddle bags, ropes, sling shots) and *llamero* textiles, with simple designs and
natural llama colors (white, brown, gray, black) function as strongly identity markers in these situations.

These oppositions, however, sometimes carry negative connotations in the eyes of valley and specially urban dwellers, who sometimes refer to llameros as poor, less educated, or even unfriendly, qualities that are commonly attributed to the hostile characteristics of their homeland. Perhaps for this reason, pastoralists tend to dissimulate their origin and mimic local groups when engaging in other complementarity practices that demand more social integration, as in the case of seasonal migrations or when farming their own land in the valley. The llameros I know who live in the valleys permanently or part of the year have adopted local rituals (e.g., the Pachamama celebration in August) and those who have built a house in the city seem to have emulated local forms and construction styles.6

CONCLUSION

Throughout this chapter I have emphasized the heterogeneity, redundancy, and flexibility of Cerrillos' complementarity system (cf. Martínez 1998:170-176; Rabey et al. 1986:153-155). Heterogeneity because it involves multiple kinds of activities (e.g., trading locally, driving caravans, farming, working in the city or in the mine) and social relations (e.g., employment, private property, trade, partnership, friendship, barter, reciprocity, and compadrazgo). Redundancy because all mechanisms ultimately enable herders to access the same basic resources, mainly those derived from agriculture. Flexibility because households combine the mechanisms at their disposal in various and new ways, selecting in
each case those which are most appropriate to the natural and social conditions they have to face. In this way, the system secures to most domestic units access to the complementary resources they need, reducing the risks derived from the possible failure of particular mechanisms due to factors beyond the control of herders. At the same time, a system like this makes it possible to take advantage effectively of favorable junctures that may appear in certain sectors of the economy, like those created by a rise in the prices of meat or wool, localized employment opportunities, or a specially good harvest. Given that a central property of the system is its ability to handle short and medium-term fluctuations, it follows that its characteristics can only be fully appreciated in a medium temporal scale, i.e., in lapses of decades at least. Certain mechanisms or entire strategies may be latent for years, being activated only when the right conditions emerge.
ENDNOTES


2. Beginning in 1995, a number of households have built green houses where they grow a small amounts of garden vegetables. The information and raw materials (plastic, wire, wood) to build them were provided by a non-governmental organization. This recent mechanism of diversification will not be considered.

3. With the exception of two motorcycles that belong to the sanitary agent and to an ex-miner, no member of the community owns motor vehicles.

4. Boman (1991 [1908]:496) points out that, among Susques herders at the begining of the 20th century, this had to be alpaca wool (not produced locally) died with special plants from the central Bolivian Altiplano, which was acquired from itinerant herb traders or kallawayas.

5. With a drop in exchange rates from 1 quintal of flour x 4 kgs of fiber to 1 x 20-25 kgs, all the wool that could be obtained from the annual shearing of an average flock was not enough to obtain the flour consumed in one year by a standard household.

6. Certainly, this is just a superficial impression derived from brief visits. It would be worth investigating to what extent and how, beyond this facade, llameros reproduce the same practical schemes in their occupation of these locations.
CHAPTER 10:
CARAVANS ON THE MOVE

In last chapter the economic dimension of caravan trips and their current place in the complementarity system of llaneros were discussed. Now, I will look at present-day caravans as behavioral systems, putting emphasis on the specific activities and material culture that are involved in this practice. My goal is to characterize the various locations occupied by drovers and pack animals during their trade journeys in terms of their placement, internal structure, and content, searching for the principles that account for the organization of the settlement system of caravans in short and medium temporal scales.

The first part of the chapter is devoted to a description of caravan journeys. The data I present were collected mostly during 20 days of participant observation in a trip from Cerrillos to Tarija valley in 1995 and two visits to the Santa Catalina Fair (1995 and 1997), but I also use information collected through interviews with most drovers in Cerrillos and about one dozen from other llamero communities in Lipez. When pertinent, references are made to previously published accounts of this kind of practice (Cipolleni 1984; Concha Contreras 1975; Custred 1974; Flores Ochoa 1979; Lecoq 1987, 1988; Molina 1987; West 1981). The caravan journeys in Lipez have many similarities with them, but also show important differences that underscore the variability inherent to this activity. The second part of the chapter focuses on the material dimensions of caravans and their settlement system. Here I will also use data collected through intensive surveys along two regularly used caravan routes between Lipez and the valleys of Tupiza and Talina, and several routes
that traverse Southwest Lipez toward the northern Chilean desert. The main purpose of these surveys were to expand the sample of campsites and routes recorded and to assess the effects of various environmental settings in the settlement pattern of caravans.

A CARAVAN JOURNEY TO THE EASTERN ANDEAN VALLEYS

The two or three-month trip with llama trains to the eastern Andean valleys to exchange salt for maize, is one of the most important events in llameros’ life, who refer to this as "the journey." It is the hardest venture they undertake and the mechanism by which they obtain the bulk of the agricultural products they need for subsistence – or it was until recent times. Given some of their characteristics (e.g., the tendency to use llamas as pack animals, the distances involved, the routes followed), these trips would approximate best some of the logistical conditions under which prehistoric caravan traffic may have operated. Consequently, their study could give relevant insights to understand the organization of these behavioral systems in the past and the archaeological records they may have generated.

The Members of the Caravan

Most drovers go to Tarija with llamas. Donkeys are only used for shorter trips, for instance, when they go to get salt, or when they just travel to the higher, closer valleys, such as Tupiza or Chipiwayco. Commonly cited reasons for this preference are that llamas are more resistant than donkeys in long trips, that the latter require expensive outfit or padding that llamas do not need, and that llamas, unlike donkeys, can live on natural forage alone.
even in the most arid parts of the route (cf. Custred 1974:275; West 1981:63). Mixed droves, reported by other authors (e.g., Lecoq 1988; West 1981), are quite rare in Lipez.

Only castrated llamas between two and eight years old travel, since they are considered tamer and stronger than whole males. Sometimes they also take younger animals (maltones) so they learn the route and habits of the journey, but they are not loaded, or loaded only with small burdens to get them used to carrying them.

The number of animals per drove varies between a minimum, related to the need for valley products of the household, and a maximum determined by the problems of driving too many animals. Nowadays, with the relatively diversified diet that results from the consumption of groceries obtained through other mechanisms, a family with four or five members needs between 15 and 20 loads of maize per year (one load = 34.5 kg); according to my informants, "in the old days" 40 to 50 loads were necessary, since the "grandparents ate just corn." It is not considered worth travelling so long unless a minimum of 15 or 20 pack animals are taken: if this number cannot be reached (e.g., borrowing al partir), it is preferable to make several short trips to closer maize-producing areas (e.g., to Tupiza). On the other end, it is considered impossible to drive more than 100-120 animals together, in the words of an informant, "it is too difficult to make them march at the same pace." When faced with the hypothetical possibility of taking more animals (with all the benefits that this would imply), their invariable response is that they would form two or more separate pack trains, hiring other llameros to drive them if necessary.

Usually two or three men go together in one caravan. Even though they assert that their "grandfathers" sometimes traveled alone with up to 70-80 animals, many tasks become
extremely difficult unless there are two persons at least; for example, keeping the drove together when loading or unloading, or holding the animals still to cure their feet. More than three or four individuals per caravan, on the other hand, is not considered convenient either because, since llamos carry primarily bulky subsistence goods, holding constant the maximum number of llamas per drove, there would not be enough animals for each one of them.

Every member of the party has a well-defined role to play. The arriero (drover), the owner of the animals or the person responsible for them if they have been borrowed al partir, is the one who loads and unloads, decides on the route and places to camp, and makes all the transactions. The ayudante (assistant), is usually a youngster (frequently the arriero's son), or a poor herder that does not have enough animals of his own; more rarely this role can be played by the drover's wife or a young daughter (or an anthropologist). Ayudantes have to keep the drove together for loading and unloading, collect and arrange the ropes at the end of the day, keep the camp or jaras supplied with water and firewood, and watch over the herd while arrieros go to barter. When the assistant is not a member of the household, he is paid with maize or given a few pack animals (four to 10, depending on the size of the caravan) to carry his own goods for trade. When they do not have an assistant, two or three drovers can pool their animals and help each other along the journey.

Men begin to travel as ayudantes approximately at the age of 12, when both men and women assume full responsibility over productive activities in the household. During these initial trips, they learn the secrets of driving, the routes and jaras, and they develop a friendship with the caseros or trade partners of their fathers or uncles, a relationship that,
ideally, they will continue during their adult life. In this sense, the first trips to the valleys are a form of initiation for adolescents (Lecoq 1988:192-193), although there are no ritual practices specifically associated with them as contexts of initiation.

In 1995 I traveled to Tarija with two llameros (hh#21 and 25). For Ignacio (33), it was the fifth trip and the second since his return to Cerrillos after ten years living and working in the city and at various mining centers. Eleodoro (58) had gone 43 times, missing only one year since the age of 13, when he traveled for the first time as an assistant. The drove was formed by 74 llamas: 29 belonged to Eleodoro. 30 to Ignacio, and 15 to Ignacio's father, Severo, who decided in that opportunity that he was too old (72) to travel anymore. Severo's llamas, however, where Eleodoro's responsibility, who borrowed them al partir. We also took a dog with us (Picaflor), and got another one (Emilita) near Tupiza in exchange for a pound of salt.

Preparing the Load

Preparation for the journey begin at the end of the summer, when llameros collect the straw they will use for wrapping the salt blocks, so they do not hurt the llamas' backs. Salt, the main good transported, comes from the community of Colchani, in the southeastern shore of Salar de Uyuni, or from the small salt flat of Patana, west of the community of San Juan (see Figure 9.1). Valley farmers for its purity prefer the latter. Fetching the salt demands a 10 to 15-day trip with llamas or donkeys, that usually takes place after Easter, once the rains are over. Salt is bought with cash or exchanged with meat or maize. In the last few years, most people prefer to buy it from truckers in Cerrillos.
paying a little more, but saving this trip that is considered particularly harsh, since there is no forage or water in long stretches of the route.

Each block of salt from Colchani weights one *arroba* (11.5 kg), while those from Patana have one and half *arroba* or more, since a bigger mold is used there (*vallimolde*). Before the trip, the blocks are scrapped down until they weight exactly one *arroba*. Two blocks, wrapped with straw and tied together with a special rope named *lia*, form a *carga* or load (ca. 23 kg).

The caravan carries also other goods, besides salt, in order to take full advantage of trade opportunities that may emerge along the journey and reduce potential risks by diversifying the offer. These products, that have to be collected or elaborated during the year, include:

1. Animal products, such as hides, *charki*, tallow, fat from the llama's abdomen or *tuytuca* (highly valued for medicine and ritual), llama fetuses (*sullis*), unprocessed wool, saddle bags (*costales*), slings (*warakas*), ropes, and old capons (over 8 years) to butcher.

2. Other goods collected in the area, like ritual and medicinal herbs (*k'owa, pupusa [Werneria poposa], chachacoma [Senecio gravealens], and chaquikanglla*), wild, edible plants (e.g., *llullucha [Nostoc vesiculosos]*), and *kollpa* or salts that accumulate on the shores of rivers and *cienegos*, used as soap for personal hygiene and for washing clothes.

Most of these products are carried in small fractions (e.g., in handfuls or *reales*) and
in handy places, easy to reach, to facilitate swapping on the march.

Sometimes, saddlebags have to be repaired, or it is necessary to braid new ropes before the trip (there has to be at least one per load). They also have to fix the animeros or bells for the llamas that lead the drove (delanteros), which are richly decorated with red fringes, tassels, and a ch'uspa with coca leaves, "so the animals can chew them as they go."

Finally, the drover's luggage is prepared. In our case, this included two loads per person containing the following items: (1) personal clothes, blankets, and hides to sleep on; (2) cooking utensils, i.e., one 3-liter aluminum pot, one metal bowl, one metal cup, one knife, a couple of spoons, and a plastic jerry can to carry water per person, plus one tea kettle and an extra cooking pot for the dog; (3) some food for the trip; (4) ritual paraphernalia; (5) other personal belongings, e.g., cards, string and needles, or a ch'uspa.

The supplies most commonly taken (and the ones we carried) are parched com. pitu (corn or quinua flour), wheat flour for lawa (soup), vegetables (carrots, onions, potatoes), llama feet to boil in the soup, sugar, tea, charki and meat (in our case a llama's rear limb). One "piece" (e.g., a whole leg or the ribs) is considered more than enough meat for the entire trip. Apparently, there is no preference for a particular anatomical part; some choose to take the highest yield parts (e.g., the rear quarters), others the chest so that it will "give strength to the drover," others will take whatever they have available. Llameros do not carry all the provisions needed for the trip; they always count on finding supplies along the way.

Once all preparatives are finished, a date for departure is established; Mondays. Wednesdays, Thursdays, and Saturdays are considered propitious days for departure or arrival. They leave anytime between late May and mid June, when the harvest is over in the
valleys and maize is already dry, making it easier to transport. It is not convenient to leave too late, because it could be difficult to trade all the merchandise when too many caravans have already passed through. Another reason given for travelling in the middle of the winter is the existence of poisonous grasses in the valleys (like the *hediondilla*) that bud in the spring. As Platt (1987a:521) points out, the trip also alleviates pressure on pastures in the season when they are scarcest, incorporating fodder from other ecozones to the pastoral cycle.

In our trip, we took 40 loads of salt and 15 additional loads with luggage, empty sacks, and other goods for trade (hides, ropes, slings, *k'owa*, medicinal herbs, and *tujiwuna*). Ignacio had bought his salt in Uyuni, while Eleodoro had gone all the way to Patana to get it.

**The Departure**

We left from Ignacio's main residence, where he lives with his wife, children, and parents; Eleodoro and his animals joined us at the first campsite. Caravans always leave from main residences, where storage is concentrated and the drover's gear and ritual paraphernalia are usually kept.

Preparation for departure started at dawn, when women began to cook for breakfast (roasted meat, soup, and corn), while men finished preparing the freight and luggage. After having our meal in the indoor kitchen, the altar (a wooden table) was taken out of the *kawildu*, and set up on the "right side" of the courtyard (Figure 10.1). The *mesa* combined the emblems of caravans (bells or *animeros*, a couple of ropes, an empty saddle bag and a
Figure 10.1: Ignacio’s main residence during the ceremony of caravan departure.
miniature replica filled with corn kernels) and other elements common at pastoral ceremonies, such as "flowers" (red tassels), a ch'uspa with flamingo feathers, llompaqa, incense, k'owa, coca leaves, a small bottle of cane alcohol, and several pitchers or yuros filled with chicha (specially prepared for the event), together with half calabashes or tutumas to drink it. There were also four k'ichiras we would need for the rituals along the journey. All these elements were placed on top of an awayo that covered the altar.

The men went to get the male llamas - that had been brought down from the cerro a few days before - and drove them inside the courtyard, closing its open side with several ropes tied to a post in the middle. Every adult member of the household (women first) circumambulated the house, the animals, and the load piled in the right side, holding a bowl with smoking k'owa, asking protection for the family and for the arriero in his trip. When finished, they left the censor in front of the house. We stayed for a while around the altar, sharing chicha and coca. ch'allando (sprinkling chicha) and sink'ando (dropping coca leaves) on the load, the herd, the mesa, and the k'ichiras, invoking the protection of Pachamama and the Mallkus. Ignacio invoked then the protection of San Rafael, the arriero virgen, an invisible drover that marches with llameros during the trip, helping them to drive the caravan and magically fixing the loads when they are about to fall.

Then, the red tassels on the llamas' ears were renewed (inflorar). Each member of the household took turns to sprinkle chicha over the load and the animeros, wishing Ignacio a successful trip. After that we began to load. Concluded this operation, we all went back to the mesa for a last drink: suddenly, Ignacio's parents burst into tears, and began to voice very laudly and histrionically their feelings for their son, who was about to start an
extremely difficult and dangerous journey. These (ritualized) expressions stopped as abruptly as they had began and we left. The family marched with us that first day, helping to drive the caravan until the first *jarana*. They returned home before dusk.

**The Routes**

The choice of destination depends on many factors: the health condition of the drover and his animals; special circumstances that could require him at home earlier than usual (e.g., an illness or the obligations associated with communal offices); the merchandise he carries: the information he has been able to collect about the relative success of the harvests, goods available, and exchange rates in different places; and commitments with *caseros*, among others. Even though each *llamero* has one or two favorite circuits (frequently those he has inherited from his father), it is not uncommon to try new routes and destinations.

As Table 9.3 illustrates, exchange rates vary from one place to another, being usually more convenient for caravanners farther away from the Altiplano and in areas that still lack motor vehicle roads, where they do not have to compete with truckers (e.g., various places in the headwaters of Tarija valley).

There are several ways in which *arrereros* can design their trip to achieve a similar benefit. For example, taking the "low route" (Figure 10.2), they can go all the way to San Lorenzo, beyond Tarija, where they get two and half *arrobas* of maize in exchange for two *arrobas* of salt. Alternatively, if they do not have enough time, they can barter two *arrobas* of salt for two and half of potatoes in Chacabuco, going back to Tupiza and changing the
Figure 10.2: Main caravan routes between Lípez and Tarija Valley.
potatoes for maize "weight for weight," obtaining the same final result.

Caravanners from Cerrillos follow three main routes to the eastern valleys (Figure 10.2. Table 10.1). The "high route" goes to the southern part of Tarija valley. It is the shortest and the best for the animals because it goes all through high, Altiplano environment. but it is cold, lacks firewood in long stretches. and there are not many people along it to trade with and get supplies. Llameros from Zoniquera. San Antonio de Lipez, San Pablo, Río San Pablo, and Polulos also use this route. The last segment of this route, after Tajzara was also used until recently by arrieros from the Altiplano of Jujuy (Cipolletti 1984:531; Madrazo 1981:229).

The "low route" aims at the north sector of Tarija valley. It is longer and cuts across several deep valleys (quebradas) and canyons, hard to traverse with llamas and dangerous because of the presence of predators (pumas). Many drovers prefer it. however, because it is warmer and. since it is more populated, it offers better opportunities for swapping along the way. Caravans from San Cristóbal, Cocani, Cieneguillas, and Polulos take this route as well.

For our trip. we chose the "middle route" (Table 10.2). It coincides with the low one up to Tupiza, then turns south, joining the high route when entering Tarija valley. close to the Argentinean border. It is the least traveled because many llameros consider it unnecessarily long and winding. We chose it, however, because it was the route usually taken by Ignacio's father.

The total duration of the trip is two or three months; 20-25 days one way. 10-20 days trading and resting in the valley, and 25-30 days for the return, since the animals are
Table 10.1: *Jaranas* along the three main routes to the eastern valleys used by *llameros* from Lípez.

<table>
<thead>
<tr>
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<th>#</th>
<th>jarana</th>
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<tr>
<td>1</td>
<td>Mutucuruaj</td>
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<td></td>
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<tr>
<td>2</td>
<td>Tapial</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Churqui</td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>Cumbre</td>
<td>km; rest</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pisco Uno</td>
<td>km; rest</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Tinuku</td>
<td>km; rest</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lampaya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Yanalpapata</td>
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</tr>
<tr>
<td>9</td>
<td>Asnaturu Pampa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Tengoia</td>
<td>KM; rest</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Huayllajara</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rejara</td>
<td>(km) oca,pot</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Camacho</td>
<td>maize</td>
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<td>Cumbre</td>
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<td>Pastos</td>
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<td>Sique Jara</td>
<td>km; rest</td>
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<tr>
<td>6</td>
<td>Tupiza</td>
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<td></td>
</tr>
<tr>
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<td>Chuquiago</td>
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<td>Supirapata</td>
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<td>Yuraj Cruz</td>
<td>KM; rest</td>
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<td>Churquis</td>
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<td>Chaquimayu</td>
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<td>Vuelta Grande</td>
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<td>3</td>
<td>Awana Pampa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pastos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sique Jara</td>
<td>km; rest</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Tupiza</td>
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</tr>
<tr>
<td>7</td>
<td>Chuquiago</td>
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<tr>
<td>8</td>
<td>Tacachari</td>
<td></td>
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</tr>
<tr>
<td>9</td>
<td>Machu Cruz</td>
<td>KM; rest</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Yuraj Cruz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Chayasa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Aguay Toro</td>
<td>km; rest</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Chacabuco</td>
<td>oca,pot</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Pie'la cuesta</td>
<td>(km) oca,pot</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Calama</td>
<td>maize</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>San Lorenzo</td>
<td>maize</td>
<td></td>
</tr>
</tbody>
</table>

Comments: KM = major *k'owak*, km = minor *k'owako*, (km) = minor *kowako* on the way before arriving to the campsite, rest = rest camp, oca-pot-maize = places where main agricultural products are obtained.
Table 10.2: Location and characteristics of campsites occupied during our journey to Tarija (1995).

<table>
<thead>
<tr>
<th>day</th>
<th>jarana</th>
<th>south</th>
<th>west</th>
<th>masl</th>
<th>place</th>
<th>km</th>
<th>cumulative</th>
<th>redundancy</th>
<th>features</th>
<th>ritual</th>
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<tbody>
<tr>
<td>1</td>
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<td>4280</td>
<td>P</td>
<td>22</td>
<td>22</td>
<td>red</td>
<td>h</td>
<td>-</td>
</tr>
<tr>
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<td>21°24'</td>
<td>66°13'</td>
<td>4180</td>
<td>P</td>
<td>18</td>
<td>40</td>
<td>red</td>
<td>w; h</td>
<td>-</td>
</tr>
<tr>
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<td>66°05'</td>
<td>4000</td>
<td>P</td>
<td>19</td>
<td>59</td>
<td>red</td>
<td>w; h</td>
<td>-</td>
</tr>
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<td>65°57'</td>
<td>3900</td>
<td>P</td>
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<td>77</td>
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<td>h</td>
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<tr>
<td>6</td>
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<td>4050</td>
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<td>19</td>
<td>96</td>
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<td>65°38'</td>
<td>2880</td>
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<td>140</td>
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<td>-</td>
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<td>3000</td>
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<td>158</td>
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<td>h</td>
<td>-</td>
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<tr>
<td>10</td>
<td>Supirapata</td>
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<td>65°22'</td>
<td>3950</td>
<td>P</td>
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<td>176</td>
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<td>w; h</td>
<td>KM</td>
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<td>191</td>
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<td>w; h</td>
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<td>225</td>
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<td>h</td>
<td>km</td>
</tr>
<tr>
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<td>Chaqui Mayu</td>
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<td>3550</td>
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<td>km</td>
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<td>64°58'</td>
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<td>10</td>
<td>273</td>
<td>0</td>
<td>h</td>
<td>-</td>
</tr>
</tbody>
</table>

Key:
day = number of days travelling since departure; environment: V = valley, P = puna; redundancy: arq = archaeological site, red = reoccupied campsite (recent previous occupation), 0 = no traces of previous occupation, cult = harvested plot, fallow; feature (features present at campsite): w = windbreak, h = hearth/s, s = reuse of abandoned structure (e.g., corral, room, fence); ritual: KM = major k'owako, km = minor k'owako.
tired and march with heavier burdens on their backs.

The Caravan Day

Daily activity starts between 4 and 5 a.m., lighting the fire for cooking. In order to take full advantage of daylight, one should have breakfast, pack, and be ready to load before dawn. The meals are, almost invariably, both breakfast and dinner, thick soups (lawa) with flour, charki, potatoes or chuño (frost-dried potatoes), and vegetables if there are any. Each person takes his own food and cooks it with his own implements. Over breakfast, llameros talk about their dreams and interpret them, seeking omens for the day to come.

At daybreak (6-7 a.m.), the llamas, who usually spend the night free around camp, are gathered in the center of the jara, what I will refer to as the "loading and unloading area." They are held together first, by passing a rope behind their necks and croup: then, they are tied in groups of three-to-five by their necks, so they cannot escape while being loaded. If it has been noted that some animals limp, their feet are examined for wounds, curing them with a mixture of salt and grease. They also protect them with shoes or sandals made of hide and wool, which have to be fixed almost every morning. This task became part of the daily routine after the sixth or seventh day of march. After this, the salt, saddle-bags, and luggage are loaded. This is relatively easy when the animals travel every year and are used to it; but still, there are always some llamas that refuse to be loaded, trying to escape, spitting on their owners, or laying down on the ground. In these cases, loading can turn into a small morning battle, with llameros chasing the unruly animals or spitting back into their mouths to give them a lesson. The animals are released as they get ready. In our
case (two persons loading almost 70 llamas), this task demanded about one hour every day. Once concluded, the march begins.

The *delanteros* lead the drove, with their bells announcing the caravan. This role is assumed by the bravest llamas, which during their first trips tend to march in the front of the group or take the lead when coming across obstacles or difficult points along the trail. They are followed by the other llamas and, in the back, the drovers and their dogs.

Interaction with the llamas often assumes the characteristics of a relationship with people. Every animal has a name, usually related to the color and shape of its fleece (Flores Ochoa 1981). When driving them, the *llameros* treat them with remarkable consideration, calling them by their own name or begging them to keep marching.

When the caravan approaches difficult parts of the trail, such as narrow points, rivers crosses, *quebradas*, or downslope stretches in general, the drove usually comes to a halt. The best way of moving forward is splitting the herd in small groups to be driven separately. Another possibility is for one person to move to the front and drive 10-12 animals fast, speeding up the whole caravan, since the other animals tend to follow this group. During our trip, we had to resort repeatedly to the first technique, splitting the drove in three groups when marching downslope and whenever we entered *quebrada* environments. The second technique was preferred on flat terrain.

The drove proceeds faster when it follows trails or roads; when it goes through open fields or riverbeds the animals tend to disperse. The llamas can't be driven too fast either: the *llameros* believe that their animals can "overheat," i.e., their fat may "coagulate" and die. The caravan marches for six to nine hours per day without stops, travelling between 15
and 25 kilometers.

Parched corn (*tostado*) is the only food taken during the day but coca leaves are chewed constantly to alleviate fatigue and thirst. Every object found on the way that could have any utility (e.g., cans, tires, rags, wire, string) is collected. Sometimes, *llameros* braid ropes while they walk. An experienced person can finish a rope (ca. nine meters long) in three days of driving.

In a normal day one arrives to the *jarana* between 2 and 4 p.m., with three to four hours of daylight left for the llamas to graze. Once a camping place has been chosen, the animals are unloaded, a task that takes about twenty minutes and requires to keep the herd together in one place; usually the assistant runs in circles around the drove while the *arrieros* take down the loads. These are piled around the herd, defining in this way an approximately circular area 10-20 meters in diameter, where the animals will be gathered next morning for loading (Figure 10.3). The salt and saddlebags are piled in rows up to one meter high that also serve as windbreaks during the night. Each person's goods and personal belongings are put in separate piles.

Then each drover (or the assistant if there is one) collects and carefully counts the ropes and bells that are usually left randomly dispersed over the loading/unloading area after unloading. Counting the ropes is a way of controlling that no animal has been lost. One evening, for example, we noticed that a rope was missing. We gathered the animals again to count them finding, however, that they were all present. In spite of this, we counted again both ropes and animals several times, unable to explain the difference. This was the subject of conversation over dinner and breakfast until the next morning, when the
Figure 10.3: Overnight camp at Churquis Jara.
missing rope was found lying on the ground near the campsite.

If the *arrerros* are too tired, as soon as they finish unloading they quickly prepare *chuchumiri* ( parched cornmeal with cold water) to recover strength. Then, while llamas graze nearby, they collect water and firewood. On occasion, water has to be brought from considerable distance: once we fetched it 2 km away from the *jara*. Some campsites lack any firewood except for cattle or donkey dung. Once all these tasks have been concluded, if there is any daylight left and there are people living in the area, the drovers may go swapping, leaving the assistant or just the dogs guarding the *jara*.

At dusk, the llamas lie down near the *jara* to spend the night. If the *arrerros* are afraid of them being scared away, they are tied one next to the other, forming a closed circle in which all of them face inwards. Some (the young) are left loose inside this improvised "corral" (Figure 10.3). This precaution is taken when camping in narrow or enclosed spaces (e.g., deep valleys or *quebradas*), when there are dogs or houses nearby, or when they suspect the existence of predators (puma, fox).

One night, when camping in fallow land close to the village of Libi Libi, in the deep valley of Río San Juan (Figure 10.2), I had a clear demonstration of this danger. After dinner, a few dogs from the houses nearby came to the *jara*, scaring the llamas and provoking a stampede. After four hours searching for them with a flashlight in the dark, we could only find one half of the drove. Before dawn, we left toward the previous campsite (Yuraj Cruz, Table 10.2), 15 kilometers away and 1350 meters higher, in the mountains of K'aipa, where we had rested and conducted the main rites of the journey a couple of days before. As my fellows had predicted, we found the missing animals grazing peacefully.
there. We returned to Libi Libi's camp at dark and had to rest there the next day. We lost two days with the accident.

The day ends with dinner around the campfire. The hearth is always prepared outside the loading/unloading area (Figure 10.3). While cooking, the arrieros repair saddlebags, their clothes sandals, braid ropes, spin, or make new shoes for the llamas. Conversations over dinner are centered on the health condition of the animals, difficulties they anticipate during next day's march, travel anecdotes, or old llamero tails. When approaching the end of the trip, they begin to discuss the information they have about trading opportunities in the valley (e.g., relative success of the harvest in different villages, exchange rates) and the best strategy to follow in their transactions.

All the food prepared is consumed, sharing it with the dogs. Long bones are broken to extract the marrow, hammering them with stones on improvised anvils. The dogs usually take care of the bigger bones, leaving only chips and small fragments around the hearth. Sometimes, bones are hammered until they are totally reduced to splinters, so the dogs can eat them all. When dinner is over (8-9 p.m.), all supplies are packed to protect them from eventual predators. Each one sleeps next to his load, on hides and covered with wool blankets.

**Ritual Practices along the Journey**

In addition to the departure ceremony described before, other rituals or costumbres ("customs") are performed along the trip. These include one major k'owako to the Mallkus and three minor ones, besides brief ch'allas (libations) and offerings to Pachamama at the
**apachetas** or rock cairns present along the trail. As Table 10.1 demonstrates (also Figure 10.2), these rituals are similarly distributed along the three routes. Except for the last *k'owako*, which basically announces the arrival to the valley, these rituals are associated with full days of rest distributed at regular intervals along the trip.

**Major K'owako**

The most important ritual takes place near the middle of the trip, when crossing K'aipa, the highest mountain range in the route, before going down to the deep valley of Río San Juan del Oro. Those who follow the low route perform the same "custom" here described in Machu Cruz, while those that prefer the high route have their ceremony in Tengoia (Figure 10.2).

We arrived to the *jurana* of Yuraj Cruz around 3:30 p.m. on Wednesday, considered a good day for the *k'owako*. We set up camp in a sheltered dale on top of the mountain range, partially occupied by a *queñoa* (*Polylepis*) grove, and surrounded by three small peaks (Figure 10.4). The two mountain passes (*abras*) that gave access to the dale were marked by large *apachetas*. I could see several hearths in the area, some of them recently used, attesting to the pass of other caravans before us.

We stopped in a flat place, free of vegetation, a loading/unloading area regularly used and maintained. After collecting water and firewood (abundant in the area), Eleodoro began to prepare his *intenciones*, consisting in several pairs llama figurines (*virauñas*) with their guarding cones (*chukas*) that he shaped expediently after kneading cornmeal and fat. Ignacio had already brought with him a *k'ichira* that would serve as his "intention."
Figure 10.4: The Yuraj Cruz area.
Figure 10.5: Mountaintop altars at Yurai Cruz.
About 5:30 p.m. Ignacio and Eleodoro put on their ponchos, a ritual garment that they only took out of their luggage for that occasion, and we started hiking up the peak northeast of camp, looking for the altars and collecting firewood on the way. We found them on the summit: they consisted of several low stone platforms or "tables" and about 20 long rock piles, one meter high by three-four meters long, oriented east-west (Figure 10.5). Immediately in front of them (i.e., to the east) there was a deep cliff: one could see beyond it, one after the other, all the mountain ranges we still had to cross in order to get to Tarija valley, barely visible on the horizon. Between the platforms and the stone rows, there was the usual group of upright slabs shaped like llamas marching to the rising sun, some of them still showing pieces of red yarn tied around "their necks." In front of them there was a recently utilized hearth.

Once there, they circumambulated the altar counterclockwise llompaqueando (sprinkling cornmeal). They lit the fire and each one of them prepared his own mesa, covering the platform with an awayo, and spreading on top of it the animeros, a couple of ropes, small bottles with alcohol, ch'uspas with coca and flamingo feathers, miniature costales (saddlebags) filled with corn kernels and llompaqa, red yarn, confetti, and, on a smaller textile known as unkuña and placed at the center, the "intentions:" suplicos (sugar slabs with images), incense, k'owa, k'ichiras, and viruña/chuka pairs.

Next they smoked, raising a slab with coals, incense and k'owa to the mountains in front of us. They mixed alcohol and coca in a cup and, holding it above them, they invoked the Mallkus naming them: Tengoia, Pulario, Cuevas, Machu Cruz, K’aipa, Yuraj Cruz, etc. They poured some of the mixture on all corners of the mesas, drank, and threw the rest "to
the mountains." These gestures were repeated several times, while chewing coca and
dropping from time to time a few leaves on the offerings and on the rock piles in front of
them.

After a while, they kneeled, each one raising his "intentions" to the Mallkus. They
repeated this action exchanging their offerings and threw them to the fire. Then they took
from their mesas the miniature saddlebags and gave their content – i.e., the products they
expected to get in the valleys – to me and to one another. After that, they tied the red yarn
"flowers" to the miniature stone herd and to the rocks piled in rows east of the mesas
(inflorar). The latter represent the wishes and hopes they take with them in the trip. With
this act, they expect the goods and gifts to be many, like the stones.

The ceremony concluded at dusk drinking in the animeros, toasting with the
Mallkus, pleading for our wishes to become true. We stayed at the altars most of the night
talking, drinking and chewing coca.

We stayed at Yuraj Cruz for two days resting. During this time we fixed the salt
loads and their straw wrappings, we cured the llamas' feet, and replaced their shoes. My
fellow travelers went to a nearby herding post to swap with some success, and spend long
hours spinning yarn for ropes. Eleodoro read his divination cards for Ignacio and I. In the
"old days," when caravans were many, it was common for several droves to meet and rest
together in this and other campsites along this mountain range, where similar rituals are
performed. During these encounters, llameros exchanged useful information about trade
opportunities, and played certain games (e.g., the palomeada [Van Kessel 1992:90]) they
commonly play in ritual contexts (e.g., All Saints Day).
Minor K'owakos

The first one took place after the morning meal at Sique Jara (one third through the trip), during the first day of rest, on the top of the last mountain range we crossed before entering for the first time in the quebrada environment. They walked a few meters east of the jara. where they burned coca, incense, k'owa, and a k'ichira on top of a flat slab (Figure 10.6). On their knees, facing the rising sun, they invoked the protection of the Mallkus for the trip.

The second k'owako was done before loading at Pozuelos. a jarana near on the top of a mountain range, before going down to the plains of Tajzara. According to Ignacio. caravans usually rest there for a day, but in this opportunity they decided to continue since we had already lost several days. Like in the first one, they burned a k'ichira, together with other ritual elements (coca, incense, etc.) on a slab placed on the east side of the jara.

The third minor k'owako took place during a brief stop in the afternoon, shortly after the last mountain pass (Lagunillas) that gives access to Tarija valley. This is considered one of the most difficult segments of the route, since the llamas refuse to go down this long and steep slope. We stopped where we found a recently utilized hearth. Quickly, we gathered cow pies and lit the fire, placing the offerings next to it: cornmeal, coca, cane alcohol, wine, and a k'ichira. They kneeled behind the fire, facing east, drinking and chewing coca, sharing these precious elements with Pachamama and the Mallkus, invoking their help for the difficult part of the trail we were about to face, so the llamas would go through it "as if it was flat." Next, they took turns, to raise the k'ichira wrapped in a small unkuña to the
mountains around us, and then threw it to the fire. When it was almost totally consumed by the flames, we put off the fire and continued the trip.

**Apachetas**

Another ritual practice on the trip was associated with *apachetas*. These rock cairns are always found on culminating points (summits and mountain passes or *abras*), where the trail enters deep *quebradas* and other difficult parts of the route, or at crossroads. When passing by these features, people add a stone to them, stick a branch or some straw in the cairn, and pour cane alcohol (*ch'alltay*). It is also a common practice to leave on them (as an offering to *Pachamama*) the coca leaves one is chewing (*pi'chu*), particularly after the effort of hiking up a long *quebrada* or a hill side up to a pass. Some *apachetas* are crowned with llama-shaped slabs, which may also be quickly ornamented with red yarn.

**The Exchange**

The economic transactions made by caravans are of three classes that can be termed primary exchange, secondary exchange, and daily swapping.

**Primary Exchange**

For *llameros*, the main reason for travelling to the valleys is to obtain the maize they need for household consumption during the year. As kernels or ground as flour, this product is one of the main elements in pastoralists' daily diet and *chicha* or maize beer is an essential drink in all rituals and feasts. All other transactions are subordinated to this main
Maize also grows in the closer quebradas of Talina and Tupiza and all along the valley of Río San Juan del Oro, where sometimes pastoralists get it (Figure 10.2). The main reason they give for their habit of travelling twice this distance to get it in Tarija, is that exchange rates are better for them there. This reflects the absence of roads in many parts of Tarija valley and, therefore, the lack of competition from truckers. This may not be the only reason, however, since it is known that llameros from Lípez and even from Puna de Jujuy have bring their maize from Tarija since the 19th century at least (Madrazo 1981; Platt 1987a). Some drovers also argue that they prefer the taste of Tarija's maize to the one that grows in the higher valleys closer to the Altiplano.

When they arrive to the villages in the valley, caravanners camp nearby, but at some distance from the farmers' houses. During the exchange process, the jara and the herd are left in charge of the assistant; if there is none, the arrereros take turns to guard them. If they do not have caseros, they go around visiting the neighbors, offering their merchandise. The farmers are very polite with their visitors, always offering them mote and other meals based on corn. The conversation starts with general comments about the weather, the harvest, and the adventures of the journey, focusing on the possible transaction only after a considerable amount of "polite" talk.

As other authors have pointed out (Browman 1994), rates are fairly stable (albeit not fixed) and uniform in each zone (see Table 9.3). Bargaining centers around the amount to be exchanged and additional goods that both parts want to include in the transaction. In our case, for example, the farmers repeatedly offered to take the salt if the llameros also...
bartered meat at the traditional rate (one piece of meat x one arroba of maize); as I argued last chapter, the arrieros refused to butcher because they could get four times more selling the meat for cash to truckers in Lípez. Instead, they tried to place their hides (that did not seem to interest farmers at all), offering to give them some fat and medicinal herbs as a tip.

Once they reach an agreement, the drovers have separate the kernels from the ear in order to reduce the bulk they have to carry back home. This is usually done by trampling the corn ears on a blanket, where the loose kernels are collected. When this task is concluded, they check the quantities using a steelyard (drovers always carry one with them) if rates are expressed in weight, or directly filling their saddlebags if they are expressed in volume.

Others go directly to their traditional trade partners or caseros, who wait for the arriero every year, with the commitment of taking all his goods. I have not recorded a single case in which llameros and their caseros were relatives or even fictive kinsfolk (cf. Flores Ochoa 1979:108; West 1981:64); all my informants insisted in defining them as "friends" or conocidos ("acquaintances"). This kind of relationship offers advantages to both sides by turning exchange predictable in the rates, quantities, and kinds of goods to be bartered. The disadvantages derive from the very obligation to trade, which prevents both parties from profiting with better opportunities that could come up. These disadvantages, which must have been negligible in the past before the penetration of market economy, currently seem to overweight the benefits of this institution, threatening its very survival. Caravanners prefer to compromise security for the profit opportunities that market forces offer to them. Since farmers are not sure whether their friends from the altiplano will come,
they purchase salt from anyone.

The strength that this relationship had in the past can be illustrated with a story I was told in Cerrillos. One of my informant's grandfather traveled every year to Tarija, where he exchanged all his products with his *casero*. Once he had problems at home that forced him to leave later than he used to. Knowing this, one of his neighbors, who arrived to the valley before him, went to his *caseros* and told them that their friend had died. The farmer trusted him and took his merchandise instead. A few days later, however, my informant's grandfather (supposedly dead) showed up, apologizing for his delay. Even when he did not need the products anymore, the deceived farmer took all the goods brought by this second caravan to fulfill his obligations with his *llamero* friend.

**Secondary Exchange**

During the journey, caravanners obtain other products as well and take advantage of any good trade opportunities that come up. I call these secondary exchanges because, by themselves, they do not justify a trip or a major modification of the route, but help to improve the benefits of the venture or, by diversifying the options, they reduce the risks associated with unexpected disadvantageous rates. For example, when passing through Quebrada de Talina, those who use the high route exchange wool for pots in any of the pottery-making villages of the area (e.g., Casiras, Berque, Talina, Chagua). When reaching the high valleys (ca. 3,000 m.a.s.l.) before Tarija, they get lima beans and tubers like potatoes and oca. They do not take more than two or three loads of these, however, because they tend to rot on the way back. Sometimes, when they pass near cities, they buy products
in local stores (e.g., we bought sandals for the trip in Tupiza's market) or may butcher an animal for sale if the rates are good. Other objects commonly acquired in the valleys are peppers (highly prized by llameros), tutumas (calabashes for drinking chicha), and musical instruments such erke (bugle) or zampoña (pan's flute).

**Daily Swapping**

When passing through villages or after setting up camp at the end of the day, agriculturalists frequently come up to the caravan, offering food or chicha as a sign of friendship, and inquiring about the goods being carried. If exchange rates are convenient (i.e., if they are at least equal to those they expect to get at the end of the journey) they leave a few loads of salt, collecting the corresponding maize on the way back, so they do not have to carry these products during the remaining part of the trip. More frequently, these encounters result in exchanges of small quantities of other goods (e.g., k'owa, herbs, ropes) for food or local products (e.g., potatoes, oca, chicha, pots). These transactions are extremely important because they provide a considerable part of the food consumed during the trip, thus reducing the volume of supplies that need to be carried.

**The Way Back**

All informants agree that the return is a repetition of the trip to Tarija, but slower, since the animals are tired, their feet are hurt, and they are usually carrying heavier burdens. For this reason, they may stop more frequently for whole day rests or walk for fewer hours every day, taking advantage of the existence of intermediate campsites. There are no rituals
associated with the return trip, except for a minor *k'owako* the morning they start their way back (cf. West 1981:70).

During this part of the journey they have to mill the corn: usually about one half of the total load, keeping the rest as grain. There are several mills in the valleys and *quebradas* along the route that can be used with this purpose. Most drovers have preference for particular mills (i.e., for the taste of the flour they produce), so this is a factor to be considered when deciding the route back.

Around the time when his return is anticipated, the *llamero*'s relatives prepare *chicha* and come every day to a high point, east of the house to wait for him. There they have a small cairn, usually made of white rocks, known as *talvarita*. When they finally see the caravan approaching from a distance, they bring the *chicha* to the *talvarita* to welcome the *arriero*. They go all together to the house then to celebrate the *chaonaca*. The load is spread in the courtyard on hides and covered with blankets and *awayos*. They stay up late at night, celebrating the success of the trip, drinking, dancing, and playing the *erke*, a 3 to 5-meter long bugle made with materials from the valley (cane and cow horns or hide).

Next morning, the goods are placed in the storage room. The drover hangs the *animero* from his neck and carries the first load on his back, mimicking a llama. Then, they prepare a *yareta* (*Azorella sp.*) *chicha* or beer they give to the llamas to purge and free them from parasites they may have acquired during the journey.

**Caravans at Fairs**

To conclude this section, I would like to describe briefly the activity of caravans at
the annual fair of Santa Catalina (November 25). Data currently available indicate that marketplaces (permanent urban or periodical rural) did not exist in the Andes before the European invasion (Murra 1978:198-214, 1997). Since colonial times, however, the annual fairs held in rural areas — specially in the Altiplano — have become an important mechanism through which pastoralists access goods from distant places (including other countries) in exchange for their products with only minor displacements. Beyond the economic sphere, these events offer a unique opportunity for interacting directly with a variety of people living in different areas, exchanging information, and developing social networks (Karasik 1984). The focus of my interest, however, is not the fair itself as a social or economic phenomenon, but the activity of caravans in this context, since it offers the opportunity of looking at their behavior in relation to nucleated settlements.

Santa Catalina is a small town located in Argentina, near the border with Bolivia (Figure 9.1), where an important rural fair is held every year on November 25. Peasants from various ecozones in both countries come to this event to exchange all kinds of products, through both market and reciprocity-based transactions, which may or may not include money. Those from Jujuy currently tend to get to the fair using public transportation, while pastoralists from Lípez still come with donkey or llama trains. The Argentine border police is instructed to let Bolivian caravans cross freely during this time. Besides peasants who bring their own products, the fair is attended by itinerant merchants who offer traditional goods (e.g., medicinal herbs, dyes, ritual items, coca leaves) or industrial commodities (plastic items, appliances, audio systems, industrial clothes, metal pots and pans, etc.), and by representatives of spinning mills, who buy great quantities of
unprocessed wool from Bolivian pastoralists, usually paying them with wheat flour instead of cash. Ceramic vessels are also offered in great quantities at the fair by potters who come from the nearby village of Casiras. Herders bring mostly wool, and perhaps small quantities of charki and a few ropes and weavings; the main product they look for is flour, but they may also get groceries, clothes, and pots.

Llamero caravans usually arrive in the morning of the 24th and leave during the 26th. They prefer not to stay longer than this because, given the temporary concentration of animals in the place and the fact that Santa Catalina is a herding area itself, there is not enough forage to feed the droves properly. The night before and after the fair, they may camp only one or two hours away, just far enough to find better grazing opportunities. They also have to bring firewood to cook during their stay, since this resource is very scarce too. All caravans set up camp on a flat, open field east of town. After the animals have been unloaded they are released and sent to graze in the hill slopes nearby; if they have no assistants, drovers take turns to watch over their herds. At night, the animals are tied together next to their owner's camp.

The jaras here are similar to those just described, except that they tend to be more compact (i.e., the load may be piled in only one stack close to the hearth), since dozens of them have to share this space. Even today, when caravans are relatively few, hearths may be placed only 10 meters from one another. Herders coming from the same community or general area tend to camp in the same sector, so they can visit each other at night to share dinner and a few drinks. In the same way, people who have similar occupations and come from the same general area tend to camp in discrete sectors around town. Thus, potters park
their trucks in the north side, next to herdiers, while spinning mill agents stay on the south side, next to the itinerant peddlers. The transactions take place in these camping grounds with people wandering around the areas where the goods they may need are being offered, and in the outskirts of town, where a number of food stalls are set up for the occasion.

Herders begin to collect information since they arrive, but most transactions are conducted during the 25th itself. Some drovers may wait until the morning of the 26th, bargaining and hoping to strike better deals. If prices are too low, some of them may buy flour with cash and take the wool back, hoping to find a better opportunity to trade it or keeping it for their own use. Entertainment is also a very important aspect of fairs. The night of the 24 and 25, there are big dancing parties, music, and some people may spend all night drinking at the stalls. As I mentioned before, however, a considerable amount of this social activity among pastoralists takes place in the campsite area, where groups of men go from one jara to another, periodically sending an emissary to town to fetch more drink or food.

When llameros leave, a significant amount of refuse is left behind in the camping area. This forms a continuous, low density distribution of hearths, unused pots broken while packing, shards, cans, discarded containers, wool, rope or saddle-bag fragments, bones, etc.

MATERIAL CULTURE AND SETTLEMENT SYSTEMS

Llamero caravans involve the regular occupation of a minimum of five locations where traces of their activities could potentially be identified: (1) caravanner’s main
residence; (2) route; (3) overnight \textit{farana}; (4) rest places; and (5) points of articulation. It should be noted that, with the possible exception of resting locations, the others appear as necessary functional components of the settlement system of trade caravans (Andean or not) as defined in Chapter 1, regardless of the specific ways in which they might be organized. In the following sections I analyze each one of them in terms of positioning, content, and internal spatial organization, combining both functional and practical approaches when appropriate. The principles that rule the organization of behavior and its material consequences in each setting are sought in order to define the potential relevance of these observations for specific archaeological cases and the kinds of information that could be obtained through their investigation. The final section focuses on medium-term processes and their potential impact on spatial redundancy and on the formation of potential archaeological expressions of this activity. The discussion will focus on llama caravans, so some of the observations may not apply to the use of donkeys or other pack animals.

\textbf{Caravanner's Main Residence}

Pastoral main residences have been analyzed in detail in a previous chapter. Aspects of their structure and content that can be associated to caravan-related activities are the concentration of storage facilities – where the resources traded or to be traded can be kept – and the U-shaped design of habitation compounds. As I argued before, this pattern allows to enclose a fraction of the herd (i.e., the pack animals) in a small space (so they cannot move freely) next to storage areas, facilitating the loading and unloading
operations at the time of departure and arrival. Even when this functional scheme facilitates other pastoral tasks as well (e.g., slaughtering), it seems particularly advantageous for caravan management given the bulk and weight of the items involved.

A simpler version of this scheme is depicted by Inamura (1986, figs. 4-6) for pastoralists of the Puica district in the Peruvian highlands. The *rutuna cancha* is a small corral – which does not allow the free movement of the animals inside – associated with an internal division that defines an even smaller enclosure within it, where "wool is shorn, several rituals take place, and the sacks are loaded on the pack animals for the trip" (p.152-153, my translation). These structures are not directly integrated with the habitation area, a difference that could be explained by the fact that the trips he refers to are the seasonal movements of the domestic group between their main residence (*qatun wasi*) and herding posts (*astanas*), so they probably do not involve very large loads (i.e., just personal belongings and domestic supplies for the season).

As the base for the operation of caravans, *llameros*’ residences contain, not only the goods traded, but the artifacts specifically related to this task, such as bells, ropes, and saddlebags.

The *talvarita* or rock cairn east of the house, where the caravan is seen off and ritually welcome by the other household members, reminds us that pastoralists' residences may include ritual features and artifacts specially referred to this activity. Domestic ceremonies associated with caravan departure and arrival have been reported by every author who has described this activity in the Andes (e.g., Casaverde 1977:176; Cipolletti 1984:518; Gobel 1998:10; Lecoq 1988:178; Molina Rivero 1987:603-604; West
Important conditions for the existence of a route are the presence of forage and water. Llamas can usually stay up to four or five days without drinking, but during the trip, given the heat and the effort it demands, they cannot spend more than two or three days at most without water. More important, however, is the presence of pastures; drovers consider very dangerous to travel several days without feeding properly their llamas. This could happen if there is not enough forage at the campsites or if the caravan has to march for too many hours without finding an appropriate place to camp, not leaving enough time for the llamas to graze before dark (unlike donkeys, llamas will not pasture at night). For the same reason, the routes avoid areas with "bad grasses," like romerillo. When these have to be crossed, the drovers put muzzles on their animals so they do not eat and get poisoned. Evidently, some forage and water could be transported if there was no alternative (as was probably the case in some parts of the northern Chilean dessert), but this would reduce the useful transport capacity of the caravan and would imply considerable stress on the animals. It does not seem likely that drovers would resort to this if alternative routes existed, even if they were considerably longer.

In the eastern side of the Andes, these resources are fairly abundant, offering many alternative ways for caravan routes. Once these basic requisites are met, other criteria that are taken into account when evaluating alternative ways to the same destination include: (1) distance; (2) speed, which ceteris paribus, can be considered as directly related to the
proportion of the trail that goes through open, flat terrain or campo vs. narrow, enclosed valleys and quebradas; (3) weather conditions, especially temperature; (4) availability of firewood; (5) opportunities for trading and getting supplies along the way.

The number and kind of features and improvements present along the trail vary, depending on the nature of the terrain and the investments made by local communities in this kind of infrastructure. In the Altiplano, they are wide (4-10 m), straight, and free of vegetation, but lack any improvement. When travelling along quebradas, caravans may march along the riverbed (a possibility created by the wide and seasonal character of mountain rivers in the Andes), although there are usually trails that stay on the valley side, above the seasonally flooding river area. The latter kind of terrain is where most structural investments are found: if slopes are steep, retention walls, steps, and other features to prevent pluvial erosion may be found. It should be stressed, however, that these improvements are made by the local communities the route goes through, not by caravanners or travelers. Residues are relatively rare on the trail: mainly glass (usually occurring as concentrations), wool, yarn, cans, and plastic containers.

*Apachetas* or rock cairns are the most outstanding and locationally patterned features along the route. In our trip, we came across a dozen of them, always placed on mountain passes or at points where the trail shifts between an open (campo) and a quebrada environment (e.g., on the edge of highplateaus, at the origins of quebradas [cf. Boman 1991 (1908):482]). These features also tend to concentrate refuse (red yarn, feathers, bones, coca leaves, sticks, glass, and pottery) as a result of the gestures of ritual discard associated with them. It is a worth noting coincidence that similar features are associated with ritual acts
along the route among other caravanners of the world, like the Twareg (Rodd 1966:293), the Tibetans (Trinkler 1931:72), and other groups of the Himalayan highlands (Valli and Summers 1994:11).

The three routes described are fairly regular in their internal organization, marked by the periodicity of overnight campsites, rest places and rites (Figure 10.2. Table 10.1). In all three a major k'owako is held toward the middle of the trip and minor ones at shorter intervals. Rest is associated with ritual practices (perhaps not on the way back), with one or two days of rest for every three or four days marching. The internal structure of the route may change, obviously in different terrain conditions, but also with different total lengths. Thus, when making a "short" trip to the high valleys of Tupiza or Talina, there may be only one resting stop and associated minor k'owaco.

**Overnight Camps**

*Jurana* is the quechwa word used among llameros to refer to any place along the route where caravans usually stop to spend the night. No distinction is made between what I call overnight camps and rest camps. In Chile they are called *paskana*, although this term seems to have a wider reference since it is also applied to herding posts not directly associated with caravan activities (e.g., Van Kessel 1992:fig. 8). Donkey drovers in northwest Argentina use the Hispanic words *real* or *realero*.

Under normal circumstances, caravans camp every 15-25 km. Exceptionally, llamas can cover longer distances, up to 35-40 km. This distance, then, would establish a maximum limit to the spacing of overnight campsites along the route. These long marches.
however, reduce the grazing time at the end of the day (between arriving to the *jarana* and dark) and pose considerable stress on the animals, so they cannot be repeated more than a couple of times without putting the drove in serious danger. The actual number of *jaranas* in any segment of the trail tends to be higher. For example, going from Cerrillos to Tupiza with the low route (ca. 115 km), one usually stops six times, but when surveying this segment with the help of an informant, I recorded 14 *jaranas* with a spacing between them that tend to be shorter than one-day's march (mean = 1/8.2 km). Each one, in turn, had several "lodgings" or specific places for camping, all of them with traces of recent occupation. There are several causes for this. First, existing several places suitable for overnight camping, each *llamero* may have his own favorite point to stay, a preference that may even have a relationship with the place of origin of the drover. For example, when I asked one of my informants why didn't he use a *jarana* that looked particularly good to me, he responded "that's San Cristobal people's place." Second, accidents and other unforeseen events may delay the caravan and make it impossible to complete a day's march. Third, on the way back, the drove moves more slow and therefore needs to camp at shorter intervals. By contrast, those who take donkeys travel more distance per day. It is considered that the distance covered in three days by llamas on their way to the valley, takes them four days on the way back, and only two days for donkeys. Lastly, the *llameros* say that in the old days there were so many caravans travelling, that sometimes the *jaranas* were filled up early in the afternoon, making it necessary to continue the march for considerable distance before finding another good place to camp.

The llamas' wellbeing is the single, decisive criterion for choosing a place to camp.
This means, above all, security. They prefer high, open places that resemble the Altiplano environment, where the llamas "like to stay." Whenever possible, they avoid *quebradas* and enclosed areas in general; the llamas are restless there and predators (puma, fox) are believed to be more abundant. When they have to stop in such places the animals are tied together for the night. For the same reason, they avoid camping too close to villages or houses along the way, where people, dogs, or other unfamiliar movements could scare the animals and produce a stampede.

A second important consideration is the presence of good pastures for the animals. The relative scarcity of this resource in the arid valleys of the Circumpuna Subarea, may lead *llameros* to camp occasionally on fallows or fields after they have been harvested, to take advantage of the residues. On occasion, this may generate conflicts with farmers who may save this resource for their own few animals or fear that the pack animals may invade their cultivated fields. The three times we camped on farms (Table 10.1), the owners came to the *jara*, to make sure that the animals would be kept within specific areas: in one case they warned us that if we camped there on the way back, we would have to pay pasturage.

Only after these conditions have been satisfied – or when there are no possibilities of satisfying them in the area – the drover's convenience is taken into account. The main factors considered are the presence of firewood, water for human consumption (the llamas can drink anywhere along the way), and population in the area to trade with. Natural shelters (overhangs, rock outcrops, ravines) or abandoned structures that can serve as windbreaks (fences, old corrals, and rooms), are specially valued in the coldest and particularly in the most windy segments of the route. Some places may be preferred not so
much because of the resources they offer, but rather because of their position along the route. This is the case of points immediately before or after difficult portions of the way such as the bottom of long downhill stretches, the edges of high plateaus right before entering deep valleys, places close to mountain passes, or areas with natural forage before entering desert strips.

_Jaras_ are basically camps and usually have no substantial structures. In fact, none of the pastoralists that travel with caravans in the world seem to make significant architectural investments in the places where they stop overnight along the way: perhaps because of the short lapses they typically spend in these locations, the potential interannual variability in the routes that are followed, the lack of significant architectural traditions among pastoral peoples, or their characteristic lack of corporate organizations capable of such undertakings. Permanent structures specifically constructed to lodge caravans in transit are only built by states, or people of high rank within them, who sponsor trade (e.g., Inka _tampu_ [Hyslop 1984]. Near Eastern _khan_ [Sims 1978]. North African _funduk_ [Hoag 1963:117]. or Roman _mansio_ [Von Hagen 1967]).

Many _jaramas_ lack any structure or permanent improvement. In the cold Altiplano or high-mountain environment, or in particularly favorable places that tend to be repeatedly used, they may have some of the following features:

- one or more flat areas free of vegetation and other obstacles, between 8 and 15 m in diameter, where the drove is huddled for loading and unloading ("loading/unloading areas");
• U-shaped structures (e.g., 6 m at the base by 12 m long), similar to llamas' windbreaks at main residences, where the drove can be enclosed to facilitate loading and unloading;

• corrals;

• small shelters (e.g., 1.5 m in diameter and 1 m high) expediently built with field stones and no mortar, usually built against an outcrop or boulder incorporated as part of the structure (only recorded in the extremely cold environment of SW Lipez)

• *kanchitas* or semicircular dry-stone windbreaks similar to those recorded for grazing areas in Cerrillos (Chapter 7), up to 0.9 m high and 2 m in diameter, with a hearth in the center and open to the east, which protect drovers and particularly the cooking hearth from the wind;

• expediently prepared hearths, usually with three stones of regular size where a cooking pot can be placed.

All of them are just precarious features. Moreover, it is my impression that the most substantial of them (e.g., corrals and shelters) have not been entirely built by caravanners (cf. Concha Contreras 1975:87), but have been recycled from existing structures (e.g., abandoned herding posts). During our journey, for example, we took advantage of existing corrals or fences for camping in three opportunities (e.g., Figure 10.6), but never built a feature.

The presence of facilities seems to depend on several factors, e.g., the regularity with which the route is traveled (i.e., whether return is anticipated so as to justify labor investments in the campsite), spatial redundancy on successive occupations of the *jarana*
Figure 10.6: Reusing an abandoned corral for shelter at Sique Jara. Note the hearths and windbreaks left by caravans before us.
(as created, for example, by high resource circumscription) and climatic conditions, specially wind. I had a clear demonstration of the need for windbreaks in certain environment the only windy night of our trip. When the wind began to blow, our campfire (and dinner plans) literally flew away. The only way we could cook breakfast next morning was moving the entire camp next to a stone fence nearby. As a combined result of all these factors, for example, the campsites of SW Lipez (very rigorous weather and circumscribed water and pasture), associated to the intensively used caravan routes the connect the Altiplano with San Pedro de Atacama and the Loa River, show the most significant architectural investments we have recorded, i.e., U structures, corrals, shelters, windbreaks. By contrast, on the valleys and quebradas of the eastern side of the Circumpuna Subarea, where there are a number of alternative routes, the weather is more benign, and resources necessary for camping are more evenly distributed, only hearths and windbreaks tend to be found.

Very little refuse is generated at overnight campsites. Occupation is brief, few artifacts are used, everything is consumed or recycled. This can be understood as a consequence of common constrains under which caravans usually operate. Prominent among them are: the need to keep the size of the drover's personal luggage at a minimum in order to maximize the capacity of the caravan to transport items for trade; the difficulty of replacing broken or lost artifacts along the way or satisfying unexpected demands that might come up during the trip; and the variability in the choice of routes and campsites – together with the fact that they have to be shared with other groups – which limits the efficiency of storage or the development of infrastructure along the route as responses to
these risks. In response to these constrains *llameros*’ tend to carry with them: (1) few items, made of durable materials (i.e., metal or plastic instead of ceramics), that can be subject to multiple uses (e.g., a knife, a needle, a pot that can be used for boiling water, cooking a stew, eating from it, and even sharing with the dog) and (2) some basic raw materials such as wool, rags, plastic bags, rubber, wire, or old tin cans, some of them collected along the way, that in case of need can be used to perform in a variety of tasks, like sewing, mending, paddling, soaking, drilling, tying, cutting, serving, cooking, etc. In fact, the only usable item I have seen left at campsites when arriving or after leaving is firewood, not because it is cashed or left for the next party to use, but because drovers tend to collect more than they need to make sure they do not run out while cooking.

The few elements that are discarded are the result of a very limited number of activities:

- food preparation and consumption: burned and fire-cracked rocks, containers (empty cans, shards, fragments of plastic or aluminum), plastic bags, vegetable remains (corn ears, seeds, lima bean or nut shells, rinds), bone fragments, and improvised hammerstones and anvils (e.g., used to break bones for marrow extraction);
- mending clothes, shoes, and caravan gear: pieces of fabric, yarn, rubber, leather soles, buckles, wool, hide trimmings, or fragments of gloves, saddle-bags, and ropes;
- entertainment: glass, cigarette buts, batteries.

Table 10.3 summarizes the features and refuse recorded in 28 overnight campsites
Table 10.3: Twenty eight campsites recorded between Cerrillos and the eastern valleys.

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References: * = rest campsite; @ = campsite in fallow; # = ravine or outcrop used as shelter; aspect = terrain aspect; container FR = sherd, shard, jerry can fragment, metal pot or plate; wool/textile = wool, yarn, rope fragment, indeterminate cloth. censor = slabs with k'owu and other semi-burned offerings.
mapped along the routes that go from Cerrillos to the eastern valleys (including those occupied during our trip), classified according to the kind of environment or landform in which they are located. The *jaranas* from SW Lipez, which typically have more refuse forming well-defined trash concentrations, were not included in order to reflect the variability observed in the less redundant and visible campsites of the eastern side of the Andes. The sample is relatively small but supports the definition of some trends.

First, even when they show a slight tendency to be placed in east and north-facing areas, there is considerable variability in this attribute. A possible explanation for this is that these locations are mostly occupied during the late afternoon, evening, and night, so sun exposure is not a relevant factor. Second, windbreaks (the most visible structures) and the use of natural features for shelter is only observed in high, positive relief ("hill") or in plains, where climatic conditions (specially wind) are more adverse (14 out of 20 cases). These campsites also show high re-occupation rates, taking the number of hearths as an approximation to this variable, with average values of 5 for hill, 2.3 for plain, and 1.7 for valley.

Bone fragments are few and very small, most of them just splinters. As I mentioned before, long bones are always broken to extract the marrow and all sizeable fragments are mashed and given to the dogs. Taking into account the few identified elements (all camelid and sheep), it seems that most animal parts are represented, except for pelvis (probably just a sampling error), in accordance with the most common answer given by *llameros* when they are asked if they select specific parts of the trip, "we take whatever is available."

Fragments of ceramic, glass, aluminum or plastic containers correspond to four
functional types of containers: water transport (jerry cans), cooking pots (small ollas < 3 lt), serving vessels (plates or bowls), or ritual (alcohol bottles). In all the meals that I have witnessed at jaras, each man cooks his own food in a separate pot, so there are as many pots in the hearth as people, or more, considering that dogs usually eat directly from a separate vessel where their food is prepared. Potential reasons for this are the difficulty of carrying larger pots on the animals' backs and the fact that each drover is responsible for his own supplies. As a consequence, assemblages used at caravan campsites show higher cooking/serving vessel rates than more permanent locations (herding posts, residences) occupied by groups who tend to prepare a single meal for several individuals (e.g., households [Nielsen 1997:361]).

It should be noted that, with the exception of pastoral products (bone, hide, wool), most discarded items (and those transported if they were accidentally lost or broken) are not produced by llameros (e.g., container fragments, agricultural products, tools), but are rather obtained from other groups in the course of caravan trips or through any of the mechanisms described in Chapter 9. As I argued before, this is not only a recent phenomenon derived from their integration to the market economy, but a characteristic of pastoralists. Andean and others, who invariably obtain a significant proportion of the resources they use and consume through trade (Khazanov 1984). If we add that many animal products do not preserve well in many contexts, it could be concluded that the archaeological record created by caravans in their journeys will encompass mainly artifacts produced by other groups (cf. Orme 1981:263), a conclusion that may apply to other locations caravanners occupy as well.
Finally, repeatedly used *jaranas* may develop true llama sleeping areas, announced by the distinctive concentrations of dung. In fact, the presence of these features is mentioned by drovers as one of the reasons llamas like to stay in certain places rather than others.

Campsites are organized around two, well-defined sectors, a loading/unloading area and a hearth-related area (Figure 10.3). The former is a flat area free of vegetation. 8-15 meters in diameter, where the animals are gathered upon arrival for unloading, and in the morning to start the preparation for departure. The salt and sacks are piled in two or more rows around it, that serve as windbreaks where the drovers sleep. Ropes, bells, and personal luggage are all put on top of these piles. Almost no refuse is generated here, short of a few pieces of yarn that result from the morning routine of fixing the llamas' shoes.

The *hearth* is set up outside the loading/unloading area, ideally "to the front," although this arrangement varies to take advantage of the sheltering opportunities offered by ravines, outcrops, or existing structures. Except for sleeping, all activities after dusk (cooking, eating, repairing equipment, chatting) take place around the fire. During our trip, at least, we never slept next to the fire, even when temperatures went below zero every night. Here is also where most of the little refuse is produced. When windbreaks or similar structures are used, they always protect the hearth rather than the loading/unloading area. Since prevailing winds during the dry season come from the west, these features always open to the east. Refuse is tossed in this direction or swept when cleaning an existing hearth for use, so when *jaranas* are repeatedly occupied, small trash concentrations begin to form east of the windbreaks. When *k'owacos* or other minor rites (e.g., brief *ch'allas*) are
conducted at camps, these acts always take place east of the other areas.

The pack animals sleep nearby, but always outside the areas just described, loose or tied together depending on the case. In the afternoon, after unloading, they are set free to graze, making sure they stay within sight. During our journey, we never collected firewood beyond a 300-m radius around camp and, usually, we had water within this distance too, except for one opportunity in which water had to be fetched one kilometer away.

According to my informants, when two or more caravans driven by friends or relatives meet along the way, they may share a single hearth, but they always keep separate loading/unloading-sleeping areas.

As two expressions of the same practical logic, the simple structure of campsites shows close homologies with that of main residences, suggesting that campsites recreate familiar, domestic spaces along the journey (cf. Lecoq 1988:196). The loading/unloading area replicates the courtyard (where the drove is loaded for the first time for departure), surrounded by the llamero's possessions (like storage rooms) where he sleeps; the hearth is outside, like the llantero or outdoor kitchen at home, ideally to the front; the animals with their enclosures or sleeping areas surround the habitation area, and ritual actions are placed to the east, like the wirginas or the censor in the departure ceremony.

This ideal scheme is slightly modified in jaranas with corrals or U structures, which tend to be used both for loading/unloading and for protecting the hearth if necessary (see Figure 11.1). Even in these cases, however, load storage+sleeling and hearth+associated activities occupy different areas within the general space enclosed by the corral or U-shaped structure.
Rest Places

In the course of long-distance trips (> 6-7 days), llama caravans need to rest for a whole day for every three to five days of march (cf. Lecoq 1988:185-186; West 1981:70). These longer stops allow the travelers to recover their strength and reorganize the load. Llamas rest, drink in abundance, and graze during the whole day. Men check their feet and heal the wounds with urine and fat, renewing their sandals. The drovers also rest, sleeping, cooking, and eating several times during the day. They mend their clothes, shoes, and other items that may need repair (e.g., saddlebags, pots with wholes, dull knives). The straw wrappings around salt blocks that protect the animal's back and the ropes that tie them in pairs are replaced or fixed. If fresh meat is being carried, it is laid out in the sun to dry. The entire luggage is taken out, checked and ordered. If they ran out of yarn for rope braiding, they may spin more. Divination with coca leaves or cards may be practiced to find out about the fate that awaits the travelers later in their journey.

Like regular overnight stops, these rest camps are planned ahead and regularly distributed along the route. Given their function, they are still more patterned in their location, always in areas that are considered particularly favorable for camping in the terms discussed before. They are invariably safe places for llamas, associated with abundant pasture and water, far from the areas most densely occupied by the local population. It could be said that they are the places most similar to llameros' homeland that are found along the way. On the routes illustrated in Figure 10.2, for instance, the first rest campsites are located above 4,000 m.a.s.l. in the eastern edge of the Altiplano, immediately before
going down to the first valleys (Tupiza, Talina); the second ones are placed toward the middle of the trip, in the Altiplano west of Villazón (high route) or in K'aipa, a high mountain range that separates two segments of the winding San Juan River; the third ones are distributed along the Cardonales and Sama ranges, the last mountains crossed before the final descent to Tarija.

The choice of these areas may also be related to the reproduction of caravanners as a socially and culturally distinctive group in alien territory. First, they are hostile and barren places in the eyes of valley dwellers, therefore a familiar environment for *llameros* that is not seriously disputed by locals. At most, these areas may have herding posts occupied only seasonally by local agropastoralists. In "the old days," it was common for several caravans to meet at these campsites; the drovers would then cook together and spend hours socializing, exchanging information that could be crucial for the success of the journey (e.g., exchange opportunities or results of the harvest in different areas) or playing special games, like *palomeada*, which as I mentioned are only played in ceremonial contexts.

*Llameros* from Lipez, at least, celebrate ceremonies or *costumbres* of variable importance at these places. This association between rest points and ritual is not accidental. From a functional perspective, *k'owakos* demand some time and the generous libations that invariably accompany them call for some rest. Some of the Mallkus that pastoralists revere and invoke to protect them in the trip also live in these mountain chains (e.g., Tengoia, Machu Cruz, Pulario), so it is not surprising that they would be honored there. But there might be still further practical reasons for this association. When discussing the strategies developed by herders when competing over the control of pasture, I
mentioned the role of ritual (*inflorada*) in creating and maintaining rights over this vital resource, a phenomenon that acquires ideological expression in the notion that the supernatural entities addressed through these practices are ultimately the true owners of the land and everything on it. The same principle is applied at a higher level in *Espíritu*, when the community as a whole (materially present as *Tata Rey*) reaffirms its rights over the territory through a ritual exchange with Pachamama and Mallkus, a "statement" that probably displayed all its political implications in the past, when these communal ceremonies were attended by ethnic authorities from all over the region. If the same practical logic is applied to the context of the caravan, in need of securing access to "islands" of pastoral resources in alien territory (i.e., without the political resources to effectively control them), it seems only "logical" that they resort to ritual practice and to those supernatural entities.

As could be expected, the ritual gestures, their organization in a sequence, and the structure of the altar in what I have called the major *k'owaco*, show close homologies with pastoral ceremonies and ritual locations in Cerrillos (Chapter 8), revealing the intervention of similar generative principles. The same ritualizing gestures (wearing ponchos, laying *mesas*, circumambulating, *llompaqay*) and practical sense of direction (particularly in the frontal, vertical, and circular axes) are applied. Given the nature of caravan *k'owakos*, ritual exchange focuses on solidarity or symmetrical reciprocity between the drovers (*acullico*, sharing the content of their miniature saddle-bags, exchanging *intenciones*) and reciprocity with the Mallkus (offerings, *ch'allas*) who are "committed" in this way to protect the travelers and recompense them by fulfilling their "wishes." Although references to
pastoral production are not absent (e.g., virauña pairs, stone "herd"). emphasis is put on complementarity, displaying caravan emblems, joining in the mesa (k'ichiras, coca, cornmeal, maize kernels, calabash cups) what trade journeys join economically (pastoral and agricultural products). While pastoral rites conclude with the appropriation of animals - tying red yarn (inflorar) around miniature llamas - the drover's ceremony ends with the appropriation of the complementary resources they are searching for, i.e., inflorando the "wishes" or stone rows that allude to the saddle bags full of maize they will bring back to the Altiplano. Finally, these parallels translate into homologies of content and spatial structure between the altars of Espíritu and those created by the same people in their journey (compare Figures 8.2 and 10.5). From west to east, both have windbreak (a rock outcrop in the case of the major k'owako altar), bench, stone platform for mesa, stone herd, and hearth, all aligned toward the east, where major mountains are. The functional differences between the two contexts are revealed by the stone rows or "wishes" at caravan altars. The ritual paraphernalia used in both (and potentially the residues) are also similar.

If these homologies support the possibility of relating the remains of caravans "on the move" with certain home territories, caravanners with different cultural backgrounds should leave different formal signatures in analogous settings. This proposition is hard to evaluate because ritual practices like those described in this chapter have not been reported in previous accounts of caravan trips. Concha Contreras, however, mentions that pastoralists from Antabamba always take in their journeys a series of ritual objects that are meant to achieve the same results as the k'owakos of our trip, but with a different formal expression. These assemblages comprise
"three bronze Khuya or illa [figurines], small and looking like real llamas, three small round stones called winchu, which... represent the strength and vigor of llamas; three corn ears of different colors, which are the spirits of maize and have great magical powers, according to them, so they can get immediately and easily enough maize anywhere they go, that's why they call them sara waqyaq (those who call maize)." (Concha Contreras 1975:67)

The exceptional features and refuse associated with ritual behavior make it likely for these locations to be the most visible component of caravan's settlement pattern. Furthermore, since they are occupied for longer periods than regular, overnight stops, one could expect to find more refuse at these places. The presence of several hearths and associated discard near our camp at Yuraj Cruz supports this idea.

In synthesis, rest campsites like those discussed in this section could be conceived as herding enclaves that support in ecological, logistical, social, and ritual terms the action of long-distance caravans outside their homeland, as if they were a scattered portion of their own territory. Unlike the "islands" of vertical archipelagoes, that articulate contrasting habitats, these locations offer similar resources (pasture, water, firewood, security) in culturally and ecologically different environments.

**Articulation Points**

I refer with this term to the places where caravans exchange (or deliver) the goods
they transport and obtain the resources they seek. Following the distinction proposed before, articulation points could be classified as primary or secondary. The former, which determine the general design of the circuit (main destinations), are exemplified by the salt extracting communities around Salar de Uyuni, the maize producing areas in the headwaters of Tarija valley, mining centers in the Altiplano, or the fairs on the Argentina-Bolivia frontier. The latter serve to define the way followed to get to the primary points, or to decide between alternative routes to get there: as illustrated by pottery producing villages of Talina, urban centers like Tupiza, or the high valley farming areas of Iscayachi or Rejara, where llameros may conduct minor, but still important transactions. Certainly, some of these may simultaneously serve as primary articulation points for other droves engaged in a different exchange strategy.

Caravan articulation points are placed in relation to the goods that llameros need – for their own consumption or to maintain the trade network – and cannot produce in their own territory. They are frequently located in other ecozones, but this is not always the case, since political or economic junctures can bring complementary products and articulation opportunities up to the Altiplano (e.g., mining centers or fairs). It should be stressed also that pastoralists do not necessarily go to the closest point where they can get what they need. Numerous factors can cause caravans to march several days beyond, like subtle differences in the characteristics of the products (Berenguer 1994:29), in exchange rates, in the routes and campsites, or the interest of maintaining a relationship with particular trade partners.

Even though articulation points are very diverse, there are common characteristics
in the way caravans behave in these contexts depending on two main factors, i.e., characteristics of human settlement in the area and the nature of the relationship with trade partners. If local settlement is dispersed (e.g., Tarija), they seek empty areas among hamlets or farms, perhaps taking advantage of abandoned structures (corrals, fences) and fallow fields. In Quebrada de Humahuaca (NW Argentina), for instance, it is common to see donkey caravans camping on the wide riverbeds to avoid trouble with local farmers. Many authors (e.g., Casaverde 1977:177; Flores Ochoa 1979:108; Karasik 1984:82; among others) point out that providing lodging for llameros and corrals for their drove are among the obligations of traditional trade partners in the valley (caseros or colegas). The drovers I interviewed, however, expressed their preference for camping out in order to keep an eye on their llamas.

Regardless of the relationship that binds residents and travelers, functional tensions may arise at articulation points (e.g., over the use of pastures [Browman 1990:342]), particularly if these are aggregate villages. In these contexts, caravans may prefer to camp close but outside town, in places where the pack animals can graze while drovers conduct their transactions without interfering with local life and productive activities (specially farming). This behavior is reported by both Bowman and Boman when describing the annual journeys of pastoralists from Susques to the towns of Salta and Jujuy:

"In this travels the natives of Susques do not enter a city. They camp in abandoned or worthless places in the suburbs and do their business with special merchants with whom they are accustomed to deal" (Bowman 1924:303-304).
"In their trips to these places, the Susqueños never enter the city. They camp outside in the suburbs, in non-cultivated places or vacant lots, and go to conduct their business where some special traders that live in the outskirts of town. In Salta they do not even get to the suburbs, but stop... several leagues away from the city... During their stays near town, the Indians sometimes get drunk, but always in their camps, with alcohol they buy in the suburbs" (1991 [1908]:460. my translation).

When conditions are not favorable (e.g., forage is scarce, potential conflict with local groups) but drovers need to stay for some time, the animals may be temporarily moved away to better grazing areas until the caravan is ready to continue. This behavior is illustrated by llameros hurrying away from Santa Catalina Fair to the next campsite on the way home, where they find better resources and can finish preparing their packs without being harassed by the Argentinean border police. In Tarija valley, for example, the animals may be temporarily taken away from the main agricultural areas under the assistant's responsibility until the arreros finish their cambalache and get the loads ready. In all these cases, the camps themselves are similar to any other jara along the way, both in content and organization. Some places that are regularly visited by caravans, like the salt-extracting communities of Colchani and Patana, have special areas and structures (e.g., corral complexes) outside the settled area to help llameros handle their droves.
Medium-Term Processes

Medium-term processes that condition the relative redundancy and spatial congruence (Brooks and Yellen 1987) in caravans' activity loci are crucial to understand variability in the archaeological records they may generate. Given the very low discard rates that characterize all their activities, only locations that are repeatedly occupied will accumulate enough refuse to become recognizable as archaeological sites.

Spatial redundancy in caravan routes is enhanced by (1) topographic restrictions to circulation and (2) improvements to the trail or advantages to circulation derived from repeated use. These result in very low redundancy in open, flat, areas with little vegetation cover, where circulation opportunities are evenly distributed and trail improvements are not necessary. e.g., in SW Lípez or northern Chile, where caravan routes take the form of hundreds of parallel tracks traversing the desert. Continuously used trails offer clear advantages for circulation in the more vegetated areas of the Altiplano, where caravans tend to follow well-defined tracks free of t'ula and other shrubs. Increasing redundancy is observed when approaching mountain passes (e.g., when crossing from one valley to another) or natural corridors that frequently offer the only way of entering valleys and quebradas from the Altiplano. These places literally "funnel" into a single path the myriad of small trails that is common to find in open terrain. A case in point, is the last segment of the trail that enters Tarija valley from the south (Figure 10.2): beyond Tajzara the middle and high routes from Lípez converge in one, meeting also with the traditional routes followed by arrieros from the northern sector of Puna de Jujuy in Argentina (Cipolletti 1984:531; Karasik 1984:80; Madrazo 1981:229). Maximum redundancy is found at
mountain passes, where the presence of ceremonial features or formalized ritual prescriptions tend to result in high behavioral and spatial congruence. Road improvements may be necessary on the steep hillsides of valley areas where trails tend to be strictly followed. In this context, caravans may also take advantage of dirt motor vehicle roads (when they have little traffic) and bridges.

Redundancy in the use of campsites depends on a number factors. The most important is the relative circumscription of resources for animals (mainly forage) and then for drovers (water, firewood, natural shelter). On one end, we could place many places of the Altiplano, where good conditions are almost ubiquitous — except for restrictions that local groups may impose on their use — and on the other, the oases region of northern Chile.

The broken and heterogeneous landscape of the eastern Circumpuna valleys and quebradas lies between these two extremes, potentially resulting in a wide variety of archaeological expressions for these locations, even along the same route.

The incidence of relative resource concentration on redundancy can be appreciated by comparing jaranas on the routes to the eastern valleys (Table 10.2) with those recorded in SW Lípez, where suitable places (springs and cienegos) are very spotty, separated by long desert stretches without water, shelter, firewood or forage. Here campsites are highly visible, including well-maintained facilities and dense, clearly defined refuse concentrations. All 25 campsites recorded in this area during survey included prehistoric artifacts as well (Middle Period through Inka [Nielsen 1997]). By contrast, even the most redundantly occupied campsites recorded on the eastern slopes, are very large (sometimes several kilometers long) and have several "lodgings" or specific places for camping, each
one of them with very low feature and refuse density.\textsuperscript{12} Archaeological artifacts were not found in any of them.

Within general favorable areas, more specific spatial redundancy results from the existence of natural shelters and features that offer certain advantages to travelers, specially under adverse climatic conditions (windbreaks, U-structures, corrals). Finally, spatial redundancy in both overnight and rest campsites is also favored by the existence of a real tradition of caravanning, transmitted from father to son, which results in the tendency of families or lineages of drovers (therefore of certain communities) to stop every year in specific places.

The preference of \textit{llameros} for camping in places that are separate from local settlements in order to watch over their animals and belongings, favors the spatial segregation of \textit{jaranas} in the short-term. In a medium temporal scale, however, their tendency to reuse abandoned structures, houses, or herding posts results in frequent overlap of camps with functionally different occupations.

Even in redundantly occupied campsites, spatial congruence is uncommon. Drovers prefer not to reuse hearths to avoid cleaning them, so they tend to place the campfire on a new, clean spot, sometimes scavenging rocks from existing ones. As a result, repeatedly occupied \textit{jaranas} usually show a number of hearths (e.g., Figures 10.6 and 10.7). Hearths only seem to be reused (and maintained) when they are associated with other features such as windbreaks that given their size do not allow variation in the placement of activities. Even when reoccupying larger structures like corrals or natural overhangs, \textit{llameros} may try to avoid the refuse left by recent occupants by moving their cooking area a few meters
Figure 10.7: Distribution of residues in a repeatedly used area at Vaquerias Jara.
away. Areas free of vegetation, which make it easier to load and unload caravans, may generate some congruence in the repeated use of campsites. This phenomenon results in the distribution of features and refuse in a ring pattern (e.g., Figure 10.7): it is unlikely, however, that this spatial structure will be preserved unless the site is continuously occupied for only a few years, before gradual drift in activity loci blurs it.

Far more redundancy is observed in rest places, not only because they offer abundant pastoral resources, but mainly because of the ritual practices they are associated with. In Yuraj Cruz, since there were no significant improvements, previous camping traces were spatially incongruent, but still demonstrated a tendency toward a repeated occupation of this location (Figure 10.4). There was more congruence in the use of the ritual area, as could be expected given the highly patterned nature of ritual actions. Every drover in Lipez whom I interviewed regarding this topic, knew and could describe these altars or similar ones placed on the other routes, together with the activities that take place there. An important aspect of these k'owacos is that they are repeated by every caravan; moreover, as I pointed out, each member of the group prepares his own mesa and offers his own pago. This individual and repetitive nature of caravan ritual was reflected in the presence of many similar features in various states of preservation on the hilltop (Figure 10.5) and on another hill to the west.

By their very nature, articulation points repeatedly attract caravans. More spatial redundancy, however, is observed in the case of nucleated settlements (e.g., Santa Catalina), particularly when they have special facilities to lodge the drove.
ENDNOTES

1. In 1995, members of 14 households from Cerrillos traveled, five borrowed animals *al partir* and six lent them.

2. *Jarana* refers to an area suited for camping. A *jarana* may have several "lodgings" or specific places to set up camp (*jarar*). *Jara* is the actual camp: the luggage, the fireplace, and the spatial organization that characterizes it.


4. Two of these trails traverse Cerrillos in a west-east direction, connecting the herding communities farther inside the Altiplano with the eastern valleys: one of them comes from Cocani, runs on the northern piedmont of Cerro Tangani, and along the left bank of Kollpa Mayu river; the second comes from Polulos and crosses the canton south of Jatun Cienego (see Figure 5.5).

5. Perhaps this was because (in my fellow travelers' opinion) we were lucky and had good weather, even though some mornings I recorded temperatures of 20°C below zero.

6. Since Eleodoro purchased his dog the fourth day of our trip, he incorporated to his luggage two old cans that he picked up along the way, a 2 lt one for cooking, and a flat, open one for serving.

7. As an example, jerry cans, the bulkiest objects carried as "luggage," are tied at the end on top of the load.

8. Ritual practices comparable to the major *k'owaco* of our journey have not been mentioned in previous ethnographic reports on Andean caravans.

9. The lack of explicit references to the lateral and radial axes, associated with male:female dichotomies, could be related to the fact that it is an exclusively male context.

10. This concept is similar to that of "axis settlements" in Núñez and Dillehay's [1979] model. I include the concept of "delivery" to emphasize that in certain organizational scenarios (sponsored trade), pastoralists may obtain the resources they need in exchange for the freight services of their caravans. Historical examples are given by Platt (1987a) and Sanhueza (1992).

11. Not even the Inkas made significant improvements to their roads in this environment.
Driving along the narrow valleys that communicate Tupiza with the eastern Altiplano in the winter evenings, it is common to see the campfires of caravans distributed along the river banks, 100 or 200 m apart, taking advantage of ravines, outcrops, or abandoned corrals for shelter.
CHAPTER 11:

TOWARD AN ARCHAEOLOGY OF CARAVANS

In this chapter I synthesize the ethnoarchaeological information presented thus far and discuss its relevance for addressing some of the general issues raised in the beginning of this monograph. The first section focuses on pastoralism, presenting a series of expectations regarding the archaeological correlates of specialized pastoralism in a dry puna environment. The second section is devoted to the archaeological records that caravans would create in the Circumpuna context, with special emphasis on the Altiplano and eastern Andean flanks. I consider the archaeological correlates of each component of their settlement system, taking into account short and medium term processes discussed in Chapter 10. In so doing, I apply some of the general principles that seem to account for llameros' activities and site formation to conditions that could be reasonably expected to hold for prehistoric cases. In the last section, I discuss the possibilities of using these remains — combined with data from other contexts when necessary — for monitoring various aspects of the organization of traffic and its insertion in the political economy of the Circumpuna Area.

PASTORALISM

The need to access pasture and water on a regular basis is the main factor determining the organization of specialized pastoralism. In the dry puna and eastern
Andean ecozones, pasture seems to act as the main constraining resource since water is relatively abundant - compared to the desert puna and western flanks. Two characteristics of the settlement system result from this fundamental demand, i.e., a dispersed pattern of residence and local herding mobility. Given the relatively low productivity of native grasslands in the arid puna environment - as compared with the northern altiplano - units of residence/production (households) tend to maintain minimum size through fission (nuclear-family or small extended-family households) in order to maximize herd dispersion. Minimum household sizes are determined by the labor force necessary to combine herding and complementarity practices. The absolute value of this minimum then, depends partially on herd size and complementarity strategy.

Local herding mobility involves two regular movements, at least. Daily moves between settlements and surrounding grazing areas (<one-hour radius), and seasonal moves between main residences and herding post/s. Given the relative spatial predictability of forage distribution in the Andes, this mobility takes the form of relatively regular seasonal transhumant circuits.1 The design and scope of seasonal movements depend on the spatial and temporal distribution of pastures of different quality and on social restrictions to access (e.g., administrative barriers, number of competitors). Where both wet (ciéneo) and dry pastures are available, main residences tend to be associated with the former and occupied during the rainy season (maximum productivity), while herding posts are associated with the latter and occupied during the dry season. Within this general pattern, since dry pastures show significantly less productivity, herding posts tend to be located in more isolated places, i.e., where
competition over pasture is lower. If male llamas are herded separately, they tend to stay most of the year in lowest-quality pastures, where they are monitored through periodic movements.

Regularity of seasonal movement favours the use of storage as a mechanism for handling temporal – seasonal and interannual – fluctuations in resource availability resulting from environmental factors (e.g., precipitation) and complementarity mechanisms. Centralization of storage, favoured by cost-efficiency and security factors, reinforces the functional differences between main residences and herding posts.

The limitations to social interaction derived from the dispersed pattern of residence are compensated through what I have called "social interaction mobility." Tentatively, this may take two basic forms, both of them sporadic: (1) interhousehold mobility, linked to the reproduction of interpersonal and interhousehold networks; and (2) centripetal mobility toward a communal gathering location (town? altar?), related to the reproduction of the community as a corporate entity who administers the land (at minimum) and to the production and circulation of cultural and symbolic capital. Longer occupation and centralization of storage tends to anchor interhousehold social-interaction mobility in main residences, further enhancing their functional differences with herding posts.

Pastoral settlement systems, then, include a minimum of four locations regularly occupied through the annual cycle: main residences, herding posts, grazing areas, and central locations, where the community periodically gathers. These locations show different uselives, although absolute figures for this parameter may depend on
construction techniques, social constraints, and cultural preferences. Central locations tend to have the longest use-life, probably lasting several generations. Holding constant other factors, main residences tend to be in use for longer periods than herding posts. Some of the causes of these differences could be: (1) fluctuations in herd size that make herding posts necessary for only limited periods of the household cycle; (2) the shifting distribution of competitors over the landscape – in medium time scales – and consequent variation in grazing opportunities; (3) the use of herding posts for creating land rights, leading to their occasional repositioning as part of strategies of territorial control; (4) the higher replacement cost of main residences; and (5) the tendency of main residence placement to be more constrained by the normative framework that regulates land allocation. Shorter use periods may lead to the use of more precarious construction techniques at herding posts. Leaving aside differences in productivity, grazing areas are the most flexible component of the settlement system, shifting constantly in response to a variety of factors, e.g., relationship with neighbours, relative competition over pastures, labor constrains, etc.

Grazing areas where herds are monitored daily may have isolated features and low density refuse related to predator-control practices (e.g., fox traps), protection of herders (windbreaks) and perhaps other activities they may carry out while watching the herd (eating, spinning, weaving, playing, hunting, gathering). These remains tend to be more frequent in intensively and regularly used grazing areas (e.g., high points overlooking good-quality forage patches). Sporadically visited grazing areas (e.g., cerro where males are kept if this grazing strategy is employed) are mostly devoid of refuse.
Both main residences and herding posts tend to be located on east or north facing terrain, protected from wind, and with associated water sources - at least in the form of high water table levels that can be accessed through waterholes. Immediate association with permanent sources of surface water (river, streams, cienegos) is not a condition for settlement: herding posts in particular can be quite far from this resource. It should be noted, however, that if hunting, gathering, and fishing was more important in the past - as several lines of evidence indicate - there may have been a stronger association between settlements and permanent water sources (particularly cienegos), since wild resources tend to concentrate there.

The combination of domestic and herd monitoring activities results in the presence of discrete animal keeping and human habitation sectors at both residential and seasonal herding locations. Animal keeping sectors at main residences always have at least one enclosure necessary for a variety of herd management tasks and for the protection of the reproductive segments of the herd, particularly during the birthing season and right after. Briefly occupied herding posts may not have enclosures, since camelids - the only animals herded in prehistory - do not need to be corralled every night. Animal enclosures are built with a variety of materials, including perishable ones. Given prevailing weather patterns in the area, habitation sectors tend to include indoor (nighttime, warmth-dependent) and outdoor (daytime, light-dependent) activity areas. Since hearths concentrate a number of nighttime as well as daytime activities, a basic pattern of two hearth areas (one indoors, one outdoors) characterizes the structure of both types of location. Outdoor activity areas tend to be protected from wind, particularly if
they include hearths. Given the dispersed nature of the settlement pattern, residential and herding locations tend to be open, with loosely articulated activity areas, and extensive but shallow discard areas.

In addition to these common structural components, main residences concentrate storage facilities, areas designed for social gatherings at the domestic level (if there are such specialized areas), and related equipment (modern examples are ritual paraphernalia, large cooking pots, and *chicha* brewing vessels). They also show considerable variation in size and internal complexity (i.e., number and diversity of activity areas). These differences derive mainly from the life cycle they go through as a result of their use-history and of the changing demands that households who use them experience during their own cycle of development. There is no simple or direct correlation between residence size or quality and household size or wealth. The number of indoor hearth areas offers the closest approximation to household composition (one per nuclear family), although this is still a weak correlation, since a several extended family households share a single nighttime hearth.

Herding posts are smaller and more uniform. Their variability is more related to differences in the mobility strategies followed by each household (e.g., distance to main residence, number of persons that occupy them and length of stay). Given their shorter use-life and the more limited range of functions they serve, they experience less reuse or remodeling than main residences and have less refuse (and less diverse), unless they are turned into main residences.
Holding natural processes constant, both settlement types would generate archaeologically visible and large, but not very dense refuse concentrations. Given the relatively low discard rates and the dimensions of occupied areas, refuse tends to stay for considerable time on the surface, making the preservation of perishable materials unlikely (except when buried by natural agents). Even if only perishable architecture was used, the basic structural elements of these locations would be preserved as patterned refuse and feature distributions, specially in the case of herding posts, given the relative congruent use of these locations along their life cycle. Unless architectural techniques with higher reuse value were employed, however, repeated occupation of the same location increases the amount of concentrated refuse (therefore archaeological visibility) but will blur site structure, since the disadvantages associated with site cleaning overweight any benefit that could be obtained from feature reuse. Stone corrals could be an exception to this rule.2

Over time, the archaeological landscapes created by pastoralists will be "extensive," showing less contrasts of refuse density than those associated with agglomerated, permanent settlement. In a few generations, many of these habitation/herding sites would be created; the search for areas relatively free of competitors, would result in a progressive filling in of most places suitable for settlement. Less favored areas may show only small concentrations of refuse of low density - testimony of a single herding post - while the most productive ones (e.g., sheltered areas around cienegas) may be associated with large and dense archaeological sites resulting from multiple, non-contemporaneous, partially overlapping, and perhaps functionally
diverse occupations. Given the characteristic "shallowness" of the deposits created by pastoral occupations, unless intense natural deposition operates on the place, the structural signature of individual occupations will be very difficult to recognize. A simple correlation between patch productivity and intensity of occupation should not be expected, however, since resource access is never unrestricted, but mediated by social and political constraints.

CARAVANS

The dependency of pastoralists on resources they do not produce creates the need for "complementary mobility." Given the limited potential for economic diversification in the Altiplano environment, this usually takes the form of long-distance, interregional movements that in Lipez can be of three kinds: (1) specialized merchants from the valleys or cities coming to the Altiplano with trucks, bicycles, or in the past with donkey trains to obtain pastoral products — probably a post conquest and perhaps quite recent phenomenon linked to the high market value that animal products may acquire in certain junctures; (2) temporary migration to agricultural areas and to urban or mining centers for lapses that can go from a few weeks to several years, to participate directly in other economic activities, with or without control of the means of production; and (3) caravan trade. In this section I focus on the archaeological correlates of caravans.

The activities carried out by moving caravans can be grouped in two major categories depending on whether they are related to the main goal of the trip (transport and/or exchange of goods) or to the logistics and operation of the caravan itself. The
former include primary and secondary exchanges, including other (ritual, social) practices that may be associated with them, and extractive tasks, if some of the items to be transported are directly obtained by caravanners away from their home territory. Ideally, pastoralists obtain through some of these transaction resources for their own consumption (e.g., agricultural products, artifacts they do not produce, culturally valued items), but many of the goods they exchange and transport in these journeys may be destined exclusively for further trade, depending on the exchange strategy followed by the caravan. Moreover, in extreme cases of attached traffic (e.g., sponsored colonial trade convergent in Potosí), caravans may be used exclusively as means of transport for goods that are totally unrelated to pastoralists' needs. As a rule, the items manipulated in the course of these activities will only enter the archaeological record of caravans exceptionally, through loss or breakage.

Examples of the second category of activities are the preparation of the load before the trip, daily driving, loading/unloading, food preparation and consumption, equipment maintenance, and propitiatory rituals. The provision of supplies for drover along the journey may also be included in this category; presently this takes the form of swapping for food, daily collection of firewood and water, and the occasional acquisition of useful items along the way (e.g., scavenging, purchasing from stores near the route). In the past, hunting and gathering may have also been important mechanisms for supplying caravans on the move. Most of the refuse left by caravans is generated by these activities.
The design of the circuits to be followed is a function of the exchange strategy. Intended primary transactions determine the main destinations; secondary transactions and logistical considerations define the routes to be followed to get to those points and a number of locational decisions on a daily basis. It should be emphasized that, besides purely economic considerations, both decisions may be strongly influenced by social factors, e.g., social obligations with particular trade partners, inter-group constraints on the use of certain routes or campsites, political restrictions on movement.

Long distance caravans regularly occupy five types of locations, where one could expect to find traces of their activities: (1) caravanner's residence; (2) routes; (3) overnight stops; (4) rest stops (long-distance traffic only); (5) articulation points. A sixth activity setting that may be inserted in traffic circuits is the extractive locus, depending on whether the caravanners themselves engage in the extraction of certain items for trade away from their home territory.

On the basis of his research in Santa Barbara, an archaeological area in the upper Loa River (Chile) that concentrates a great amount of evidences related to caravans, Berenguer has proposed that prehistoric caravans made use of another location type that he calls *estancia*:

"a settlement category that falls between the villages and the *paskanas* [caravan campsites]. Like the latter, the *estancia* – by definition a herding settlement – would be strongly related to caravan traffic. However, these settlements would be
larger and more complex than *paskanas*, and would be less specialized in traffic."

(Berenguer 1994:30. my translation)

This type of location, that as the author admits "is absent in the ethnographic literature on caravan traffic" (p.28). would be somewhat similar to the rest stops among *llameros* from Lípez, but also show important differences, specially in the scale of the architecture of the more "nucleated" sites of Santa Barbara – even if the structures are not all contemporaneous – and in the presence of several indicators of permanent or semipermanent habitation (*ibidem*). The concentration of caravan-related rock art and other ritual remains, could indicate that the local groups that built these herding stations – and even practiced some agriculture – were also drovers themselves (equating the site with what I call "caravanners' residence") or that the place simultaneously served as an important rest stop for highland pack trains. During our journey to Tarija, we found an analogous situation at Yuraj Cruz, where there was a local herding post close to *llameros'* rest location (see Figure 10.4).

**Caravanner's Residence**

Activities carried out in this location include domestic activities of the caravanner's household, storage of caravan gear (bells, ropes, saddle bags, buckles [currently not used]) when not in use, and herding. In our case study, this location coincides with specialized pastoral main residences which have already been considered. Nevertheless, I prefer to separate analytically these two location types, to emphasize that
in other organizational scenarios, the caravanner's main residence can be an agropastoral residence or may be potentially insert in a primarily farming (potentially, even urban) context.

Caravanner's residence may show comparatively high proportions of foreign goods, or items that are not accompanied by indications of local production/extraction. These items may be consumed by the household or stored temporarily for further trade. Even in cases of attached traffic, in which drovers transport goods that do not belong to them or are not meant for their own consumption, their direct involvement in trade would give them privileged access to such products. Certainly a similar phenomenon could be expected at articulation points, particularly when they centralize sponsored traffic (e.g., colonial Potosi) or are specialized extractive/productive communities who obtain complementary resources through exchange into a number of traffic networks, as exemplified in our case study by pottery producers in Casiras or salt-extracting communities like Colchani.

Distributions functionally equivalent to the U-shaped design of domestic compounds in Cerrillos may have also characterized drovers' main residences in the past, a possibility that could be tested in cases with good archaeological preservation. The minimal functional expression of this scheme would be a direct association between storage areas and spaces or features suitable for enclosing animals (what I will call the "loading/unloading pattern") and dwellings.
Routes

When choosing among alternative routes, caravanners take into account first, the well-being of the drove (grazing opportunities, security, water) and then their own convenience (weather conditions, quality of campsites). Prominent among the latter is the possibility of getting supplies and taking advantage of secondary transactions. Currently, this means rural population along the way for swapping or exchanging particular products (potatoes, pots), but in the past a wider range of factors must have been taken into account, including opportunities for hunting and gathering for consumption on the way, and for the extraction of other resources for later trade (e.g., lithic raw materials, minerals).

The relative abundance of these resources on the eastern Andean flanks offer a number of alternative routes for caravans to follow to the same destination. Topography seems to be a more restrictive factor in this environment, generating increasing spatial redundancy – and potentially archaeological visibility – where routes cross mountain ranges or follow deep valleys. Intensively used trails may have features and improvements, specially when traversing difficult terrain: e.g., retention walls, steps, and banquettes on steep hillslopes. When such traits are found in ancient trails of the Circumpuna area they are normally attributed to the Inka road (Hyslop 1984), but some of them could have an earlier origin. Isolated artifacts generated by accidental breakage are sometimes present along the way.

Special points along routes (passes, crossroads) may be associated with ritual practices. Currently, these are concentrated on mountain passes – the *apacheta* (rock cairn)
cult – a phenomenon that has some interesting cross-cultural parallels. *Apacheta* rites go back at least to Inka times (Hyslop 1984), so these features may be good indicators of old routes. Moreover, given the nature of this practice, some relationship between cairn size and the intensity of traffic or the total time the trail has been used could be expected. Other remains that have been repeatedly interpreted as route markers, probably associated with ritual practices are geoglyphs, petroglyphs, and rock paintings (e.g., Muñoz and Briones 1996; Núñez 1976, 1985; Santoro and Dauelsberg 1985; Yacobaccio 1979).

**Overnight Stops**

Every afternoon, after concluding the day's march, caravans stop at prearranged places to rest. Activities that always take place at these stops are: (1) unloading and loading the drove; (2) food preparation and consumption; (3) grazing; and (4) resting. Other activities frequently associated with these locations are: (5) enclosing the drove for the night; (6) curing the animals; (7) repairing caravan gear and personal belongings; and (8) processing some of the raw materials transported for later exchange (e.g., spining and rope braiding). Other activities that may be associated with overnight stops, but usually take place in the surroundings rather than at the camp itself, are related to the procurement of supplies for the trip (swapping with local people, hunting/gathering?). Campsites are occupied only for a few hours between the afternoon of one day and the morning of the next, but these stays may extend to one or two days if this is considered necessary for repairing the equipment, letting the animals heal, or taking advantage of trade opportunities.
Overnight stops are associated mainly with good pasture and water, and secondarily with firewood, natural shelters, and useful features (specially built or recycled). Again, these resources are relative abundant on the eastern Andean flanks, so these occupations tend to show low spatial redundancy. Repeatedly used campsites may cover areas over one km$^2$ with little refuse, usually forming discrete groupings associated with naturally sheltered points or features. Over time, if traffic is intense enough, one would expect these low density scatters to fill progressively most suitable places along routes, becoming only visible as archaeological sites at the edge of difficult stretches of the trail (e.g., deep valleys, steep hillsides, densely occupied zones, desert strips) or in association with abandoned and reused structures, natural shelters, or exceptionally favorable resource patches. In populated areas, overnight stops tend to be located at prudential distance from villages or hamlets to prevent stampedes and to avoid interfering with local activities, generating conflicts with local groups. The remains of these campsites, then, tend to be spatially segregated from local settlements. However, the tendency to camp in fallow fields, harvested plots (specially when travelling during the dry season), ravines, and riverbeds (where they do not threat local farming), frequently impede the archaeological preservation of these occupations.

The refuse generated at overnight stops was probably more abundant in prehistoric times than today, given the lack of plastic and metal containers and tools. Still, it must have been comparatively small, considering the short time that caravans spend in these locations and the limited range of activities that take place there. Caravanners tend to carry as personal gear few artifacts that can serve in a number of
different tasks together with items that can be expediently shaped – or used directly – to handle unexpected functional demands. Leaving aside modern tin cans and bottles, three kinds of vessels are used and discarded at these places, i.e., bowls, small cooking pots, and water containers. If transported goods were fragile or easy to lose and non-perishable, they could also be accidentally incorporated to the archaeological record of these locations. Except for this possibility, these sites would not include *de facto* refuse or objects with significant reuse value.

Except for traffic sponsored by a state or some other institution, overnight stops take the form of campsites. Even the most frequently occupied ones have only few structures – if any – that serve to enclose the drove while loading and unloading (U-shaped features, corrals) and to shelter the drovers, mainly while cooking (windbreaks and small shelters with associated hearths, specially in windy and cold areas). In some cases these features are the accumulated result of small improvements made by many passing caravans; in others, they are reused structures, originally built for other purposes. This fact may create ambiguities when trying to assign archaeological sites to functional categories of a settlement system, particularly in environments with highly circumscribed resources, where locational alternatives are limited. Consider, for instance, caravan overnight stops and herding posts. In some cases, these two kinds of occupations not only may result in sites that have some similarities – small, with little refuse and few features, near good pastures and water – but they could coexist in areas particularly favorable for both uses, or represent sequential stages of their life history, that starts with
local herding and culminates with repeated use by passing caravans, resulting in sites that combine the archaeological signatures of both activities.

In a short-term perspective, campsites were characterized as organized around two discrete areas, one for loading/unloading and one for cooking. The patterned distributions of features and refuse that result from this organization depend on the combination of two sets of factors that condition spatial redundancy at these locations. On one hand, congruence is favored by the restrictions imposed by the occupation of rockshelters, windbreaks, corrals, and other features that offer an advantage to drovers in certain contexts. On the other hand, congruence is hindered by the tendency to avoid cleaning hearths and surrounding areas for reuse. The presence or absence of these features, together with the characteristics of the environment and situational factors (e.g., weather conditions), result in a number of archaeological site structures. To illustrate this point, let me describe four structures I have repeatedly observed (Figure 11.1).

a) *Windbreak with midden.* In windy areas, windbreaks tend to be repeatedly used, so hearths need to be regularly maintained. Ashes and other residues are swept toward the open side of the feature, where larger items are also tossed during food preparation and consumption. In intensively occupied campsites, small middens begin to develop in this position. Associated loading/unloading areas would not leave archaeological traces. If weather conditions are good, windbreaks may not be used to avoid hearth cleaning. This structure, then, may include other unprotected hearths and associated refuse.
Figure 11.1: Site structures at repeatedly occupied campsites.
b) *Shelter with corral*: The campsites with most features I recorded have a corral or U-feature and a small shelter for people. The hearth tends to be placed toward the entrance of the roofed structure; residues are swept or tossed to the front, where they accumulate. Even in these cases, it is frequent to set up the cooking area outside when weather conditions allow it.

c) *Refuse ring* (see Figure 10.7): Shrubs and rocks hinder the daily task of unloading and loading the drove. Therefore, in places with this kind of vegetation (*t'ulares*) the clear areas that characterize loading/unloading areas are repeatedly used. In the absence of other features, however, the tendency to avoid refuse left by previous caravans leads to place the hearth in different points around it. As a result, refuse tends to accumulate in a ring pattern.

d) *Corral with refuse*: Corrals or U-features facilitate considerably the task of unloading and loading caravans so they are used when present. If weather conditions require it, the inside or outside of these features can be used to protect the hearth, again trying to avoid if possible recent residues. Hearths and refuse then are found all over the inside of the corral and around it.

As a rule, then, the successive occupations of overnight stops tend to lack spatial congruence. With few exceptions, resulting site structures are "diffuse" and devoid of stratified deposits. This characteristic, that turns difficult to isolate, not only individual camping events, but even occupations that belong to a certain (archaeological) period.
may be useful for identifying the reoccupation by caravans of abandoned herding posts and similar settlements they find along their way. The congruent use and maintenance of the latter in the first stage of their life history would result in "sharp" archaeological structures, with discrete trash accumulations, few well-developed hearths, and other activity areas, while later occupations by caravans would superimpose a "diffuse" veil on them (e.g., Figure 10.6). It is unlikely that these two stages would result in discrete stratigraphic components and it could be argued that the refuse could be similar, but still, it should be possible to recognize in the composite archaeological structure the intervention of different behavioral organizations. The same strategy could be applied to determine whether a single-component site was created by local herders or caravans — i.e., non-local, passing herders.

Clearly, these expectations do not apply to overnight stops that count with buildings specially constructed to lodge caravans, as those found in road systems built by states, like the Inkas. These settlements, however, seem to incorporate some of the functional schemes described before. One of them is the "loading/unloading scheme" or association between animal enclosure and storage that characterizes both caravans' habitation compounds (U-shape design) and overnight camps. A second one, again found in both locations — except for campsites where enclosing features are used as windbreaks — concerns the segregation between loading/unloading and cooking in two areas, usually adjacent.

Figure 11.2 shows the planviews of two consecutive Inka way stations along the road that connects SW Lipez with San Pedro de Atacama (Nielsen et al. 1999). These
Figure 11.2: Plans of two Inka way stations along the *Inkañan* in Southwest Lípez.
were selected because, given the lack of resources and local population in these high altitude deserts and the direct association of these route with the prime herding zone of Quetena, it would be expected that the form of these settlements would reveal the functional demands of llama caravans – probably travelling at the State's command – rather than any other extractive or administrative goal.

The internal organization around a loading/unloading and a cooking area is clear in both site plans. The corrals would be used to enclose the llamas while discharging them and to store the freight for the night, while the smaller structures and associated outdoor spaces would serve the drovers for cooking and sleeping (hence the roof on the shelters). The presence of several enclosures and shelters of this kind at both sites reveals that they were erected to lodge simultaneously several caravans. The llamas could spend the night loose around the settlement or could be corraled for the night if necessary. In the former case, little dung accumulation would be expected. This phenomenon – that can be monitored archaeologically – could look as an anomaly if it is thought that these "loading/unloading enclosures" had the same use as normal herding corrals.

The size of the animal enclosures is very regular (51-62 m²), similar to that of courtyards at llamero residential compounds (mean 66 m²), which are also used for loading, but smaller than most domestic llama corrals (mean 109 m²) that stage other herd-related activities that may require more space. This regularity in the area of enclosures, which seems to apply to analogous Inka settlements in Puna de Jujuy (e.g. Zaburlin 1998:49), suggests that past droves were managed in similar size segments as
they are today, in accordance with llameros observation that about one hundred is maximum number of llamas that can be driven as a unit.

The main difference between these Inka way stations and llamero overnight camps and residences, lies in the formal separation between sleeping areas and the load, a variation that could be pointing to different relations between the drovers and the goods they transport or just idiosyncratic behavior. Independent caravanners stay with their own load and caravan gear, attached drovers operating in a state-regulated environment may not.

The generality of these functional relationships can be assessed by looking at a cross-cultural analog of such settings, the caravanserai or khan. Figure 11.3 shows the plan of one of these "caravan palaces" from 13th century Anatolia, whose functional organization is described in the following passage:

Shelter includes stables for bedding and feeding the animals, places for loading and unloading goods, and accommodations for travellers. These activities took place on parallel bands at two different levels. The lower band on the ground level housed the stables; the upper band in the form of a 0.6 m to 1.3 m-high seki or platform accommodated goods and people... the platform is further divided lengthwise into two bands: a corridor band 1.4 m wide next to the basins [where animals are fed], and the rest of the platform about 3.8 m wide and 0.2 m higher than the corridor band. People spread their bedding and kept their goods on the higher level...platforms show remnants of a tandir, or clay oven used for heating.
Figure 11.3: Evdir Han (AD 1210-1219), in Anatolia (reconstruction plan redrawn from Tükel Yaruz 1997, figure 5).
cooking, and baking, another of the varied functions of the platform" (Tükel Yavuz 1997:84)

The two functional schemes mentioned above reappear in these settlements, but with a different formal resolution. Unlike the Andean cases, drovers cook next to the load – in the upper level of the platform – which is piled between the loading/unloading area and the tandir, but like llameros, these caravanners – who are independent merchants or at least responsible for the commodities they transport in a dangerous environment – spend the night next to their goods. In this case, the central courtyard or special stable facilities allowed to keep the drove safe inside the compound, an important possibility given the tumultuous social environment that characterized medieval Islamic trade. This difference with the Andean cases calls attention to another formal attribute of overnight stops that may be useful for monitoring aspects of the social context of traffic.

Rest Places

In the course of long distance journeys, caravans need to stop periodically for longer periods in order to allow the animals to rest and graze properly and repair the gear. With differences in periodicity that derive from the physical characteristics of the animals driven, this is a general component of caravan settlement systems cross-culturally, as exemplified by similar stops made every two or three days by Himalayan yak caravans (Valli and Summers 1994:152), and the more spaced but longer stops of North African
caravans at the oases strung along their routes (Etherton 1948:27). For llamas, they last minimally one or two days and are spaced every three to five days of march.

Rest places are located in: (1) the best possible areas in terms of pastures and water; (2) right before or after difficult stretches of the route that represent a strain on the drove; and (3) if possible, away from densely occupied areas where the permanence of caravans could generate conflicts with local populations over the use of resources.

In the broken landscape of the eastern Andean flanks, all three criteria are met by the high portions of the land (see Figure 10.2), usually associated with the mountain ranges that separate fertile valleys and quebradas where farming and human populations tend to be concentrated — and were concentrated, at least in late prehistoric times (Nielsen 1996b). In a previous chapter I compared these locations to herding enclaves that provide the necessary logistical support for caravans moving across alien territory.

The western flanks present very different conditions for travellers. In the desert of northern Chile, resources vital for the logistics of caravans are highly circumscribed in oases and were probably in the hands of local groups (e.g., Quillagua. Calama. Chiu-Chiu. Lasana. Santa Barbara), a situation that resembles the case of North African trade. In this context, highland caravans would depend on special arrangements with local villagers to use local resources, who might also serve them as exchange partners, perhaps analogous to present-day caseros (e.g., Berenguer 1995, 1999; Núñez 1996:47,57). Alternatively, the oases villagers themselves — rather than highlanders — may have been in control of caravan trade along these routes, considering that a long tradition of camelid herding has been documented for this area, which also has mineral resources that played
an important role in long distance trade (Berenguer 1994:29). In any case, these environmental contrasts may have resulted in significant differences in the social organization of traffic in both sides of the Andes.

The archaeological record of campsites at rest places is similar in structure and content to that of overnight stops, except that since they tend to be more redundantly occupied, for longer periods, and by more caravans that tend to converge on these nodes, more features and refuse are likely to accumulate. Caravanners have more time at their disposal while staying in these places, so they may engage in additional activities (e.g., manufacturing goods for later trade, repairing gear, or playing games) that could leave distinctive archaeological signatures.

If there were ritual practices associated with caravanning in the past – other than brief rites along the route as exemplified by the *apacheta* cult – I would expect them to concentrate in these locations. As I argued before, strong competition for the control of pasture (and in other environments, water) seems to be a basic structural property of pastoral social systems, creating the need to reaffirm periodically the right over these resources. Given their importance for the logistics of long-distance caravans, one could expect that caravanners put in action all the resources within their (pastoral) practical logic to secure access to these herding enclaves, appropriation through ritual being one of them. Placing marks or building features and various improvements could serve analogous purposes within the same logic.

Taking into account that one characteristic of rites is to reproduce in a practical state premises of action shared by the members of a group or society, it can be expected
that ritual areas will include durable features and will be reused in a spatially congruent fashion, generating sharp archaeological site structures. Moreover, these spaces may be segregated from camping areas as a way of singularizing them and the actions they stage. Artifacts of ritual value tend to be highly curated cross-culturally, so it is unlikely that they will be discarded along the route. Instead, they would be found at caravanners' residences or become part of special deposits (e.g., burials, ritual caches). *Llameros,* for instance, seem to curate indefinitely their bronze bells or *animeros,* renewing periodically their bearings and ornaments, and passing them from one generation to the next. Many ritual practices, however, include the discard of various elements which are left as offerings, thrown away, purposely broken, burned, or buried. If this refuse included unperishable materials, their exceptional characteristics would support their interpretation as "ceremonial trash" (Walker 1995).

High patterning, spatial segregation, and exceptional discards would turn ritual areas – when present – among the most visible and internally structured archaeological remains of caravan routes. Certainly, the detection of prehistoric ritual sites would not necessarily give us access to the details and wealth of ancient caravans' symbolic world. However, the presence of patterns in their internal configuration, location, and the nature of associated refuse would allow us to identify schemes of ritual behavior and to investigate their variation in time and space. For example, an archaeologist surveying present routes could not infer from archaeological evidence alone that the stone rows in front of the *mesas* (Figure 10.5) mean *llameros'* wishes, or that the purpose of major *k'owakos* is to invoke the protection of the Mountain Spirits for the journey. She or he could conclude, however, that
mountains are important in these practices given the orientation of the altars and their positioning, that they include drinking alcohol and burning special goods (that perhaps could be identified) and that a very limited number of people participate in these ceremonies (cf. Nielsen 1995).

**Articulation Points**

Places where caravans meet other groups and exchange goods can be of two main kinds: permanent communities that produce excedents of items pastoralists want for their own consumption or for trade and marketplaces, points where traders and perhaps producers meet periodically to exchange. The former can be dispersed or nucleated settlements, the latter can be associated with permanent settlements or not. Further complexities are introduced by the nature of the relationship between caravanners and exchange partners, by the presence or not of ad hoc facilities to handle the droves, and by the possibility that, under state or elite sponsorship, pack trains may just offer freight services, loading and delivering goods at attached workshops, agricultural centers, or state warehouses. Since caravans act differently in each one of these situations, one should expect a wide variety of archaeological expressions for these activities, depending on the context. I will limit myself to point out some possibilities based on the criteria that seem to guide the behavior of modern *llameros* in these locations.

Beginning with permanent settlements – which should bear in their record some of the goods exchanged – the formation of discrete archaeological deposits associated with the presence of caravans depends on the nature of the relationship between drovers and
local people. If this included the obligation of lodging the travellers and the drove as indicated by some ethnographic accounts (notably Casaverde's 1977:177), the consequent "merging" of caravans into local settlement would turn impossible to differentiate them archaeologically from local agropastoral activity. Moreover, in some "archipelago" systems, pastoralists could have two or more residences or places to stay of their own, dispersed in the various islands they regularly connect. Leaving aside this last possibility, in many cases I would expect caravans to stop in separate areas, with access to pasture if this resource is locally available. In agricultural areas, they may stay away from local productive infrastructure or take advantage of fallow, depending on the season. In places with disperse settlement, these occupations will rarely be redundant and may get systematically obliterated by local earth-removing activities or natural processes, but they may create discrete "campsite refuse" concentrations in the vicinity of nucleated communities.

Places repeatedly visited by many caravans may develop special areas and facilities to handle them (e.g., animal enclosures and shelters). A non-Andean example is given by the legendary city of Timbuktu, where medieval western African and trans-Saharan caravans regularly met for trade:

"Immediately on the north side of Timbuktu stands a walled fort built by Joffre to protect the city on the desert side, and beyond this fort is a sandy region called the Abaradian, or camel suburb, where the camels are discharged of their burdens, and
where, at one side, are clustered a great number of low, squalid huts occupied by the population which attends upon the camel caravans" (Barrows 1927:153).

Facilities specially erected to receive caravans at articulation points within state sponsored traffic may include the loading/unloading pattern in their design.

A special activity area one could expect to find at articulation points where many caravans converge is the "marketplace." if the transactions require the simultaneous presence of a great number of people. These large, open areas could be inside or adjacent to nucleated settlements or — hypothetically at least — not be associated with any permanent population. Loading, unloading, and handling of many artifacts would create many opportunities for breakage and loss, resulting in considerable refuse accumulation. I should stress that the existence of marketplaces as I have just defined them (i.e., as activity areas) does not imply that the exchange of goods was based on market principles: the circulation of items among people could still take the form of symmetrical reciprocity or redistribution (cf. Núñez 1996:50).

Finally, in desert environments (e.g., western Andean flanks, desert Puna), if inhabited oases were used as rest stops by non-local caravans, one would expect these places to serve as articulation points as well, showing the archaeological traces of the latter.
Extractive Loci

Extractive loci represent a sixth kind of location that could be present under certain organizational scenarios if caravans directly engaged in the extraction of resources for trade outside their home territory. An informant recalled that in the past, some drovers specialized in the traffic of *k'owa* that was found in great quantities in the mountains of Cordillera Oriental to the northeast, outside the community, where they would spend several days collecting it. Similar locations could be related to the extraction of *kollpa, yareta* – which in Lípez was intensively extracted by *llameros* for trade until a few decades ago – and a variety of wild resources. Prehistorically, this kind of location may have been associated with the extraction of lithic raw materials or minerals for trade, provided that the exploitation of these resources was not under control of other groups.

Depending on the importance of the resources in question, caravans could include extractive loci in trade circuits designed to reach other primary exchange goals, or set out in special journeys toward these places. Unlike the sites associated with specialized communities just considered, extractive loci should lack evidences of permanent population, a characteristic that differentiates them from articulation points.

The remains left by caravans while staying at extractive loci should be similar in location, content, and structure to any overnight stop. The main difference would lie in the residues left by the extractive operation itself. The relative overlap between these two kinds of evidence would depend on the distribution of the resource of interest *vis a vis* those commonly sought for camping. Even if both sets of activities are segregated in
Figure 11.4: The settlement system of caravans and its expected archaeological consequences.
space. one would expect significant quantities of the resource extracted to enter the archaeological record of these campsites, particularly if some preliminary processing of the raw materials for transport takes place.

Important extractive loci may attract many caravans from distant places, unless access to them is socially or politically restricted. If places suitable for camping are circumscribed, high redundancy and considerable refuse accumulation could be expected.

Figure 11.4 represents schematically the organization of caravan settlement systems in the eastern Andean flanks and their expected consequences in the archaeological landscape.

THE ARCHAEOLOGICAL RECORD OF CARAVANS

AND THE POLITICAL ECONOMY OF TRAFFIC

Having defined some archaeological correlates of caravans, it is now necessary to consider how could these usually sparse and barely visible evidences contribute to the study of large scale political economy issues as those raised at the beginning of this study. An exhaustive treatment of this topic is not feasible at present since the archaeological record of ancient caravans remains largely undiscovered and its inferential possibilities have barely been explored. Therefore, the following discussion, organized around the variables proposed in Chapter 3, is just meant to highlight some implications of present-day llamero practices for understanding the organization of ancient caravans and to
illustrate the research possibilities that could be offered by the study of the direct remains of their activity.

Pastoral Specialization of Caravanners

Who were the caravanners? I find this simple but important question to be among the most difficult to answer with precision. Most authors share the opinion that prehistoric caravan traffic was conducted by highland peoples — agropastoralists or specialized pastoralists — who had access to the necessary pack animals. The possibility that drovers also belonged to primarily farming communities from the high valleys and oases (*keshwas*) — who also engaged in herding as a supplementary strategy — is rarely mentioned, but cannot be rejected *a priori*.

The first necessary step to approach this problem, is to relate these alternatives to concrete areas within a region. i.e., to determine for the period of interest if these forms of specialization existed and where were they located. In the Circumpuna area, these productive strategies refer to three different environmental units (see Figure 5.4):¹ (1) the lower portions (< 4,000 m.) of the dry puna (i.e., North Lípez, eastern Puna of Jujuy) and perhaps the headwaters of the western valleys (Chile), where herding can be combined with high-altitude tuber and grain agriculture; (2) the upper portions of the dry puna (i.e., Southeast Lípez, western Puna of Jujuy), where a specialized pastoral strategy (combined with hunting and gathering) seems to be the only alternative for supporting a population year-round; and (3) the high valleys and *quebradas* (> 2,000 m.) or oases on both sides of the Andes that combine meso and micro-thermal agriculture with secondary herding that
takes advantage of the presence of pastures on the upper parts of their montainous landscape. The other environmental units could be ruled out; the desert puna (e.g., Southwest López, Northwest Puna de Jujuy) does not support permanent occupation in the present and seems unlikely that it would in the past, while the eastern yungas (< 2,000 m.) may have supported only marginal herding, through the seasonal exploitation of the upper strip of the eastern flanks of Cordillera Oriental (Ventura 1995).

Certainly, not all of them were occupied by permanent populations throughout their history. In some periods some of them may have been vacant, in others, two or more lifezones may have been seasonally exploited by the same group, developing a highly diversified economic strategy. Examples of the second scenario would be: (1) agropastoral communities from the lower dry puna with temporary herding posts on the higher lands or (2) keshwa groups taking advantage of nearby puna pastures and hunting opportunities through transhumant mobility. These possibilities should be archaeologically investigated for various periods of interest before the question at the beginning of this section can be answered. The ethnoarchaeological observations regarding pastoral settlement systems and resulting landscapes in this monograph – together with those provided by other authors – could be useful to sort out some of these alternatives. In fact, there is a considerable amount of data already accumulated on this subject for the Circumpuna Area, particularly for late prehistoric periods.

On the basis of ecological considerations alone, one would expect caravan traffic to be initially conducted by highland agropastoral communities, who own the necessary pack animals and need complementary resources, but already have a diversified enough
economy to secure for them a minimum subsistence base in the short-term. Throught a flexible use of this mechanism, these groups would be in the best position to take advantage of variable economic opportunities resulting from changes in the social and political environment. The emergence of specialized pastoral-caravanner communities, occupying ecologically marginal habitats in the highlands themselves, would only be possible when farming communities are in conditions to produce the necessary surplus and would be associated with the development of strong, dependable, and internally diversified articulation systems. One would expect these groups – if present – to be among the most committed to caravanning, since they are relatively free of the scheduling conflicts that characterize mixed strategies. Given the relative high risks inherent to this mechanism, however, and the marked dependency of these economies on other productive systems. I would also expect it to be always combined with other complementarity mechanisms. Farmers practicing herding as a secondary activity, do not depend on complementarity to fulfill basic subsistence needs; even if they insert themselves in trade circuits to obtain a number of important resources, one would not expect them to take the initiative in these activities. If caravanning ever appeared as a regular practice in these communities, then, it would be a relatively late phenomenon, tied to processes of power accumulation and social differentiation, or – hypothetically at least – to exceptional economic circumstances, as exemplified more recently by profitable opportunities occasionally created by the market economy (e.g., Rabey et al. 1986:140-142).
When combined with background information, the reconstruction of major traffic routes (trails, associated ceremonial refuse, campsites, etc.) could provide useful information to address this issue. First, because routes in use during certain periods may exclude some settled areas and radiate from others, giving a first indication of potential places to look at. Among the many settlements strung by these webs, caravanners' residential sites would be marked by some of the attributes proposed before (e.g., specialized gear, foreign goods, loading/unloading pattern).

Another possibility is to look at relations of homology between the remains associated with the routes – including the organization of camps – and those found at more permanent pastoral sites. This approach, that would be more fruitful if ritual contexts were compared, could serve to relate particular routes or circuits with certain areas where pastoralism was practiced, if not with specific communities.

**Transported Goods**

As I pointed out at the begining of this study, non-local items found in habitation settlements are the most common sort of archaeological evidence cited in support of complementarity practices. It should be born in mind, however, that not all these objects were necessarily transported by caravans. Regardless of the particular model invoked to account for their social and economic implications, these goods (or some of them) could have been brought on human back by itinerant traders (particularly small, valuable items), fetched directly by local individuals through periodic procurement expeditions.
brought sporadically by distant relatives or allies as gifts, or acquired nearby through what could be the last link of a long chain of transactions between neighbours.

Driving caravans is a hard job. It offers significant advantages over other forms of transport only when the goods are heavy and/or bulky – because of their intrinsic characteristics (e.g., agricultural products, salt) or because of their quantity – or when the distances involved are large. Some elements cannot be carried by these means (e.g., wooden beams, very large ceramic containers). What is carried on pack trains and where, then, is partially constrained by cost-benefit considerations, such as: value of the goods; costs of transport as they result from distance, weight, and bulk; relative dependency of potential exchange partners on various non-local items; increase/decrease of value as a function of distance (i.e., some items may become more valuable as exotics, others decay); etc. The combination of these variables should create a tendency for subsistence and some cultural goods (which tend to be bulky, heavy, perishable, and have low value/volume ratios) to dominate in medium distance traffic, and durable prestige and small cultural goods to be the focus of long distance trade (cf. Browman 1981:413).

These expectations notwithstanding, the case of present-day llameros suggests that ancient caravans would carry anything they could trade and as many different things as they could trade – as a way of taking the best out of this practice, simultaneously reducing its uncertainties. What they actually carried, then, would depend not only on ecological and cost-benefit considerations like those exemplified above, but also on changing social and cultural conditions that may have an effect on: the demands of the populations they exchanged with; their own preferences; social restrictions on the
circulation of particular goods; and their ability to obtain certain items for trade. Certainly, as an internal condition for the emergence of this practice, pastoralists should be able – at some point – to take back to their home territory the basic complementary resources they need for subsistence, even if countless other products are carried in the process or mediate their acquisition.

The archaeological record of caravans cannot sort out all these complex possibilities, but its use in combination with more conventional provenience studies conducted on foreign goods from sedentary sites, could make a significant contribution to discriminate among these alternatives. A first approximation to the goods traded by caravans would be provided by the productive potential and demands (ecological, social, cultural) of the areas connected through their routes. Variability in the abundance of traces of use along different routes, or segments of them, could provide a relative but useful way of assessing the importance of various circuits and associated goods.

Residues left by caravans at extractive loci and at some articulation points (i.e., specialized producing/extracting settlements) can provide information on the time periods when these resources were traded and perhaps on the circuits into which they were funneled. The former should also bare indications of any preliminary process or treatment the extracted resources could be subject to before transport.

Some of the goods caravans transport may enter the archaeological record of overnight stops, rest campsites, articulation points, and even trails. Many of the utensils and consumables drovers discard in these places have also been acquired through this mechanism and may even be regularly carried for exchange.
Certain items caravanners transport or extract are so important to them – or to the other social units they contact in their journeys – that they are incorporated to their ceremonies and perhaps ritually discarded during these practices (see Chapter 8). These elements or references to them (e.g., in the form of iconography) may be repeatedly found at ritual sites both in their home territory and in special locations along the route, such as rest stops or mountain passes. Moreover, some of them could acquire the role of social diacritics or emblems of these groups, particularly in the eyes of those who depend on their trade. For valley dwellers, for example, llameros are associated with salt although they do not even produce this item themselves.

Another possibility that should be considered is that some widely demanded and highly valued goods, such as coca (Burchard 1974), shell, or metals, may have been used extensively as means of exchange to acquire a wide variety of products. These elements might also be incorporated to ritual practices and to the archaeological record of routes and associated sites. The emergence of these "currency-like" items could be very important, since they would give considerable power to those in control of their sources or distribution.

The absence of direct evidences of caravans in the form of overnight stops and rest locations in certain periods or areas, can also be very significant if it cannot be explained by research biases or by the intervention of postdepositional processes. If the archaeological record of the period still bears foreign artifacts, it would be necessary to consider other mechanisms that could account for their presence.
Relationship with Elites

It is commonly assumed in the literature on Andean complementarity that caravans operated under the aegis of elites. This could mean that they had attached drovers at their disposal and/or that they controlled traffic in some other way. Given the importance attributed to the control of long-distance trade in many social evolutionary models, this point is crucial to understand the social and political implications of the phenomenon of our interest. An in-depth discussion of this problem escapes the possibilities of this study, so I will limit myself to point out the issues and suggest some ways in which the direct remains of caravans on the move might contribute to clarify this problem.

Depending on the goods carried and on the relative importance of this particular mechanism of transport, the control of caravans would give curacas and other "aggrandizers" (Hayden 1998) or state institutions the ability to centralize the distribution of staples and valued cultural goods and/or to restrict the circulation of exotic goods as a strategy for creating social closure. Their interest in controlling traffic does not require a special explanation. From the theoretical perspective of this study, however, the notion that caravanners would spontaneously surrender this power base – that could be in their hands as the main actors of trade – needs to be rejected. The question becomes, how could elites coerce caravanners under their control? or framed from the pastoralists' standpoint, in what circumstances would be more convenient (or necessary) for drovers to operate under elite sponsorship? I can think of five non-exclusive ways in which elites could gain power over caravans; i.e., by controlling: (1) the herders themselves; (2) the
pack animals: (3) the extraction or production of the goods they transported: (4) the demand for those goods: and/or (5) the routes.

The analysis of an historical example can help to put this problem in perspective. In his account of the Lupaca archipelago in the 16th century, Murra (1964, 1965) describes a case of caravan traffic under control of ethnic lords:

"Beyond herding services, the mallku [chief] could claim further contributions of energy from the peasant community. Every year, after the rainy season was over, hundreds of llamas were dispatched to the coast, carrying wool, potatoes, charki, and other highland commodities to be exchanged for maize, the indispensable ceremonial and beer-making grain. The drovers were men supplied from the various ayllu: 'every year they give him forty or fifty Indians who go with llamas to bring him maize from Moquegua and Cama and Capinota and Larecaxa for the provisioning of his house... and the trip takes them two and three months coming and going and once they return he uses them no longer... And he gives them chuno, potatoes, and dried meat and kinowa and coca leaf so they can eat and he gives them wool so they can barter over there for themselves for whatever food they want" (Garci Diez. [1567-1568], ff. 9r-9v). Much of this "barter" or "trade" was more in the nature of transporting one's own harvest, since the maize producers were frequently themselves Aymara-speaking highlanders transplanted on a permanent basis to the coastal oases as mitmaq colonists, to ensure and regularize the Lupaca supply of maize. [...] Nevertheless, some small-scale
exchanges did take place. Those in Lupaca country 'who had their own cattle' (Garci Diez. [1567-1568], f. 13v) went to the coast and to the lomas to barter on their own. [...] The maize growers on the irrigated coast were eager for the highlander's animals, their wool and meat" (Murra 1965:200-201).

This quotation provides some useful information regarding the possibilities listed above. The Lupaca lord had at his disposal some drovers, but this was only on a temporary and rotative basis, as partial fulfillment of the tribute obligations of the ayllus under his rule. Even then, he had to "pay" them in kind – as expected within the reciprocity ideology – including wool they could trade for their own benefit. The pack animals that went in these caravans were his own, as was the maize and coca they brought him back, since he had his own farmers in the lower ecozones on both Andean flanks (Murra 1972). But it is very clear from this passage that many Lupacas had "their own cattle" and were free to trade on their own, with coastal farmers who were "eager" for highland products, demonstrating that the mallku had no control of the demand, of staples at least. No information is provided on the mechanism of acquisition of exotic prestige goods: we could speculate that those available in the same areas visited by the caravans just described (e.g., marine shell or tropical bird feathers), may have been brought together with the staples, but it seems only reasonable to conclude that the circulation of those coming from still farther away or produced by distant non-Lupaca specialists, were beyond their control.
If the Lupaca lords, whose "kingdom" included between 100,000 and 150,000 subjects and were considered among the most powerful polities of the South-Central Andes in the 16th century (besides Tawantinsuyu) had such a limited power over traffic, what can we expect from the elites of the small Circumpuna political formations that may have integrated between one tenth and one fifth of this population at most? I think it is necessary to conclude that most pre-Inka traffic in this area must have been in the hands of independent pastoral households. Moreover, taking into account the importance that the access to distant prestige goods (e.g., hallucinogenic substances, metals, semiprecious stones, shells, feathers) apparently had for pre-Inka elites in this area (Berenguer 1993; Nielsen 1996b; Núñez and Dillehay 1979), late prehistoric caravanners may have been able to exert considerable "pressure" over local "aggrandizers" by controlling goods that were crucial for the reproduction of their incipient power basis. One would certainly expect them to have enjoyed a better social position than their post-Inka descendants (Murra 1965:189).

The best possibility for pre-Inka elite control over traffic that I can envision would be the case of political leaders regulating the extraction and distribution of rare items whose sources happened to be located within their territory. Salt, metals, and perhaps certain lithic materials are some possibilities. The study of extractive loci of these resources associated with substantial caravan remains, combined with data on local settlement, should help to assess this possibility.
Ethnic Affiliation and Identity

How various ethnic processes are reflected in the archaeological record is still a debated issue in the discipline (Jones 1997). Putting momentarily aside this important point — i.e., assuming that material ethnic diacritics can be identified — the reconstruction of ancient routes, combined with pertinent data on settlements that served as articulation points should provide useful indications as to the ethnic relationship between the groups connected through traffic.

Establishing archaeologically the identity of prehistoric caravanners may be more complex. A first problem derives from the fact that many — if not most — of the items they use, consume, and discard are produced by other groups and acquired through the very mechanisms we are interested in. This may be particularly true of ceramics, one of the artifact classes that would be discarded and preserved in quantity at all locations occupied by caravans. To the best of my knowledge, no ceramics are currently produced in southeast Lipez, and preliminary data on the archaeology of the region suggest that none was produced in late prehistoric times either (Nielsen 1998a). Moreover, in other regions pastoralists use clay pots they acquire in their journeys as trade goods, i.e., to exchange later for other items (Browman 1990:344; Flores Ochoa 1979:104). This may be a quite general characteristic of these groups. The Twareg, for example, who are the main caravan people of Africa, acquire all their pottery from sedentary agricultural communities (Nicolaisen 1997:333). This author goes beyond to state that "no true pastoralists seem to make pots" (336). If this is true (probabilistically true at least), it is unlikely that ceramic formal attributes ever served as social diacritics for these groups. a
conclusion that probably applies to most of the traded items that may be found at caravan locations.

If caravanners developed a distinct group identity, as a social sector within larger ethnic units or as an independent people, it would be more pertinent to seek the material referents of this identity in pastoral products or objects closely related to pastoralism. Back to the Twareg example, most of the wooden and metal artifacts they use are made by blacksmiths living in the city, who periodically visit their camps. The pastoralists themselves are experts in the manufacture of ropes, saddle bags, wips, saddles, canteens, and other objects made with camel or goat hair and hide. Specially their hide bags and saddles are richly ornamented with ethnically distinctive polychrome designs (Nicolaisen 1997). The analogy among present-day pastoralists in the Andes could be found in the natural wool colours and simple striped designs of llamero textiles. Head pieces, breast plates, and woven shirts (unkus) may have played a similar role among prehistoric caravanners (Berenguer 1993; Núñez 1991:186). Unfortunately, these elements are rarely discarded and most of the time do not preserve, but their representation in caravan-related rock art may offer one way of approaching this elusive question.

As I argued before, the spatial organization of activities in different settings always reflects both functional constrains and culturally-specific practical logics. In the first two sections of this chapter, I stressed functional criteria—including those related to the social organization of traffic—to derive archaeological expectations from modern contexts under the premise that some of the problems that past llama caravans had to solve were similar to those faced today. It is assumed that cost-efficiency, security, and
other general criteria would in turn result in analogous responses. an assumption that is strengthened by showing some cross-cultural regularities in the structure of sites and settlement patterns related to this activity. The second group of factors, on the other hand, refers to idisyncratic patterns of action that characterize specific populations in particular historical moments. This singularity opens interesting possibilities for the archaeological investigation of past identities, at least in the "passive" sense of cultural background. Since they are free of a number of functional constrains that operate on more mundane contexts, it is expected that ritual actions will reflect more directly these behavioral schemes. Moreover, the strict patterning that characterizes these practices. would in turn result in sharp structures. facilitating the archaeological recognition of these schemes. Specifically, we would expect homologies between traces of ritual actions conducted by the same group in different settings and formal differences between the residues of ritual actions of different groups in analogous settings. Of course, the utility of this indicator depends on the existence of such practices and on our ability to identify them archaeologically. The tendency of these activities to concentrate in rest stops and certain points along the routes (e.g., mountain passes). highlights the importance of conducting indepth research in these locations when addressing problems related to the identity of the groups in charge of traffic.

What about the "active signaling" associated with emblemic styles and more instrumental forms of ethnicity? The emergence of distinctive rituals, with special settings, paraphernalia, and iconography, could announce the emergence of caravanners as a differentiated social sector within larger ethnic units – or as independent ethnic
groups themselves - since these elements could assume a prominent role as social
diacritics. As a relational classificatory device, ethnic signaling is always context-
dependent. The intended social scope of the ethnic messages potentially encoded in
ritual, as indicated by the placement and visibility of these actions or their material
referents, could give important hints as to the nature of identity processes among
caravanners. Two situations can be envisioned in this regard. Ritual and other identity
emblems could be: (1) widely displayed for anyone – non caravanners included – to see,
indicating the existence of an explicit (ethnic or activity-based) group identity; or (2) they
could be placed in areas where only other drovers would normally see them (e.g.,
campsites, rest stops, less visible segments of the route), suggesting more limited
processes of differentiation, perhaps related to the emergence of discrete caravan groups
competing over the usufruct of certain circuits, trade goods, or logistical resources. If
emblems pattern in space, they could be used to define these groups in territorial terms.
Moreover, both types of signaling could behave with relative independence: i.e., various
caravanner groups competing for trade circuits could differentiate themselves in traffic-
related settings, and still maintain ethnic affiliation with larger social units.

With these premises in mind, some expectations regarding the manipulation of
identity in different complementarity systems can be formulated. Drovers travelling along
“ethnic strips” (Harris 1982) or “compressed verticality” (Brush 1976), would move
within an ethnically homogeneous territory. No inter-caravan competition and signaling
would be expected along the routes; ethnic diacritics should tend toward uniformity
within these strips (both in nodes and routes) attesting to the relative “closeness” of the
system. Although operating within a closed system as well, caravans connecting the islands of an archipelago with the core, would be traversing alien territory, potentially contested by local groups or by other caravans, resulting in a considerable diversity of signals among routes or within a single route. The highest levels of inter-group competition and signaling along routes, however, would be expected for open systems. These practices may not be accompanied by overt ethnic expressions addressed to non-caravanners, since a certain degree of identity "indefinition" may have been important in certain sociopolitical contexts, giving drovers the necessary flexibility to establish transactions with partners of multiple ethnic groupings.

This strategy is explicitly mentioned in the 16th century by Lozano Machuca – the Spanish colonial officer whose letter was already quoted in Chapter 7:

"And he also says that there are other indians that border with the war indians of Omaguaca and Casavindo, and they have contact and trade with these Lipes, who are neither friends nor enemies, and they enter Potosí calling themselves lipes and atacama indians with cattle and other things for sale and exchange, and they could easily be pacified and subdued to our Catholic Faith and they would be a great advantage because they are close to Cerro Escala" (1885 [1581]:xxiv, my emphasis)
Cerro Escala is located west of Cerrillos within southeast Lípez, so this passage refers to caravanners living in the same general area where our project community is located.

Geopolitical Context

As in the case of ethnic relations, data on prehistoric routes combined with pertinent regional information (e.g., settlement distributions and hierarchies) can be used to reconstruct the geopolitical context of traffic.

The widespread notion that the control of routes or territories caravans traverse could give local, sedentary populations the power to control traffic, deserves some caution when applied to the eastern Andean flanks. As I have repeatedly pointed out, the resources caravans depended on for their logistics are quite abundant in this area, creating a number of alternative positions for routes, campsites, and rest places. Even in the face of topographic restrictions (e.g., mountain ranges) caravans seem to keep their choices open. For example, except for extremely constrained situations, it is common to find several alternative mountain passes in close proximity, all of them with associated trails and indications of use; some of them may be less convenient than others, or may force travelers to take a detour to get to the same destination, but they offer alternatives that drovers can resort to in case of need. Given these possibilities offered by the environment, and taking into account the great flexibility that characterizes caravanners' actions, it seems unlikely that the localized control that communities or polities could exert over their territory would empower them to control traffic or the strategic action of
caravans that did not belong to the same political formations. I should stress that the situation is very different in the western flanks of the Andes.

States or empires obviously escape this conclusion, since they usually control larger territories and have other means of coercion at their disposal. It should be pointed out, however, that even the control exerted by the Inkas over their territory, particularly in provinces distant from the core, may have not been very thorough, leaving many "interstices" where independent traffic could continue to flourish. Probably this is even truer for the Tiwanaku polity.

**Network Configuration**

The various attributes grouped under this heading should be very sensitive to a number of aspects of the macro-organization of traffic. The relative segmentation of the network can be an important attribute to differentiate between "open" and "closed" complementarity systems, e.g., archipelagoes or ethnic economies vs. Altiplano mode or perhaps circuit mobility. Network convergence can put in evidence centralization phenomena related to political or economic control of traffic that, in principle, may cross-cut those models.

The importance of direct evidences of moving caravans for the reconstruction of networks are obvious. One way of doing this would be to search for the routes themselves and associated locations (overnight campsites, rest places). The frequency and intensity of use of trails conducting to various nodes or the number of links among main routes and circuits could be useful ways of monitoring relative convergence and
continuity. This strategy, however, would demand the systematic collection of data over very large areas.

Another way of approaching the problem is to focus on the relative abundance, diversity, and distribution of non local items in different "nodes," e.g., caravanners' residences, extractive loci, articulation points. Non local items at caravanners' residences would provide a first approximation to the scope of the trade network in which they are immersed. When exchange systems are closed, as in archipelagoes or "ethnic economies," networks are segmentary, assemblages should be similar in all the nodes of each segment, reflecting direct reciprocity as the basis of the system, or would tend to be more diverse at the seat of ethnic power if redistribution is the main integrative principle of the system. Maximum convergence (diversity) within the system would be expected if traffic is largely controlled by elites or political institutions through attached specialists.

In the case of intensive involvement in independent trade within open systems (e.g., some scenarios of circuit mobility), caravanners' residences – further marked by their association with herding and other functional attributes – should have higher assemblage diversity than many of the articulation points they connect along their routes, reflecting the convergence of a number of circuits on their home base. Continuous networks like this, however, would also create assemblages with high provenience diversity in other nodes, e.g., specialist communities that supply a number of agents of traffic, or large population or political centers that "attract" multiple circuits. Probably the best indicator of open, continuous, and unregulated traffic, then, would be a high variability in diversity rates and provenience compositions among the assemblages.
associated with different nodes. Certainly, more than one mechanism may act simultaneously, creating further complexities. e.g., Tiwanaku may have centralized unregulated circuits from a continuous network and from sponsored traffic in charge of specialized caravanners attached to the elite.

In practice, absolute provenience diversity may be impossible to estimate (e.g., due to differential preservation). But limited comparisons within certain artifact categories (e.g., lithics, ceramics, metals) may give useful approximations to network configuration.

Like in the case of residences, refuse found in overnight stops will be dominated by items caravanners acquire from other groups (except for pastoral products). Since these sites are the accumulated product of many short occupations, involving multiple groups carrying diverse items under changing conditions, it is better to interpret these materials as indications of the scope of the traffic networks in which the route may have participated in different periods, instead of attributing them to any particular group that may have used it.
CONCLUSION

I have argued throughout this monograph that the archaeological remains left by ancient caravans can offer an important line of evidence for the study of prehistoric political economy in the Andes. In order to take advantage of this possibility, however, two issues need to be better understood. The first one concerns the archaeological correlates of this activity — how do the remains of past caravans look like and where can we expect to find them? — the second one refers to the interpretation of this record — how did various aspects of the socioeconomic context of ancient traffic get mapped onto these remains? The research reported in these pages has addressed both issues through the analysis of trade journeys with llama caravans and other related practices among present-day specialized pastoralists or llameros in the southern Bolivian Altiplano.

The study indicates that most remains left by moving caravans are small and widely scattered, although in certain conditions they may form distinctive accumulations that archaeologists can detect and interpret. When combined with relevant information from more permanent forms of settlement, the data from these sites may turn out to be crucial for assessing alternative models of zonal complementarity. Probably the most important information this record has to offer, however, can only be obtained from the analysis of a great number of these inconspicuous remains systematically collected over regions that largely exceed the size of the spatial framework in which archaeological practice commonly takes place. The study of ancient caravans, then, will demand special research designs and different techniques of data recovery and analysis. The reader may find in these pages some useful guidelines as to how such a project could look like.
Some of the correlates I have proposed may seem ambiguous for those who are used to deal with richer kinds of evidence; others may turn out to apply only in terms of relatively weak "tendencies." I am convinced, however, that all these thin strings of evidence can be brought together to build – borrowing Wylie's analogy – very strong inferential cables with which we can explore the organization of ancient political economies. Expanding our inferential possibilities in this way seems crucial if we are to use the archaeological record to make an original contribution to this area of inquiry.

Tilcara. Fall of 2000
ENDNOTES

1. For this reason, Andean pastoralists cannot be considered nomads. Some authors even classify them as semi-sedentary (Inamura 1986:181).

2. It should be emphasized that these expectations do not apply to caves and other natural shelters that were and still are intensively occupied by herders, but respond to different short and medium-term patterns of use and are subject to distinct natural formation processes.

3. It should be emphasized that a better understanding of the archaeological correlates of temporary migrations seems extremely important at this point to make progress in the study of prehistoric complementarity practices.

4. This correspondence assumes that communities settled in each one of these units – and without seasonal access to the others – would tend to diversify their productive base as much as they could within their own territories.
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