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ANTHROPOLOGY

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THE ECONOMIC ORGANIZATION
OF THE INKA STATE

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Part One

Chapter I

Agriculture

Ecologically, the territory of the Andean republics seems one of the least likely homes for man: the coast is a true desert and the highland plateaus are very high, dry and cold. And yet, over many centuries the people of the region have shown their ability not only to survive in such circumstances but also to create a series of civilizations which wrung from the environment the necessary surplus to expand and flourish. On the coast, agriculture was made possible through irrigation; and in the highlands a series of crops was evolved that allowed survival and more.

Major students of Andean history¹ have emphasized the cultural unity in space and through time of Bolivia and Peru, coast as well as highlands. In spite of the deeply dissected terrain and the wide differences of rainfall temperature, altitude and vegetation, they see a historical continuum: time and again the separate valleys were opened to cultural influences from the outside; at different dates both before and after our era similar ceramics and religious motifs are found widely distributed throughout the area. Artifacts from Chavín and Inca, Tiahuanaco and Chimú are excavated hundreds of miles from the point where first elaborated, blended with local traditions and sometimes drowning these out.

Nevertheless, an examination of the very developmental schemes these authors suggest² will show us that the high plateaus of the Titicaca basin were an area apart during the earlier periods of Andean history. And it is just this area which, long before the Tiahuanaco and Inca expansions, made the most basic contributions to the possibility of civilizational development in the Andes: the domestication of the llama and of a whole series of high-altitude, frost-resistant tubers of which the potato is only the most celebrated.³

Geographers and climatologists have made detailed field studies of soils, rainfall and temperatures, vegetation and the effect of high altitudes at tropical latitudes.⁴ Various climatic and vegetational zones have been distinguished from the desert coast to the rain forest of the Amazon, passing over the tundras of the high Andes. For the purposes of this study, the most characteristic zones are the

altiplano or *puna* and the *quishua* or *sierra*, which blend into each other and together form the significant environment for the growth of Andean civilization.

The *puna* is a high, cold and dry steppe beginning as a narrow strip at about 8 degrees south latitude, which widens toward the Titicaca basin, to shift eventually into the salty, uninhabited reaches of the Atacama desert and western Bolivia. Most of it is too high for agriculture or any human habitation although the occasional alpaca herder can survive and carry on at remarkable altitudes,⁵ and the hardy local crops sometimes seem worth cultivating even above 4,000 meters (almost 14,000 feet). Farther north, where the *puna* is narrower as the cordilleras draw closer, it begins at lower altitudes (3,400 meters, some 12,000 feet) and the rains are heavier, lasting six to seven months. The fodder provided between the *ichu* bunch grass is less satisfactory to the herds⁶ than it is farther south, where the steppe widens as the mountain chains open and the rains are spent in the east. Here the *puna* is drier; the rainy season lasts only three months or so, from December to March. It is also higher; it begins at 13,200 feet and the annual dwarf grasses among the *ichu* flourish to form the range which presumably was once the home of llama and alpaca domestication. Here and there the *puna* is interrupted by river valleys which become deep canyons as the waters flow west. At their bottoms such canyons are very hot and dry, much like the coast. The desert reaches up to 1,500 meters (5,000 feet) along the Mantaro and even to 1,800–2,400 meters, (5,900–8,000 feet) in the valley of the Apurimac, north of Cuzco.⁷ Above this limit, along the steep slopes and farther east to the continental divide, as one gets close to the *puna*, one enters a zone known today as the *sierra*. These are the slopes of the upper valleys and the more protected lower reaches of the *altiplano* where Andean agriculture (potatoes, oca, quinoa) can be practiced not too far away from the pastures. This is where population has tended to cluster in aboriginal as well as modern times. Rising with the altitude of the *puna*, this optimum also rises, 2,000–2,700 meters in the north, 2,300–3,300 in the center, to climb to 3,500 meters and beyond in the southern highlands. Some of the densest populations are and have been around Lake Titicaca, at more than 3,800 meters.

Most of this region seems uninhabitable to outsiders; the North American geographer James thought that only 1.2 percent of the Andean territory was used for crops.⁸ Human habitation has traditionally tended to concentrate in "pockets," of which W. C. Bennett estimated only six were of sufficient size to permit cultural elaboration.⁹ According to the geographers, it is no accident that the Cuzco valley became a major cultural center: the Vilcanota-Urubamba valley and the pampa of Anta form a fertile region, not too high (Cuzco itself is at 3,400 meters—11,200 feet), able to use some of the eastern forest's rains and the run-off from Vilcabamba's snows, thus having some water even for the dry season.

In the past, as population has grown and as the fortunes of power-wielders have changed, various ethnic groups have been pushed into higher and drier

reaches of the *puna*, until for many, agriculture became completely impossible; but ideally human settlement in the Andes envisages some access to both the protected warmer farmlands of the *quishua* and to the pastures of the *puna*. This was noted frequently by sixteenth-century observers for Cuzco, Guamanga or Arequipa,¹⁰ Jauja and Chuquiabo,¹¹ and elsewhere in the highlands.¹² In modern times, Weberbauer finds that the densest population is between 3,000 and 3,500 meters (9,400 to 11,400 ft).¹³

Thus, historically as well as in modern times, the *puna* and the *quishua*, the altiplano and the sierra, the tundra-like pasture and the high valley, form a unit and a single cultural life zone. Above them is the snow line and below the xerophytic shrubs and the deserts. To the east, the Amazon rain forest; to the south, the salty high plain with the inedible *tola* brush; to the west, the desert coast awaiting irrigation to come to life. In the middle of it all, the superficially bleak and inhospitable high steppe of the *puna* with the *quishua* in its interstices. "The lands of the eternal autumn," as a French traveler called them, have nevertheless managed to house and nurture some of the most exciting civilizations in the New World.

Within this unity of *puna* and *quishua* there are significant botanical, ecologic, and as I hope to show, cultural differences. Isaiah Bowman communicates an impression of this distinction in his description of a 1911 visit to the valley of Salamanca in southern Peru. As he started one morning up the slope, the frost line was "clearly visible . . . near the line of division between corn and potato cultivation." It was also the line separating the steep, rough upper lands, with the "miserable huts" and llamas in "rude corrals" from the well-cultivated fields below, with the stock inside stone corrals. "In half an hour we passed the frontier between the agricultural folk below the frost line and the shepherd folk above it."¹⁴

The important corollary of drawing this distinction is the separation of the truly Andean crops, like the potato, from pan-American warm-weather maize. At the upper tiers, the Andean root-crops—the potato, the oca, the ulluco—are the only ones at home. Juzepczuk found one wild species of potato blooming at 5,000 meters (16,400 feet); many of the cultivated varieties bear regularly at 14,000 feet. Without them human occupancy would be impossible because "half the Indians do not have any other bread."¹⁵ In pre-Columbian times they were the mountain peasant's staple food crops, so common in the diet that time was measured in units equivalent to a potato's boiling time.¹⁶ In the cold, high plateau around Lake Titicaca (known as the Collao) the European observers were surprised to find no grains and reported that the area depended on Andean crops.¹⁷ This did not condemn the Collao to marginality because the tubers, quinoa, llamas and alpacas were all apparently domesticated in this area.

Potatoes are the most important of the several Andean crops grown, not only because of their later worldwide diffusion, but also in the local context. LaBarre collected over 220 named varieties in the Collao alone and most of the names,

after 400 years of European occupation, show no trace of European influence.¹⁸ While some diploid varieties, which the botanists consider the more primitive, stick to the protected lower slopes of the *quishua*, most of the domesticated ones are true *puna* specimens (hardy, frost-resistant and closely dependant on man). In fact, the most resistant to frost, the bitter *luki*, are sterile triploids which will not grow below 2,500 meters, and cannot propagate themselves without human intervention.¹⁹ The large number of these hybrid, high-altitude varieties would indicate that throughout most of the history of human occupancy in the Andes, the pressure has been on taming the high *puna*;²⁰ the steep, lower slopes, which would seem more inviting on first glance, can seriously be utilized only when large-scale public works erect terraces and provide irrigation.

Elsewhere in the world, root crops cannot usually be kept for any real length of time.²¹ Some of the Andean varieties keep seven, ten and twelve months under *puna* conditions. In addition, several processes were developed which took advantage of the climate to increase storing capacity. Most potatoes could be made into *chuñu*, a substance resulting when tubers were alternately frozen and dried, soon after harvest. The slow ripening, bitter, high-altitude varieties are grown exclusively for *chuñu*, which can be kept until needed for much longer periods than the potatoes themselves. Unfortunately, it had not been possible in 1955 to determine exactly how long *chuñu* could be kept,²² though Cobo talks of "many years," and Volney Jones, an ethnobotanist at the University of Michigan, told the writer that some of it had not disintegrated after fifteen years at Ann Arbor. The process itself is closely dependent on *puna* conditions of cold nights, warm days, and a dry climate: there is no *chuñu* in Ecuador, which lacks a true *puna*, nor was Sapper able to make it experimentally in Germany.²³

While potatoes have this neat zonal distribution, maize is found on both highland and coast. This has masked the essentially warm climate character of maize; it requires a good deal of humidity and warmth and has a relatively long growing season. The Andean highlands are dry and given to frequent frosts; it is only in the *quishua*, and then not everywhere, that maize can be found. We still do not know exactly when maize reached the highlands. It was long before the Inca conquest, though it was probably after the domestication of the tubers. Even on the coast it was relatively late. Archaeology shows that it appears only after a thousands years of tuber, bean and cotton agriculture.²⁴ According to the carbon-14 dates available in 1955, corn was introduced around 900-700 B.C. in the Viru valley.²⁵ It is hard to think of its ripening here without irrigation, although archaeologists tell us that artificial watering does not begin until considerably after the introduction of maize. It is possible that corn was first grown in *pukios*, the sunken cultivation plots which use some of the subsurface seepage.²⁶ This early association, or lack of it, between maize and irrigation on the coast, needs additional investigation.

As one moves from coast to highlands, the situation is clearcut that in the Andes maize needs irrigation. It is a handicapped plant, (despite the adaptation of

certain varieties) because it cannot grow in the hot valley bottoms where we saw that the desert has a way of reaching up to 5,000 and even 8,000 feet along the Apurimac; nor can it give fruit above 9,000 feet in the north and 11,500 feet in the south, where freezing weather can be expected almost any month of the year.²⁷ Even in the remaining middle zones irrigation was considered indispensable wherever maize was grown even where there was no acute shortage of rainfall.²⁸ Garcilaso de la Vega tells us that “not a single grain of maize was planted without irrigation”; given steady watering and the use of fertilizers, corn fields were “like a garden.”²⁹ Irrigated fields need not be rotated or left to lie fallow. There is indication that the famous Andean terraces so laboriously constructed on the *quishua* slopes were meant to produce maize.³⁰

While irrigation is one of the factors making it possible to raise the upper limit of cultivation, it was rarely applied to Andean tubers. In part, this is due to the topographic characteristics of the *puna*, a high plateau, with the rivers flowing in deep gorges far below it. As Garcilaso put it, where irrigation did not reach “they planted grains and vegetables of great importance . . . called potatoes and oca and añus.”³¹ Cieza de León saw no irrigation in the Collao and most of our chroniclers similarly make no mention of Andean crops when discussing irrigation.³² In modern times, the geographer Schwalm, who did considerable fieldwork in the area, reports that irrigation and fertilizers were applied to maize, while potatoes were grown “de temporal,” depending on rain.³³ LaBarre tells us that in Bolivia, the high altitude *luki* varieties receive no irrigation, although some of the others apparently do get assistance.³⁴ Such rainfall cultivation means that lands must rest between crops. Schwalm reports that in the Collao a field was cultivated for four years and lay fallow for seven.³⁵ This coincides with what we have learned about the sixteenth century when “they only planted one year or two when they were given other [plots] and then still others so that the first could rest . . .”³⁶

While potatoes, in their hundreds of varieties, were the main high-altitude crop, other tubers like oca, mashua, ulluco, were and are still widely grown. They can also be preserved in *chuñu* form by freezing and drying. Only one grain crop, quinoa, is usually associated with the *puna* tubers.³⁷ Its grains and leaves were used for food and a drink. One of the varieties was archaeologically found in quite early strata.³⁸

Despite their adaptation and probable domestication in high altitudes even these crops failed frequently through hail, frost and drought. Polo de Ondegardo, who was for many years an administrator in the *puna*, claims that three years in five saw crop failures.³⁹ Cabello Valboa, an independent source, indicates that famine stalked the land in years when the potato crop failed.⁴⁰ At such times the peasants ate wild roots or grasses.⁴¹ Fasting, sacrifices and scapegoating were all employed in an effort to mitigate frosts and water shortages.

It is interesting to note that Andean crop rituals, particularly for the potato, had been sparsely recorded by our European sources.⁴² The ceremonial calendars

reported by them deal almost exclusively with maize. Despite the economic importance of tubers and the ritual surrounding their cultivation in modern times,⁴³ one gets the impression that sixteenth-century chroniclers saw no ceremonies meant to protect the potato crop. It could be, of course, that such absence of ritual indicates a lack of anxiety over a local, well-adapted crop. This is unlikely, in view of the elaboration of present-day potato ceremonialism and its similarity to the one early report to have broken through the chroniclers' lack of interest: only fifteen years after the invasion a parish priest allowed a potato-planting ceremony in his community. There was music and dancing with digging tools and some competitive behavior between the two moieties. A llama was selected and sacrificed; large seed potatoes were dipped in its blood; at this point, the priest interrupted the ritual. Soon after, Cieza de León came through the area and recorded the priest's story.⁴⁴ Chances are that such a potato ritual is as old as the cultivation of the plant.⁴⁵

We may be able to understand this lack of reporting if we note that in the oral tradition of Huarochiri, collected by the priest Avila, potato eating was considered *prima facie* evidence of low status. A raggedy beggar was known as *huatyacuri*, potato-eater.⁴⁶ In another legend, recorded by Cabello Valboa, the hero is hiding from his enemies among "very poor herders" who cultivate "potatoes, ulluco, other roots and grasses . . ."⁴⁷ In describing the *puna*-dwelling Colla, Huaman Poma calls them "Indians of little strength and courage, with large bodies, fat and tallowy because they eat only *chuñu*" and contrasts them with Chinchaysuyus (northern and coastal dwellers) "who although small in stature, are brave, as they are fed on maize and drink maize chicha, which gives strength . . ."⁴⁸ Like potato growing, potato eating was a peasant activity. Whatever rituals were performed by these cultivators took place at the village level, far from the eyes of our alien observers. It was only after 1600 that ecclesiastic authorities in Lima discovered that although formally baptized, the Andean inhabitants continued the practice of many traditional rituals. Teams of idol smashers were organized and handbooks of "heathen practices" compiled. It was then that we began to hear of tuber and quinoa ceremonials.⁴⁹

Our chroniclers would never ignore maize. Grain eaters themselves, familiar with corn in the Caribbean and Mexico long before the invasion of the Andes, they reported early and in detail on the pan-American distribution of this crop. Its absence in any given area was noted immediately.⁵⁰ Many of the chroniclers thought of maize as the Andean staple, which is clearly wrong given the ecological picture that Sauer has pointed out: "nowhere south of Honduras is maize the staple foodstuff it was further north"⁵¹ In most of highland South America it was grown primarily for beer-making and ceremonial purposes.⁵² In modern times, archaeologists have tended to emphasize the importance of maize because of the unifying distribution⁵³ between coast and highlands; and all of us have been intrigued with its domestication for culture-historical reasons. Botanists like P. C. Mangelsdorf have insisted that South America and particularly the Andean-

Guarani area was the locus of maize domestication.⁵⁴ The chroniclers communicate the feeling that maize was a desirable, special, and even holiday food as compared with potatoes and *chuñu*. A considerable effort was made, both technologic and magic, to insure its harvest. The gods and the mummies of deceased kings were "fed" on maize and the army expected it in preference to other staples.⁵⁵ It was felt that all hands should have at least some maize, even if they could not grow it,⁵⁶ so wherever populations lived too high up on the *puna*, they were provided with maize lands on the coast or in the montaña to be worked by colonists settled by the state.⁵⁷ Bernabé Cobo indicates that if the low-lying lands were close by, they were worked by teams sent from the village by the local headman; but if the distance was great (the coast) colonists and their families took up permanent residence in the new area. Such transplanted settlements remained within the jurisdiction of their traditional *curaca* and provided their relatives with corn, hot peppers, fruit and other tropical produce in exchange for llamas; *charqui* and *chuñu*.⁵⁸ One wonders if such contacts and exchanges in maize with the coast did not exist before the Inca conquest. It is likely that they took over the institution by expanding the maize-growing colonies and by incorporating the preexisting exchanges within their redistributive apparatus.

There is ample evidence of the state's special interest in maize. Garcilaso indicates that the state was interested in extending the maize-growing areas because the army was fed on corn. The Inca dynasty took credit for the introduction of corn in the Cuzco basin and referred to it as "the seed of the [Pacaritam-pu] cave" from which they were supposed to have emerged. Mama Huaco, the wife of the first king (according to dynastic oral tradition) is reported to have taught the people how to plant it. Ever after a plot near Cuzco, called Sausero, was devoted to the production of maize to feed the queen's mummy and her retainers. The annual cultivating cycle was ceremonially inaugurated by the king, who worked Mama Huaco's field with the help of royals. The harvest was later brought in under similarly august auspices. This work took precedence over cultivation of fields dedicated to the Sun, Thunder, and other religious entities.⁵⁹

The Sun had its own fields near Cuzco, which were worked by royals and religious personnel. Garcilaso refers to one such terrace, Collcampata, which was harvested early in the season in the midst of great celebration.⁶⁰ Inside Intihuasi, the temple of the Sun, the priests had planted a garden of maize which they watered by hand from jars carried on human backs. Three times a year they planted among the living cornstalks golden reproductions complete with leaves and cobs.⁶¹ The temple's maize harvest was kept in heavy silver storage jars, "when melted down they weighed 25,000 marcos," noted Estete.⁶² The meal ground from this maize, mixed with sacrificial llama blood, was shaped into dumplings. The *aclla* women

... gave every stranger a bite and they also sent them to the local shrines throughout the kingdom and to many lords as a token of confederation and loyalty to the Sun and the Inca. . . .⁶³

The state church and its priesthood had other duties in and around maize agriculture. In an area which has gone through the urban revolution but where crops are regularly threatened by an unfavorable climate, one expects not only a great deal of astronomic activity embedded in a magico-religious context,⁶⁴ but also state measures to communicate the information and to enforce the practices considered necessary to insure a surplus. Each year "the people" asked the gods if crops should be planted; "the answer was always affirmative."⁶⁵ King Pachacuti is credited not only with reforming the ceremonial calendar, but with the erection at the outskirts of Cuzco of several stone pillars to be used as a seasonal sundial.⁶⁶ The shadows cast by some of the pillars indicated the solstices, while others marked the beginning of each month. The main one was located at Sucasca, a hill close to the Chinchero irrigation canal, north of Cuzco, where one of king Topa's own fields were located. One of the pillars, Chiroa Sucasca, indicated the summer solstice, while Pucuy Sucasca warned of the arrival of the New Year, in watery December.⁶⁷

These sundial observations determined the beginning of agricultural activities—particularly breaking the earth, irrigation and planting.⁶⁸ It was believed that if one missed the right time, the maize crop would be in danger.⁶⁹ Priests were assigned to watch the movements of the Sun, the progression of the shadows, and to notify the peasantry of planting time. They also kept *quipu* records of past seasons, showing the succession of wet years and dry.⁷⁰ The same priests kept track of the appropriate dates for the religious ceremonies, many of which were inseparable from the agricultural calendar, and supervised the fasts and sacrifices which were offered each month at Sucasca to insure a good crop. They begged the Sun "to get there on time, to have a good planting season."⁷¹ A perceptive observer like Polo noted where the anxious rituals were more frequent:

it is good to notice that in rich lands abundant in food and cattle . . . there prevails more idolatry and superstition. . . . In the poor provinces like the Chirihuanas. . . . Diaguitas up to Rio de La Plata and many others which are poor and in need . . . they don't invest so much diligence and respect in superstitious religion nor do they have so many ceremonies. . . .⁷²

All this care and "floriculture" allowed the priests to bring maize to maturity on the islands near the sanctuaries of Lake Titicaca, at 3,800 meters, but one should not confuse such upper limits with altitudes where productive agriculture can be carried on.⁷³ Given the varied nature of Andean climates, the "right" calendar for Cuzco would not do for other altitudes and latitudes. One would expect astronomic observatories in many parts of the kingdom—unfortunately the sources report them mostly for the environs of Cuzco. In addition to the main one at Sucasca, we hear of one at Carmenga and another at Chinchicalla, southwest of the capital.⁷⁴ Calancha claims that on the coast people did not follow the revolutions of the sun or the moon, but the movements of the Pleiades⁷⁵ (there is very little on coastal agriculture in our chroniclers). Later in the agricultural year,

another group of priests, the Tarpuntay, fasted from the moment maize was planted to when the shoots were finger-high; their wives and children joined them in the fast.⁷⁶ Others conducted sacrifices at different critical points in the growing season asking the Sun, Thunder, or other deities to keep them young, insure the peace, multiply the people, and send rain to provide food.⁷⁷ Processions of armed participants, beating drums and shouting warlike cries were organized to chase away drought and frost which threatened maize more than other crops.⁷⁸ Once when a terrible frost in the Cuzco valley happened to coincide with the arrival of a large gift-bearing Opatari delegation from the montaña, the council advised the king to kill them all,⁷⁹ to appease the frost. Hail, who lived in a cave at Cirocaya, was also placated with sacrifices.⁸⁰

The role of the state in the cultivation of maize has been stressed in the preceding pages; however, this is not to say that the crop had been unknown in the highlands in pre-Inca times or that the peasantry never grew it. The state may have needed corn for military, bureaucratic, and ceremonial purposes, but the villagers also required it for a variety of uses beyond food. Village shrines were offered maize.⁸¹ At the end of the harvest a shrine would be set up to Mama Zara, Mother Maize,⁸² begging her to make the year's supply last and testing her reproductive strength. Distinctly different from the official, state procedure of "fighting" frost, the Andean writer Huaman Poma gives us the text of a lament recited by the people

... during frost or hail or if it be maize, when no water comes from the sky. Let them all ask God Runacamac for water, all covered with mourning, the faces blackened ... they should go about the hills weeping and asking for water ... all the Indians, adult males and women and children, raising their voices.⁸³

Life-cycle rituals were even more important. At the initiation ceremony of a peasant youth, when his hair was first cut and his name changed, maize, llamas and cloth were among the gifts offered him by his relatives. At marriage, the two families exchanged seeds along with cloth, spindles, pots and ornaments. Murúa specifies corncobs as gifts to the bride.⁸⁴ During the marriage service, Calancha reports, a vessel containing maize meal was heated,

... with much fire kindled by the pair, until the flame was high when the sponsor said now you are married ... nor should one be lit with the fire of love while the other is frozen, but that you should equal in love. ...⁸⁵

After death, cornmeal was sprinkled around the deceased. On the fifth day, the widow and other survivors would wash at the meeting point of two rivers, where sacrifices were also offered after sowing.⁸⁶ There, also, they tried to find out about their own prospects for a long life.

The village diviner would use maize kernels to find out the quality of next year's crop.⁸⁷ During illness or when disease was ceremonially expelled from

Cuzco, smearing the body with cornmeal and washing it off in the river was both a medicinal and purificatory rite.⁸⁸ A corncob thrown at a ghost was enough to make it vanish. All kinds of taboos on eating green corn, making chicha at certain times, the uses of cornstalks or leaves, which, even if not enforceable, reminded the peasant of the state's interest.⁸⁹

I contend that Inca not only cultivated two groups of crops grown in different climatic zones but also that these correspond to two systems of agriculture. One is old and autochthonous: the Andean highland growing plants domesticated in that area laboriously adapted to high mountain conditions, grown on fallowed land and dependent on rainfall. This is a subsistence agriculture practiced by *ayllu* members who became peasants after the Inca conquest. The other is newer, imported, and based on maize (essentially a warm-weather crop, clinging to the lower and protected reaches of the highlands and in need of irrigation, terraces, and fertilizers to survive in Andean circumstances). It may have been known to the *ayllu* members, but its large-scale cultivation became possible only when the state made it its own.⁹⁰

In such circumstances the cultivation of maize became a major ceremonial and state concern. It was planted in the ninth month of the Inca calendar, *chacra yapui quilla*,⁹¹ corresponding to August-September. Actual planting times differed according to altitude and other climatic and ecologic factors, being postponed in some places (particularly on the coast) until December. But in the Cuzco valley August-September was the right time and thus assumed the special features of a national event—much as the seeds and tubers from Cuzco enjoyed special prestige in the provinces.⁹² The planting season was opened by the king himself. On the appropriate day he went to the Sun's maize terrace and broke ground for the planting of the sacrificial grain with his gold-tipped *taclla*. One of Huaman Poma's illustrations shows the royal inauguration: the king is working, assisted by three royals to form the usual Inca quartet; an equal number of royal women are kneeling, facing the men, to break the clods, much as peasant women are shown on other pages;⁹³ a hunchbacked retainer is bringing refreshments to the royal workers. (These activities were accompanied by vigorous singing on a triumphal *hailli* refrain.)

Elsewhere in the country, the king's administrative representative (or the *curaca*) performed similar inaugural functions.⁹⁴ Plowing and planting could now proceed, similarly accompanied by songs, dances and feasts. Fasting, prayers and sacrifices were also recommended.⁹⁵ Molina of Cuzco reports a sung prayer asking the Sun to shine and insure the success of the coming growing season.⁹⁶ To the usual 100 llamas sacrificed by the state church every month, Polo adds 1,000 guinea pigs immolated at this time to avoid damage to the crop by frost.⁹⁷ Thus inaugurated, planting continued everywhere through the first months of the rainy season.

Similar rituals accompanied the harvest, which began after the end of the rains. Depending on local conditions, this could happen as early as *ayriway*,⁹⁸

the fifth (April-May) month of the Inca calendar. In most highland places crops ripened later, during *aymuray* the sixth (May-June) month. Thanksgiving ceremonies, begun the previous month, multiplied at this time. The official harvest began with the royal initiates of that year going to reap Mama Huaco's field at Sausero. Then they harvested the acreage of the cults (such as the Sun's terrace at Collcampata) and eventually the fields of the king and queen.⁹⁹ The harvest was accompanied by many sacrifices of llamas, fasting, grateful offerings for past crops and requests for future favors from the Sun.

At the village level, the crop was brought home amidst great celebration, men and women singing, begging the maize to last a long time. Villagers drank, ate and sang and for three nights kept vigil over Mother Maize (a shrine erected in every house) by wrapping the best cobs in the family's best blankets.¹⁰⁰ Fuller cobs, as well as twin ones, along with any vegetable or tuber of unusual size or shape were saved and never eaten. Huaman Poma claims elsewhere that twin cobs or tubers were an ill omen, as were human twins.¹⁰¹

The existence and survival of a socio-political structure like the Inca state depends on an agriculture capable of producing systematic surpluses beyond the subsistence levels of the peasantry. Potatoes could have produced such excedents and *chuñu* may have allowed their storage. However, the keeping quality of maize is superior to that of *chuñu* and stockpiling has been a preoccupation of states everywhere. It is also clear that stockpiling was not the only consideration in the minds of those who encouraged the surplus production of corn. The higher, semiceremonial status of maize made it a preferred commodity in the highlands. A ration of the rarer corn porridge meant more than a dish of potatoes to a conscripted soldier and a mug of crown corn beer acted as a morale-building dispensation in a society where patterns of reciprocal generosity were still operative, despite the hierarchies.

The contents of the Inca warehouses indicated this preference for maize. Of 287 references to storage by twenty-eight chroniclers, eighty-six deal with food.¹⁰² Nine are rather cursory ranging from Xerez's description of three to four years' worth of "food supplies" at Coaque, (on what is today the Ecuadorean coast) to such remarks as "crops were kept in warehouses and away from rats."¹⁰³ Of the remaining seventy-seven, twenty-nine deal with maize and seven with maize beer, thirty-six in all.¹⁰⁴ Seven more list *chuñu* and one mentions the scarcity of maize where "the warehouses were full of the things the land produces. . . many vegetables and roots . . . and also good herbs."¹⁰⁵ There is only one specific reference to potatoes in the warehouses, although along with oca, ulluco, mashua and other tubers they were the staple of most highlanders. Seven references to *chuñu* to twenty-nine for maize when describing the state warehouses, deserves some attention (but may be no more than a reflection of the ethnocentrism of the grain-oriented European eye missing the Andean crops, much as it had ignored the potato rituals).

The state's concern with maize and its acclimatization in the highlands must