The cultural life of early domestic plant use.
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Abstract: The social and cultural aspects of plant care and cultivation were investigated to contribute to the understanding of the origin of agriculture. The domestication process was accompanied by increasing social relationships and lineage development. Plants which were domesticated had special meanings and identities because of their connection to certain events, places and lineage groups. A number of cultural examples in South America demonstrate how women and their lineage connections are significant motivators for plant domestication.


This paper is a contribution to the on-going discussion about what is often called the 'origins of agriculture'. The literature has seen a broadening of perspective over the past 10 years. We have gained from these works and have reoriented much of our thinking about this societal transition. Nevertheless, there is still room to ask what cultivation looked like in the early days. What were the cultural settings that initiated these changes in plant-human interactions? We can gain further understanding about this transition by thinking more about the 'invisible' and the 'unstudiable', by trying to understand why people might have nurtured plants in the first place. This paper proposes that the domestication process was tied to intensifying social relations and lineage construction. Further, the suggestion is that the plants that were adopted early on had special meanings and identities due to their associations with places, events, and lineage groups, especially for women. The plants that accompanied people into new communities and placers were part of these groups' cosmologies and identity constructions. It is hoped that the individual plants themselves might give us clues to the past cultural changes that were taking place. Several cultural examples
will illustrate how women and their lineage associations are important instigators in the spread of plants and therefore were probably involved in plant domestication.

To address these questions, this paper focuses on the social and cultural side of plant 'mothering' and cultivation. Plant tending is biological but it is also cultural. At some point, people began to act and think differently about the world around them, including the plants and animals, which they had eaten since before they became 'people'. Why did people change their social, economic, and ecological practices? How did their perceptions of close and distant social interactions alter their relationships with plants and animals? The suggestion put forward here is that the creation of identity (and difference) at the personal, familial, and group level was a dynamic process which also underlay early plant cultivation. Gatherers and hunters began to associate and identify certain plants and animals with themselves. They brought the plants into their community to be cared for, like the people in their community. This process of changing relationships with plants (and animals) accompanied changes in the relationships between humans. We might benefit from looking at practices and interpersonal relations that are routine and repeated in most people's lives in order to see how the nurturing of new social relationships might have been linked to horticulture.

There are now many archaeological examples of early cultivation that suggest a low level of plant use for many generations, even hundreds or thousands of years, before agriculture became important in the subsistence base. These early cultivated plants were both local and nonlocal. Only some of these early cultivars, however, grew to dominate agricultural assemblages (Johannessen 1988), shown by the evidence along the coast of Peru and the western coast of Mesoamerica (Hastorf 1998). While the dominant, carbohydrate plants later came to support surplus and hierarchy (Johannessen 1993; Welch & Scarry 1995), the early propagated plants were not carbohydrate, staple crops; rather they were medicinal, industrial, spicy, hallucinatory or merely exotic. Our problem is that if the earliest plants are not exotic, morphologically altered or densely deposited, archaeologists have not been able to recognize and identify agriculture in the archaeological record. It is argued that some early sedentary sites were pre-agricultural, but they could have been intensely horticultural, dealing with plants that did not have the physical changes that we normally assume to be required in the definition of agriculture (Bar-Yosef & Belfer-Cohen 1989). Places like the desertic Peruvian coast, where virtually all cultivated plants are foreign, make such a subtle artefactual event
more visible to archaeologists, and it is here that we see spicy and industrial plants being nurtured first, at a low level and for a long time (Hastorf 1998; Pearsall 1992). Because there are no clear topographic barriers that created the pattern and tempo of plant entry, it leads one to ask what it was about these plants that prompted the local inhabitants to begin cultivation, and why it was these specific plants that were brought in first.

The concept of cultivation is extremely old, learned from living in the forests, shrub and grasslands long before the occurrence of domesticated species. At some point groups began more actively tending and moving plants around, perhaps only as a small part of the diet, perhaps only for ritual or industrial use. While some plant taxa react to human action with morphological change, many plants were used regularly without visible morphological change for thousands of years. Why did some plants get more attention by people in the first place, and what were the cultural settings that encouraged new plant cultivation? Farrington & Urry (1985) suggest that it was spicy, flavourful plants that were first brought under cultivation and harvested in order to mark certain meals as special. Their model fits well with the older theory that some annual plants, such as peppers and gourds, could have been domesticated in the nearby middens of returning foragers. This is the dumpheap model proposed by Anderson (1952) which states that if plants were notable and conveniently located, they could have been easily tended during the return to previously inhabited camps. There is a powerful dimension of territoriality in this model. In many settings, however, it was probably the case that the earliest plants to be adopted were from far away or could not have grown easily on the midden heaps.

Taking the Farrington & Urry idea a step further, these early cultivated plants, used at a low level for many hundreds of years, were adopted (into the family) because of their special meaning and significance to the foragers. The specialness of certain plants put forward in the Farrington & Urry model results not only from their tastiness, but also from the plants' roles in family life.

Models for the origins of agriculture

Models explaining change have always been open to criticism in the social sciences. Systems theory and the deviation amplification models (Flannery 1968; Hill 1977) or (cultural) evolutionary theory as a gradual progression (Fried 1967; Blumler 1996) have been considered too mechanical and essentialist. Even popular models for political change like the structural Marxist models for state development (Friedman & Rowlands 1978) are guilty of the prime mover critique that
change results only from structural contradictions or from within the relations of production. The same criticism is seen also in the critiques of structuration theory (Turner 1984; Treherne 1995). Chaos theory, for example, has been put forward to be less unilinear, but even these models have been hard to implement archaeologically (Van der Leeuw 1989). Similar problems beset theories about agricultural 'origins'.

The environmental change model for the Near East has quite successfully provided clues to the necessary conditions for certain types of agriculture, and these conditions are relatively independent of human will (Childe 1954; Wright 1970; Byrne 1987). Important environmental influences are seen in the recent pollen evidence from the Near East and South Eastern European Neolithic, that detects the Younger Dryas climate change (Wright 1993; Moore & Hillman 1992; Hillman 1996). Such information is, of course, very important in constructing the ecological setting within which people acted. In the Old World, certain grasses moved into the Fertile Crescent region due to changes in climate and seasonality. But there is increased acceptance by researchers now that nature and culture were equal players, interacting with each other in non-linear fashion', a la Sauer (Blumler 1996: 26).

When we try to imagine the past, we must remember, as Ingold (1993) has pointed out, that people were 'playing their part' in the on-going transformation of the natural world. People lived with their fellow plants and animals, not just among them. The whole world was a garden in the sense that humans participated in all parts of the ecosystem, thinking themselves into their place in the world.

Many of the prominent models about agricultural origins concentrate on the major cultural changes that took place at about the same time. The most common have been population growth (Spooner 1972), demographic shifts (Binford 1968), the existence of permanent settlements (Braidwood 1960) and trade (Flannery 1965; Renfrew et al. 1966). Further models and conditions with a more ecological orientation are the ecosystemic approaches, including the Darwinian biological models of biotic interactions (Rindos 1984), ecological plant-human interactions (Zohary & Hopf 1988; Hillman & Davies 1990; Blumler & Byrne 1991), the requirement of a broad base of potential plants and animals that can be domesticated (Sauer 1952; Harris 1969) and plant characteristics that lend themselves to morphological change by human manipulation (Hather 1994; Johns 1989). All models offer clues to understanding human-plant changes.

Most agricultural models and investigations focus on when
farming begins to be visible in the archaeological record and on the accompanying social and political dynamics. My point is not to offer a critique of these models, for there are useful insights in each of them as well as many recent, eloquent advances and critiques (see Harris 1996). Rather, the point made here is to add another dimension from a slightly different standpoint and reorientate our views on the cultural impact within such a shift, beginning with the daily practices and reasonings of the people who were involved with local and exotic plants. We want to pause at the early days of alteration and focused use to consider what the people might have been doing, thinking and desiring when both plants and people altered their ways.

A helpful beginning is presented by Bender (1979) and Hayden (1990), who suggest that the early manipulation and cultivation of plants were part of the economic and political escalation involved in inter-group relations. Their discussions gravitate around the idea that people adopted and cultivated crops because of an increased interest in political activities (alliance-building feasts) and exchange between groups. They assume that agricultural surplus would provide ways to gain exchangeable goods. With increased access to valuables, groups could regularly operate in a larger social network through exchange of those goods. Hence, people would be interested in producing more for the group's greater benefit, in an acquisitional mode (Helms 1993). Such agricultural escalation also has been linked to an increased desire for intracommunity competitive public display, alliance building and construction of group identity through feasts and food gifts (Young 1979). These political acts would probably be initiated by important families, leaders or religiously inclined persons, keen to introduce plants or to encourage the cultivation of crops once they were present for trade and political ends. This political-social perspective is essential in models of the growth of visible difference, hierarchy and surplus. Not every horticultural act became expansionary and surplus-generating, however. Starting from these gift-giving, feasting models, we can move closer to the social dimensions involved in becoming a cultivator.

Another view

Beginning with the characteristics of some members of the plant kingdom and the factors that might have contributed to new plant-human relations, we can benefit from a more social-cultural perspective towards agriculture. Such a perspective of early agricultural societies includes the importance of familial and social interactions. It highlights kin/clan identity as
participating actively in plant domestication.

Despite our need for routines, we should remember how creative and experimental humans are. We have always been tinkering with the world around us, even in our routinized lives. Part of our culture is the changes that occur all around and within it. With in this same perspective about how culture is transmitted Wagner notes that 'every cultural act . . . involves the interplay of invention and convention' (Wagner 1975: 45). Hugh-Jones (n.d.: 2), applying this to Amazonian groups, further suggests that smaller-scale groups try to 'create their universe of innate convention by constantly trying to change, readjust, and impinge upon it, in an effort to knock the conventional off-balance, and so make themselves powerful and unique in relation to it' (Wagner 1975: 889). If your world is a forest you will not only learn its patterns, sounds and constraints, but also you will continually alter it and cause changes to living things within it. Scholars like Balee, for example, suggest that the plant distributions seen in tropical forests today are due to human tinkering, nurturing and transport (Balee 1989; Denevan 1992). Such plant distributions are the result of many years of people carrying clippings, root stocks or seeds as they hunt, visit relatives, go on trading trips, journey to new territories or simply place plants where they are more useful to people (Shipek 1989). There are many examples of foragers who not only nurture all that is around them, but also actively manipulate the ecological zones to aid the human use of local plants.

Shipek (1989) provides an evocative example of such a sustained interaction over many generations without 'agriculture'. The southern Californian Kumeyaay's impact on the many plant communities throughout their territory was great, yet they have been considered foragers, as they 'only' harvested and hunted. In their 'foraging', the Kumeyaay moved many plants near to their dwellings (including trees and cacti that are considered extremely difficult to transplant), nurturing and harvesting them for a whole range of personal uses, including aid in warfare. Shipek is correct in stating that their intensive interaction with the plant world offers an effective model for understanding aspects of domestication (1989: 160). In their activities we see a broad-based, on-going nurturing of the plant world as the Kumeyaay interacted with staple and starvation foods, as well as plants for tool-making. Despite their foraging label, the Kumeyaay introduced and planted foreign plants and probably domesticated at least one local grass plant that displayed morphological change before it faded into extinction with European contact. Their level of plant knowledge was incredibly extensive, sufficient for a
domesticated world, had they chosen to live in one. Instead, they chose to let nature do most of the work for their needs.

The social girl

The essence of human social life is exchange (Mauss 1990). Not only do exchanges create a cycle of debt and a built-in mechanism of obligation for future interaction, they also define the boundaries of social groups, between the giver and the receiver. Exchanges of partners between communities and lineages is perhaps one of the earliest exchanges. To keep the channels of interaction open between these rare events within one human life-span, more regular food exchange would have been an important medium. Often these gifts become codified, by event, by class of item or by relative value. In some settings, giving is highly regulated and sufficient accumulation may take many years, as in the exchange of wives for pigs in highland New Guinea (Rappaport 1969), or the giving of cumbi cloth to local leaders by the Inka rulers when new groups 'joined' the Empire (Rowe 1946). In most settings, gifts are less expensive, such as foodstuffs and spices, fish or manioc in northwest Amazon (Hugh-Jones n.d.), wine or flowers taken to a European dinner party.

Intra-family and inter-family gifts create and maintain alliances. Archaeologists have focused most often on the presence of non-local goods as indicators of trade and alliance building, primarily because such goods are visible in the archaeological record. It seems likely, however, that most gifts were of things that people had fairly easy access to and with which they were familiar. Such items or actions are the most invisible in the archaeological record, like stories, dances, songs or things made of plants and animals; even just the plants themselves. Dances and songs we cannot do much about, but transported plants are common in the archaeological record. For example, the results of regular small-scale exchange activity are seen in the distribution of chilli peppers and tobacco. These spread from their loci of domestication throughout the New World, across political and cultural boundaries, prior to European contact. Such non-staple spices and drugs were the most wide-spread plants in the pre-Columbian New World. Wherever chilli and tobacco have been found, however, they had a significant meaning to those using them. While they were often used in rituals, they are almost never the focus of paleoethnobotanical study.

Food or food-stuffs have probably been the most common gift item throughout human (pre)history. Since food is culturally constituted as well as biologically necessary, these exchanges are
almost essential for family existence as well as group identity and social acceptance. It makes sense to think about food being the basis of social life and ritual.

Plants

Plants were part of the social world from the start. All societies have names and meanings for plants in their surroundings, for their uses, their characteristics, for plants' reactions to humans and for their seasonal life-cycles. Plants, like humans, have their own time-scales of growth. Annual plants, with faster life cycles, are considered to participate more in the social world of interpersonal relations, because people can see their growth more clearly (Rival 1993). Because of their intimate relations with humans, plants become linked into wider structures of meaning that help people navigate through their natural and social worlds (Ortiz 1994). Many ethnographies elegantly demonstrate the symbolism and intricate classification given to plants and how plants are related to social groups (e.g. Balee 1994; Hugh-Jones 1979; Weismantel 1988). Such meanings are hard to contact from the deep past, but if we keep in mind that these meanings would have been present at the beginning of symbolic thought, perhaps we can use this concept to place plants more centrally into the social world of past interpersonal relations. Since every plant was chosen and brought to the hearth, in order to be eaten, every plant was altered in some way every time it was harvested for any use, and this had to be thought about. The thoughts and meanings associated with these actions are the places to seek the cultural beginnings of domestication.

Women's plants

At most times and in most places in the world, it was almost certainly women who, if they were not collecting, were actively channelling the consumption of the plant food to their families. Thus, women would have been intimately and continuously involved in the activities that led to plant cultivation (Watson & Kennedy 1991). It is not surprising that, in foraging and horticultural societies, most staple crops are associated with women (Hugh-Jones 1979; Kahn 1986). Women reproduce humans and crops. But women do not operate alone; they were and are embedded in their families, residence groups, lineages, societies and their 'natural' world. Women had at least two sets of offspring, the plants in their gardens and the children in their houses. Decisions about who, what and when to nurture were at the base of a women's daily world. Because many living things could have been in competition for a woman's time and nurturing, tensions might have arisen in allocating their time and
energy, as any mother knows. Women would have tried to organize the scheduling of their daily tasks by helping the plants help themselves, in the same general manner that mothers help children learn. This pressure might have led to transplanting near the home-base. For these same reasons, women may have selected plants that produce at certain times or in new places in the environment. Such nurturing was on-going and from it developed kitchen gardens, as sedentism increased. House-midden gardens are probably a very early and long-lived phenomenon (Doelittle 1992). Women built their families as well as their social worlds with every meal they produced.

Ingold identifies the essence of domestication as the constant human involvement with fast growing plants (1996:21). In the same way, it is the constant involvement with children that brings children into the cultural world of kinship relations and society. It is this constant and recurring interactive social dynamic as much as the need for food that encouraged women to monitor, pick, weed, water, watch, trim, tend and replant plants. These regularly performed nurturing actions were culturally constituted as well as culturally constructive. 'There is far more to gardening than the mere production of food, just as there is more to a song than the production of notes . . . But for practitioners, growing crops and raising animals are not just ways of producing food; they are forms of life' (Ingold 1996: 24). The lived social values of a group, the act of creating and rearing things and the curiosity and experimentation within an ecological and social world all channelled women to become the domesticaters of plants and people.

We see hints of this same idea of nurturing put forward by Watson & Kennedy (1991). They suggest that women gatherers first initiated the cultivation of plants in North America through their tending of wild taxa in the daily rounds of food and medicine gathering. In their approach, domestication was initiated without overt political leanings, with women as plant nurturers instigating the morphological and genetic changes in plants we associate with domestication. They suggest that the art of domestication was not an economic behaviour.

Plants at the root of the family and its social identity

Daily plant and child tending and growth turn into longer cycles of maturation and family development. Reciprocal exchange relationships form and reform society on a daily basis. For example, in small-scale exogamous societies, if women changed communities or even just kin groups when they married, plants that accompanied them would enter the diet of the new families.
If certain plants reminded them of their own families, ritual-events and lineage-places, women may have wanted to have these plants with them to maintain those bonds symbolically as well as physically through nurturing and consumption of the specific plants. With such plant movement, we can begin to envisage how some plants might have moved across the landscape in social ways.

To pursue further this idea of the key participation of plants in social relations and the formation of group identity, I would like to discuss some ethnographic information on the social relations of horticultural practices. Women and men foragers are constantly collecting and experimenting with plants for future consumption, for spicing foods, for tools and for medicine. These plants are used not only to nurture a family but also as potential gifts in exchange with neighbours and kin. Women are the primary experimenters and collectors of plants in the Barasana of northwest Columbia, a foraging, swidden farming group (Hugh-Jones n.d.). Women constantly bring back cuttings during foraging trips as well as exchanging plants with friends and kin, thus adding to the local kitchen gardens that surround their houses (Hugh-Jones pers. comm.). These plants are not all domesticated, but they are all nurtured. Such plants are not only for food, but are also for medicines, contraceptives, drugs (especially tobacco), as exotics, and used for containers (gourds). Gardens evolve through time, with species added from near and far. Each new plant comes with a personal story and a social relation.

Besides their own collected plants, Barasana women are involved in tending specific varieties that they inherit. These plants embody the family. Gourds, with their long vines of fruit, represent a lineage, with its sequence of daughters and sons. In addition, and especially provocative given the archaeological evidence for early peppers on the coast of Peru (Hastorf 1998), Hugh-Jones notes that certain chilli pepper varieties are inherited within female lineages; certain shapes and flavours are associated with certain families. Chilli peppers, representing individual kin lineages, are a symbol of a family. Peppers are also the binding agent of male (fish) and female (manioc) meals (Hugh-Jones 1995: 231). Further, with explicit sexual connotations attributed to their procreative shape and their spicy nature within the meal, they have multiple levels of meaning.

Today, in the northwestern Amazon, special crops, along with their associate-symbolic meanings linked to the origin myths of their ancestors, are passed down through each woman's family
line (Hugh-Jones pers. comm.). When the women cook and feed peppers to their families, every consumer is brought into association with the lineage. Specific varieties are associated with specific female lines, and it is the stock of the plant that embodies the lineage. Neighbours recognize each specific variety as a specific family's plant, with all of its connotations. To walk through a woman's garden is to view her daily life, her ancestral lineage and a history of her family's social relations.

This same type of intimate ownership, tending and identity is also described by Shipek (1989) for indigenous southern California residents. Certain nut-producing pine groves belonged to specific bands and families. The Torrey pine, for example, belonged to a lineage group who tended and guarded it (Shipek 1989: 163). This particular band was called Istaguay 'trees are there', as their identity and uniqueness from their neighbours was tied to that tree and its location (Shipek 1989: 163). Many trees, cacti, and other perennials in that area are selectively located near late prehistoric sites. While we do not think of these taxa as being domesticated, in part because of their long life-spans, often longer than a human life, they were planted near settlements and nurtured. The evidence for these activities is still present on the landscape. These 'foragers' in California planted a number of tree species: oak, mesquite, plum and palms, across the landscape. The trees participated in identifying their territory as well as nurturing their families with food and supplies (Shipek 1989: 163).

Domestication

Hodder (1991) has addressed the question of how domestication developed in Europe by suggesting that people first had to create the concept of domestication before domesticating activities could take place, or at least before people recognized domestication. The physical and social development of the family and kin-line were active ingredients in initiating the concept of both domestication and territoriality. An association with a plant, a tree or a place on a stream probably developed through using the plant or place regularly or in special ritual time (Ingold 1996: 21). Involvement linking things, actions and beliefs would incorporate them into a family's collective memory and lineage; in other words these things were 'becoming domesticated' in a family and its memory. Such interaction could include clay, springs, annual or perennial plants and where they grow, animals, trees as well as landscapes.

Not all actors would have wanted to alter the world in which they lived, but instead to maintain the it. But just through use, changes
occur, and some of these left visible traces in the ecology and artefacts that are seen today. The timing of these changes has been most often tied to the visibility of certain things, such as architecture, long-distance trade items or morphological changes in plants. This problem of visibility in the archaeological record may have created a misguided view of domestication when looking at the initial roles of plants in agriculture and horticulture. One important aspect of domestication is territoriality.

How did people increase their involvement with the landscape such that they began to see it as a territory, and why did it happen when it did? Areas of increased interaction with plants perhaps became initial territories within the landscape, like the tree groves of the Kumeyaay (Shipek 1989). Plants and their locales would have been associated, like the Barasana lineage plants, with specifically meaningful interactions. By nurturing certain plants in an area, a location could become associated with certain people and groups. In this case, it is most likely the slower-growing, 'undomesticatable' plants that linked to territoriality, rather than the faster-growing, flexible annuals. Such a view of prennial plants involved in the concept of domestication is the opposite to what is often suggested in domestication models, but not unreasonable when linked to territoriality (Rival 1993; Ingold 1996).

The social meanings and accompanying uses of plants in their locales, perhaps even more so than animals which are mobile, would have created the conditions for named territories, and thus would have been active in domesticating space. Accompanying this sense of place and territory is its opposite, the creation of a sense of those not participating, as with neighbours who are not part of the lineage.

Inter-group relations

Current evidence from Amazonian forager-farmers suggests that inter-group relations are wide-ranging, due to exogamous marriage patterns. Plants are brought back following periodic visits to kin or while on hunting and gathering journeys away from home-base villages (Hugh-Jones pers. comm.; Posey pers. comm.). Planted near houses, along local paths and in kitchen gardens, such plants include, medicinal, magical, industrial, mind-altering, sweet and spicy food plants. Amazonian communities have specific plant varieties (like pineapples or manioc) that are associated with this specific group identity (Hugh-Jones pers. comm.). Such plants are processed specially and consumed at feasts. When feasts occur, such lineage plants
are transformed into fermented beverages to reflect the special
worth of the plant as well as to represent the essence of the
group. As group markers, close neighbours use different plants
that are also elaborately processed for their own feasts. Thus
lineage and community plants signify specific groups across a
region (Hugh-Jones pers. comm.). Plants therefore move with the
people, and help them to create their rituals, renew their social
ties both past and present, as well as differentiate themselves
from their neighbours. People who live with plants use plants in
their identity.

Social identity also can be associated with individual plants,
foods and food preparations. As individuals and families begin to
identify with a group, they also begin to identify with certain
food-stuffs and cuisine dishes they eat together (Appadurai 1981;
Douglas 1984). The meanings of these food presentations
become associated with people, events, places and the times they
are consumed. From this we learn that foods and their associated
activities can be social markers used in group affiliation.

Food use can separate one group from another, not only in foods
that are feasted but also in fasting and taboo patterns (Kahn
1986). This is most commonly done through self-identification
with a food item and its preparation; one Amazonian group has
maize beer at their feast, while their neighbours feast with
manioc (Hugh-Jones pers. comm.). Once certain foods become
established as special ceremonial or elite foods, cultural and
political differences can be negotiated and accentuated through
this 'special' food preparation, presentation and access (Hastorf &
Johannessen 1993; Welch & Scarry 1995). An example of this is
how the Inka state used maize and its preparations as the
symbolic food of the empire, linking the plant to the state deity,
and presented at every political and religious gathering.

The adoption rate of plants in early archaological sequences
should shed light upon how groups were interacting with nature,
as well as amongst themselves. Rates of plant uptake also reflect
local identity development and the social and political changes
involved in the desires of a group to associate with or to
differentiate from their neighbours. Tracking this interaction
should help us begin to understand why plant domestication
became visible when it did, and thus opens up the idea that such
processes were going on for a much longer time than we
normally attribute to plant domestication. In this process of food
collection, production, lineage creation and group identity
formation, some groups remained balanced in their sharing and
exchanging with little change over many years, while other
groups became expansive, initiating more regular and delayed exchanges of people and gifts. Some plants did not shift morphologically nor did they become staples, while others changed noticeably. Such more complex use patterns might be visible in the archaeological record if looked for on a smaller scale of analysis or from a different approach.

In sum

By focusing on the cultural events and the social reasons involved in the process of becoming cultivators, we are dealing with some archaeologically invisible actions, motives and ways of being in forest, shrub and grass land. As is noted here, it is hoped that there would be some windows into these invisible transformations through a new look at plants and their distributions. Cultivation occurred in many places and at many times in the same place. In some situations, such as Mesoamerica, this activity remained steady for long periods of time, continuing up into the present. There are also situations where agriculture increased and then decreased as in the American Southwest (Hohokam) or the Amazon Basin. In some settings agricultural uptake focused on several intensive crops, as in the Near East, where annual grass cultivation became a very dominant practice as the grains were morphologically altered (Hillman & Davies 1990). In other locations, such as the coast of Peru, agriculture was present for a long time without becoming the dominant subsistence base. Each of these trajectories, while influenced by local environmental conditions, was also channeled by the structures and intensities of socio-political relations within and between kin and community. The shape and tempo of foreign plant uptake relate to the character of the society being viewed in each case. It is up to us to look at these patterns in new ways and then perhaps we can make new knowledge about the past more visible.

The ethnographic examples discussed here illustrate the essential ways food plants (and animals, though their part in the equation is not discussed here) participate in creating the female self and the family lineage, in addition to group identity. These social concepts are defined through repeated use of plants with their associated meanings, remembered in each use. The act of caring for plants is not unusual, but the actual plants that are brought in and integrated with human lives should give us clues as to their roles in creating social entities. By thinking about the meanings of archaeological plants in the way suggested here, we should be able to get a closer view of past daily practices, social relations and the causes for the spread of agriculture. The earliest plant
characteristics were flavourful, spicy, sweet, industrial, hallucinatory or medicinal; but equally important was their participation in the routines of defining society in daily life.

While my main entry into this discussion has been with South American information, I hope that some of these ideas can be helpful in other settings. The Amazonian and Californian material suggests that active plant adoption or nurturing might be associated with increased interest in defining cultural groups and their extra community relations. On the coast of Peru, after local plant cultivation began and the concepts of domestication and lineage were initiated, groups incorporated foreign plants selectively over a long time. These plants provided only a small portion of the diet. Plants that were adopted by early groups surely had special meanings or identities through their links with places, events or people. We now must look for information that will help us to 'see' the earliest cultivated plants and work towards a better understanding of the special meanings they embodied with their uptake. It might be helpful to ask how some plants, along with their cosmologies, accompanied new members into certain communities, while other plants remained in their neighbours' worlds. It is up to us now to search for and incorporate what these associations and meanings might have been in the groups we study.

These ideas about identity and female nurture have implications for our understanding about the domestication processes and the early spread of plants. Studying plants in this way might bring us closer to understanding the archaeological past.

Acknowledgements. I thank Stephen Hugh-Jones who, through our discussions and his articles, has given me many wonderful ideas and examples to think about. Ian Hodder and two anonymous reviewers read the paper and provided helpful advice.

1 The term 'plant husbandry', brought into the literature by Higgs & Jarman (1972), means the act of manipulating the ecosystem so that species desired by humans were more common. Husbandry means the act of taking care of, using to the best advantage. A ‘husband’ is one who does this. A point to be made in this paper, however, is that it is and was often the women who are involved in this as much as, if not more than, the men, so perhaps a better term could be plant mothering, nurturing or midwifery rather than plant husbandry (thanks to Charles Miksicek for the term midwifery).

2 Although both plants and animals were domesticated and became important, I focus on plants not only because of my
interest in plant use, but also because I want to focus on women's roles in plant domestication. Excellent and provocative writings about human relations to animals, meat, and death can be seen in Hugh-Jones (1996), Fiddes (1991), Kensinger (1981) and Willis (1989).

3 I am using the term horticulture for planting and tending plants that may or may not be technically domesticated (domestication being plants showing morphological or genetic changes). I use the term cultivation for tending and overseeing a plant's lifecycle. This is perhaps what plant husbandry means, but I prefer not to use that term. I would prefer to use a different word like nurturing for such activities but it is not in common use at this time.

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