The "Banana Tree at the Gate": Perceptions of Production of Piper nigrum (Piperaceae) in a Seventeenth Century Malay State

Author(s): Michael R. Dove

Source: *Economic Botany*, Oct. - Dec., 1997, Vol. 51, No. 4 (Oct. - Dec., 1997), pp. 347-361

Published by: Springer on behalf of New York Botanical Garden Press

Stable URL: https://www.jstor.org/stable/4255990

THE "BANANA TREE AT THE GATE": PERCEPTIONS OF PRODUCTION OF *PIPER NIGRUM* (PIPERACEAE) IN A SEVENTEENTH CENTURY MALAY STATE[1]

MICHAEL R. DOVE

Dove, Michael R. (*School of Forestry and Environmental Studies, Yale University, New Haven, Connecticut 06511 USA*). THE "BANANA TREE AT THE GATE": PERCEPTIONS OF PRODUCTION OF *PIPER NIGRUM* (PIPERACEAE) IN A SEVENTEENTH CENTURY MALAY STATE. *Economic Botany 51(4): 347–361. 1997. This study is based on a remarkable seventeenth-century Malay court chronicle, in which the kingdom's rulers issue injunctions on their death-beds against cultivating pepper (*Piper nigrum *Piperaceae) for the colonial trade. The rulers say that pepper cultivation will lead to expensive food stuffs, malice, government disorder, pretensions on the part of the subject peoples, and inevitably the destruction of the kingdom. The "fatal attraction" of pepper cultivation is likened, in an indigenous metaphor, to having a flourishing banana tree in front of one's gate. Analysis of historic as well as contemporary evidence from Borneo suggests that this is a remarkably astute analysis of the relations of production in pepper cultivation, especially in the transition from small-scale household cultivation to larger-scale production with state involvement. This analysis demonstrates the potential value of historic, indigenous texts for the study of economic plants, and it also shows the value of historical depth for understanding contemporary issues.*

"POHON PISANG DI DEPAN GERBANG": BERBAGAI PANDANGAN TENTANG PRODUKSI LADA PADA SUATU KERAJAAN MELAYU ABAD KE TUJUH BELAS. *Studi ini merupakan suatu kajian tentang suatu hikayat Melayu abad ke-17 yang menakjubkan, yang memperlihatkan bagaimana para penguasa kerajaan mengeluarkan larangan, menjelang "ajal" mereka, tentang penanaman lada (*Piper nigrum, *Piperaceae) untuk kepentingan perdagangan kolonial. Para penguasa mengatakan bahwa penanaman lada akan mengarah pada suatu keadaan mahalnya bahan makanan, timbulnya kejahatan, kekacauan tatanan pemerintahan, pernyataan-pernyataan yang meragukan yang muncul di kalangan masyarakat penanam, dan kehancuran kerajaan yang tak terhindarkan. Penanaman lada ini, dalam pandangan lokal, adalah seperti kita memiliki sebatang pohon pisang yang sedang berbuah di depan pintu gerbang rumah kita. Analisis sejarah dan bukti-bukti terbaru dari Kalimantan menunjukkan bahwa pandangan ini adalah suatu analisis yang cermat tentang berbagai relasi produksi dalam penanaman lada, terutama dalam transisi dari usaha rakyat yang berskala kecil ke usaha berskala besar yang melibatkan negara. Analisis ini menunjukkan nilai potensial sejarah dan kisah-kisah lokal bagi studi tentang tumbuh-tumbuhan ekonomis, dan juga memperlihatkan nilai sejarah bagi pemahaman pokok-pokok persoalan masa kini.*

Key Words: *Piper nigrum* L., black pepper, spices, ethnohistory, smallholder cultivation, Kalimantan/Borneo, Banjarese, Southeast Asia.

The "Story of Lambu Mangkurat and the Dynasty of the Kings of Banjar and Kota Waringin", more commonly known as the *Hikayat Banjar,* is the indigenous, court-based chronicle of a coastal Malayic kingdom that existed in South-East Borneo until 1860 (Fig. 1), although the chronicle itself only covers up until 1661 (Ras 1968:1,3). According to its foremost contemporary scholar, J. J. Ras, the *Hikayat Banjar* was written, and rewritten, over the period of about a century between the mid-sixteenth and mid-seventeenth centuries, by three or four separate chroniclers, sitting in different courts, at different times (Ras 1968:177–81,196). The *Hikayat*[1] contains a passage well-known to historians, but whose economic botanical implications have apparently never been analyzed, in which its founder and ruler issues an injunction

[1] Received 05 December 1996; accepted 22 May 1997.

Fig. 1. Borneo.

against the cultivation of *sahang* or black pepper (*Piper nigrum* L.):

> And let not our country plant pepper as an export-crop, for the sake of making money, like Palembang and Jambi [two kingdoms in Sumatra]. Whenever a country cultivates pepper all food-stuffs will become expensive and anything planted will not grow well, because the vapours of pepper are hot. That will cause malice all over the country and even the government will fall into disorder. The rural people will become pretentious towards the townsfolk if pepper is grown for commercial purposes, for the sake of money. If people grow pepper it should be about four or five clumps per head, just enough for private consumption. Even four or five clumps per head will cause much vapour, owing to the great number of people involved, let alone if it is grown extensively as a crop; the country inevitably would be destroyed. (Ras 1968:265–67)

This injunction is repeated further on in the *Hikayat,* in almost identical terms, by three subsequent rulers (Ras 1968:331,375,443).[2]

These passages in the *Hikayat Banjar* are not unique. Reid (1993:298) reports a similar passage from the *Hikayat Pocut Mohamat,* an eighteenth century Acehnese epic. This passage runs as follows (Drewes 1979:166–167):[3]

> Marketing does not yield much profit, even if you grow pepper, my friends.
> If there is no rice in the country, nothing else will be of use.
> What is the use of a purple kerchief or a dagger with a hilt of pinch-beck?
> If there is no rice in the country, the standing of royalty will be lost.
> If there is nothing to eat, your children will starve, and you will have to sell all you possess.

Some of the region's rulers took concrete action against pepper. Reid (1993:299–300) reports that early in the seventeenth century, the Sultan of Aceh ordered the destruction of pepper vines in the vicinity of the capital, because their cultivation was leading to the neglect of food crops and to consequent annual food shortages.[4] He also reports that Banten "cut down its pepper vines around 1620 in the hope that this would encourage the Dutch and English to leave the sultanate in peace, though self-sufficiency must have been an additional reason"; and the Sultan of Magindanao similarly told the Dutch in 1699 that he had forbidden the continued planting of pepper so that he could avoid conflict with foreign powers (Reid 1993:299–300). And Noorlander (1935:4–5,124–25; cited in Hudson 1967: 70) says that in the Banjar court itself, an isolationist faction sought to end the sultanate's foreign contacts by destroying the kingdom's pepper groves. The proscription or destruction of natural resources by those without sufficient power to resist their exploitation by others is not uncommon; what *is* uncommon about the pepper passages in the *Hikayat Banjar* is the historic insight they give us into how one such response was conceived and articulated. I consider these references to pepper cultivation to be a unique source of knowledge on commodity production in Borneo in the early modern period.

Whereas the records of the participation of indigenous kingdoms in commodity production for colonial markets are very good, the records of how such kingdoms *perceived* this participation are scanty by comparison. This analysis is an attempt to interpret one such record. The commodity involved, black pepper, merits attention not only because of the enormous role it played in Indonesia's trade in the early modern era, but also because it was perhaps the first introduced crop to undergo the transition from small-scale household cultivation to larger-scale production with state involvement (Andaya 1995:185–186). The dynamics of this transition—what motivated and what retarded it, who reaped the benefits, and who paid the costs—still pose challenging theoretical and policy-related questions. And the pursuit of these questions using sources like the *Hikayat Banjar* offers new insight into how literary and historic sources of data can be utilized in economic botanical studies.[5]

Background: Pepper Cultivation, Trade, and the Banjar Kingdom

Analysis of the *Hikayat Banjar* will be facilitated by first reviewing pepper cultivation today in Borneo, the history of the pepper trade, and the economic background of the Banjar kingdom.

Pepper Cultivation

Like many of Southeast Asia's export crops, much of the pepper that reaches global markets—and virtually all of it in the case of India and Indonesia (Biro Pusat Statistik 1995: 230,231,232; Purseglove et al. 1981:38–39,70,85)—is cultivated not on estates or plantations but on smallholdings worked by local peasant and tribal communities, many of whom are also involved in swidden agriculture. A number of different observers have noted a similarity between pepper cultivation and swidden cultivation, based on the use of similar techniques to clear, burn, and plant on forested land, followed by a lengthy fallow. Thus, early in the nineteenth century Crawfurd (1820,I:433) writes, "The land chosen for a pepper garden is a piece of forest land similar to that from which, after the felling and burning of the timber, a fugitive crop of mountain rice is taken [. . .]"; and Suntharalingam (1963:46) suggests that at the beginning of the eighteenth century, pepper was being cultivated in the hinterlands of the Banjar kingdom by "the shifting method of cultivation." Based on this similarity, it has been widely concluded that pepper fits easily into swidden systems and that this has been one of its historic attractions (Andaya 1995:171–73; Heidhues 1992:101; Pelzer 1945:25).[6] Reid (1993:33) suggests that this was central to the initial dissemination of pepper through the archipelago: "It spread in lightly populated areas of shifting cultivation, where pepper could be planted without necessarily foregoing staple food crops." There is, in fact, considerable evidence of a linkage between pepper cultivation and subsistence swidden cultivation: late in the nineteenth century Jacobs (1894) writes of "enrichment" planting of pepper in Acehnese rice swiddens in North Sumatra (cf. Siegel 1969:18); and Jongejans (1918) writes of the location of swiddens in the Lampong region of South Sumatra being determined by the prospects for transforming them into pepper gardens.

Fig. 2. Kantu' pepper garden and adjoining secondary forest.

An example of pepper cultivation by a contemporary group of swidden cultivators is given by the Kantu', a tribal people of West Kalimantan (Fig. 1). The Kantu' meet subsistence food needs through the cultivation of upland rice and a wide variety of non-rice cultigens in swiddens; they meet market and trade needs through the cultivation of Para rubber (*Hevea brasiliensis*), called *getah,* and, to a lesser extent, black pepper, called *lada.*[7] The Kantu' cultivate pepper in tiny gardens cleared from the forest, which average perhaps 500 square meters in area and contain perhaps 225 plants (Fig. 2).[8] They are typically located in uplands, because of the fear of riverain flooding in the lowlands, and on level land, because of the fear of erosion on sloping land (viz., given the land-clearing, soil tillage, and weeding that pepper require), albeit at a cost of greater risk of disease.[9] Cultivation is intensive, at least by comparison with the Kantu's swidden agriculture. Initial land-clearing is the same as for a swidden: the forest is slashed, felled, and then burned; but then, unlike in a regular swidden, the unburnt timber must be cleared from the land, and the stumps of the felled trees dug out, and the soil hoed, before the pepper can be planted (with *paung* [seedlings] [Purseglove et al.1981:21]). The gardens must be weeded (using both hoe and hand-sickle) twice for each crop, fertilized twice (because of the high nutrient demands of pepper [de Waard 1964:27] and the poor, low nutrient soils that predominate in Borneo and Sumatra), and pesticides also may have to be applied. Commercial fertilizers and pesticides are extremely costly for the Kantu', so they are home-made more often than they are bought. "Fertilizer" is made from burnt earth, weeds, and rice husks, combined with fresh earth hoed from the ground outside the garden (Fig. 3) (Blacklock 1954: 45,47–48; Cramb 1988:121; Purseglove et al. 1981:23; de Waard 1964:25–26, 1989:227).[10] "Pesticides" are made from various combinations of tobacco, soap, and *tubai (Derris elliptica*) (Blacklock 1954:50; Cramb 1988:121).[11] The harvested crop (Fig. 4) is typically transported by foot to markets across the border in Sarawak (in contrast to rubber, the lower value-to-weight ratio of which results in most of it being carried by boat downriver to Pontianak).

Fig. 3. Applying "burnt earth" to pepper plants.

Fig. 4. Kantu' mother and daughter harvesting pepper.

De Waard (1989:227) sums up this system by saying that pepper cultivation in Borneo, "is characteristically associated with chemically poor soils, high inputs and high productivity."

The Kantu' are less enthusiastic about the cultivation of pepper than rubber, their other major trade or cash crop. There are several reasons for this. The cost of the proper chemical inputs already has been mentioned. Another problem is the impact of pepper cultivation on the land. Whereas land that is put under rubber cultivation can be subsequently used for swiddens (viz., after the use-life of the rubber is over), land put under pepper cannot.[12] Pepper is said to take all of the *lang-lemak* (fertility) from the soil, to eliminate its *bau* (aroma), to make it *kusi* (barren). It is traditionally the only land-use in the Kantu' territory that precipitates *belayang madang,* a grassland succession of *Imperata cylindrica.*[13] These impacts are reflected in the fact that while the Kantu' will ordinarily lend land to one another for the purpose of swidden-making, they will not lend land (at least not to anyone other than a sibling) for pepper gardening.

Even more important than the consequences of pepper cultivation for land-use are its consequences for labor-use. Pepper requires comparatively great attention (cf. Osche 1977:588). The Kantu' say of it, though perhaps not without hyperbole, "If you ignore pepper for even ten days, it will die" (cf. Padoch 1982:113). This poses a problem for the Kantu' during the seasons of peak labor demand in their swiddens (viz., planting, weeding, and harvesting). The Kantu' say only a household that has adult children in it, which is capable of splitting up its labor force, can cultivate pepper. The timing constraints of pepper cultivation have another consequence as well, with respect to the market. It takes a minimum of three years for a pepper garden to start producing, so there is a three-year time-lag in the cultivator's response to market conditions (de Waard 1964:24).[14] And once a crop of pepper has ripened, it must be harvested: pepper cannot be stored on the vine (Padoch 1982:113).[15] The time-lag in initial production, and the inability to delay harvesting, place the pepper cultivator at the mercy of market prices (which is not the case with rubber). Cramb (1993: 222) says that reliance on pepper, compared with other cash crops, leads to greater

peaks when prices are high and deeper lows when prices are low. More generally, this time-lag introduces elements of volatility and uncertainty into the marketing of this crop, which have characterized it throughout history (cf. Purseglove et al. 1981:81).[16]

The constraints of the Kantu' system of pepper cultivation are placed in perspective by the system of the Bugis. In the 1960s and 1970s, thousands of Bugis spontaneously migrated to East Kalimantan from their homeland in Southern Sulawesi (Vayda and Sahur 1985). They spread out along the province's network of roads and cleared primary or logged-over forest for swiddens. After one harvest of food crops they planted the swiddens with pepper. Their pattern of pepper cultivation differs from that of the Kantu' in two important respects. First, pepper does not complement subsistence farming among the Bugis; it is the *basis* for their subsistence (Vayda and Sahur 1985:104). Second, this is a pioneering pattern[17]: when the land's fertility is exhausted by the pepper, the Bugis move on to another site. (The Kantu', in contrast, are not pioneering cultivators: all of their agriculture, whether swidden, rubber, or pepper, is practiced within a delimited, finite territory.) The Bugis make no attempt to make pepper cultivation sustainable in a single locale (Vayda and Sahur 1985:105–6), and this confers important advantages on them. Since they do need to conserve the productivity of the land (typically measured in Borneo by its ability to return to a fertility-restoring forest cover), they can omit the use of fertilizers and soil conservation practices (Vayda and Sahur 1985:105,106) and instead devote all of their energy to maximizing production. According to the Bugis themselves, the only constraints in this system of cultivation are fluctuating market prices, an increasing shortage of suitable forest, and comparatively better opportunities with other cash crops (Vayda and Sahur 1985:108–109).

Early History of the Pepper Trade

Black pepper is native to the Western Ghats of India (Burkill 1966,II:1776; Purseglove et al. 1981:10). It was introduced from India to Indonesia near the beginning of the first millennium A.D. (and Indonesia is still a major producer, along with India, Malaysia [Sarawak], and Brazil). Wolters says that there is some evidence that Western Indonesia may have been exporting pepper to China before A.D. 400: in a Chinese translation undertaken in 392 of the *Sutra of the Twelve Stages of the Buddha,* five maritime kingdoms are enumerated and the account of one, called *She-yeh*—which has been plausibly identified as Java—states in its entirety, "This land produces long pepper and black pepper" (Wolters 1967:66–67,183).[18] Hirth and Rockhill (1911:223n2) suggest that the first Chinese author to mention pepper as a product of the East Indies was Chóu K'ü-féi, an assistant sub-prefect in Kui-lin, in his Sung "topography", the *Ling-wai Tai-ta,* published in 1178. Pepper from a number of places in Java also is mentioned in the *Chu-fan-chï* (literally, "A Description of Barbarous Peoples"), a trade handbook compiled in 1225 by the Superintendent of Maritime Trade in Fu-chien, Chau Ju-kua. Indeed, it may be largely due to the trade in pepper that Chau Ju-kua ranks *Shö-p'o* (Java) second after *Ta–shï* (the realm of the Arabs), of "all the wealthy foreign lands which have great store of precious and varied goods" for trade with China (Hirth and Rockhill 1911:23). Reid (1993:12) suggests that Ming trading missions and territorial expansion early in the fifteenth century stimulated pepper production in Indonesia and its trade to China. There were two critical shifts in the historical development of the international pepper trade that are relevant to this study: first, Indonesia displaced India (in most quarters) as the trade source by the fifteenth or sixteenth centuries, if not before; and second, by the seventeenth century European buyers displaced Chinese buyers for Indonesian pepper.

Much of this history is reflected in pepper's terminology. The English term "pepper" derives from the Sanskrit name for one of India's pepper plants, *pippali* or *pippalī* (*Piper longum*) or "long pepper" (Monier-Williams 1899:628).[19] Over time as this term came into English and the other European languages, its referent shifted from long pepper to round or black pepper.[20] The Sanskrit name for "black or round pepper"(*Piper nigrum*) is *maricha* (Monier-Williams 1899:790).[21] Black pepper is called *miricha* and *mrica* in old and modern Javanese, respectively (Zoetmulder 1982,I:1143; Horne 1974:384); but it is called *lada* in Indonesian and Malay (Echols and Shadily 1992:321; Wilkinson 1959,II:636–37), Sundanese, and many of the languages of Sumatra and Borneo (e.g., as in the case of the earlier-mentioned Kantu'

[Richards 1981:174]). Burkill (1966,II:1776–1777) suggests that *lada* was originally a term for peppers indigenous to the archipelago (e.g., *Piper cubeba* L. and *Piper retrofactum* Vahl, both of which were ancient trade commodities and are still called by this term today), and that it was adopted, in the aforementioned languages, for the incoming black pepper. The term used for black pepper in the *Hikayat, sahang,* which is still used in contemporary Banjarese (Hapip 1977:155), is also, as *sahaṇ,* an old Javanese (Kawi) word (Ras 1968:593; Wilkinson 1959,II: 999; Zoetmulder 1982,II:1596).

The Seventeenth-Century Banjar Kingdom

The earliest trade of the Banjar kingdom was based on forest products, the oldest trade goods of the archipelago. Ras (1968:189,198) suggests that natural abundance in such products, coupled with navigable waterways for bringing them out to the coast, were critical determinants of the development of the Banjar kingdom in Southeastern Borneo.[22] The importance and diversity of this trade is reflected in the rich, evocative lists that appear throughout the *Hikayat* of goods sent to other kingdoms as gifts or tribute. Two examples follow (Ras 1968:305,441):

> I [Lambu Mangkurat] have come to ask your [the king of Madjapahit's] son as a consort for my queen, who is still unmarried. This is what I beg to offer you: ten diamonds, ten pearls, ten rubies, ten opals, ten chrysolites [another precious stone], as well as ten loads of beeswax, one thousand coils of rattan, one hundred scores of mats, ten civets and ten fighting cocks.
>
> Together with them Sultan Surjanu'llah sent [in thanks for Demak's military assistance] a gift of homage consisting of one thousand tael of gold, twenty diamonds, twenty loads of beeswax, one thousand coils of rattan, one thousand bags of dammar[23], one thousand dish-covers, one thousand score of mats, one thousand sheets of palm-leaf roofing.

The way that these lists are used to signify and summarize relations with other kingdoms testifies to the importance of forest products in the self-identity of Banjar.

Pepper was a relatively late addition to Banjar's products. Lindblad (1988:31) suggests that Hindu immigrants first brought pepper to Martapura (later one of the Banjar capitals) only in the fifteenth century. As a result of a combination of factors at the beginning of the seventeenth century—(1) the crippling of the central and eastern Javanese ports (Jepara, Ceribon, Tuban, Madura, Surabaya) by Mataram and the displacement of not just their trade but their traders to Banjar, (2) the monopolist policies of Aceh, (3) the international competition for Sumatran pepper, and (4) the Dutch closing of many other ports to traders of other nations (Schrieke 1966:60–61,67; Hudson 1967:66–68)—there was an efflorescence in the Banjar trade in pepper. This led the Dutch to attempt to set up a factory in Banjarmasin in 1606 and the English to do the same in 1615 (Suntharalingam 1963:37,38).

Interpreting Key Elements in the Hikayat Banjar

The Banjar King's anti-pepper speech in the *Hikayat Banjar* now can be examined in detail.

Jambi and Palembang

The first sentence of the pepper passage runs, "And let not our country plant pepper as an export-crop, for the sake of making money, like Palembang and Jambi [two historic kingdoms in Sumatra]." Andaya (1993b:43, 1995:169) suggests that pepper was first cultivated in Sumatra in the fifteenth century for export to China. By 1545 Jambi already was known to the Portuguese as a pepper producer (Andaya 1993a:97; 1993b:45); and the English and Dutch arrived in 1615 (Andaya 1993a:103; 1993b:43–44,45–46,48,53–55,56). The pepper that was the subject of this trade was cultivated, for ecological reasons, in the upstream regions (Andaya 1993b: 17–18), from whence it was gathered and then traded to the foreigners under the auspices of the downstream state. This linkage of upriver and downriver in the pepper trade was initially very successful and, coupled with the decline of other pepper-producing regions as a result of efforts to monopolize the pepper trade by indigenous kingdoms as well as colonial powers (Schrieke 1966:55), it made Jambi into the second city of Sumatra (Andaya 1993a:99). However, a market glut and precipitous price decline in the middle of the seventeenth century put pressure on this linkage; the relations of the European traders with the downriver half of the state became more problematic; and this made relations between upriver and downriver more problematic as well (Andaya 1993a:104, 1993b:79–80; Reid 1993:299). It ended, by the end of the seven-

teenth century, in rejection of pepper by those upriver people and the decline in political-economic importance of those downriver (Andaya 1993a:109–112).

Expensive Food, Poor Crops, Hot Vapors

The next line in the passage from the *Hikayat Banjar* reads, "Whenever a country cultivates pepper all food-stuffs will become expensive and anything planted will not grow well, because the vapours of pepper are hot." Note, first, that this passage is specifically about pepper, as opposed to all crops or all cash crops. The case of the contemporary Kantu' demonstrates that the constraints that apply to pepper need not apply to other cash crops, such as rubber. This point is driven home by other passages in the *Hikayat,* which actually contain preferred lists of crops to be planted instead of pepper: for example, "What people should definitely cultivate with energy is rice, maize, yams, taro and bananas" (Ras 1968:331). The specific focus on pepper also is made evident by the absence from the *Hikayat* of proscriptions of any other crops or commodities besides pepper (e.g., there is no proscription on gathering the highly commercialized forest products).

As regards "expensive food-stuffs": in the case of Jambi, intensive involvement in pepper cultivation did lead to a greater reliance on imported rice (Andaya 1993b:66). The reference to "expensive" here probably does not just refer to reliance on food-stuff markets, however, but to the conditions of this reliance, based on the flexibility versus inflexibility of one's agricultural strategy. As the case of the contemporary Kantu' suggests, the relatively long maturation period of pepper makes it harder for farmers to respond to short-term market fluctuations, and this inevitably means that they will often have to trade a crop that the market is not favoring for one that the market is favoring—and paying higher prices (viz., receiving less in the trade) in consequence (Andaya 1993a:104, 1993b:79). As a result, the farmer in Jambi developed a preference for shorter-maturation crops like rice, cotton, tobacco, and gambier over pepper (Andaya 1993a:114). By planting such crops, the farmers would stand a better chance of getting foodstuffs—and also cloth, which was the major trade good obtained with pepper—on good terms.

The remaining portion of this line from the *Hikayat* states that "anything planted will not grow well, because the vapours of pepper are hot." One reason that little grows well in some systems of pepper cultivation is because of the high labor demands of pepper. Andaya (1993a: 79,99, 1993b:79) suggests that downriver Jambi's pepper requirement placed such a high demand on upriver labor resources that it jeopardized their subsistence base, and this became a major source of upriver-downriver conflict. (The potential jeopardy is illustrated by the Kantu' system, where pepper is said to compete for scarce labor during the most critical, labor-intensive stage of the swidden cycle.[24])

Another reason that nothing else will grow well with pepper, here focusing on its so-called "heat," is its environmental impact.[25] Pepper is one of Southeast Asia's most environmentally demanding export crops. As the case of the contemporary Kantu' demonstrates, pepper cultivation is associated with soil erosion and impoverishment and grassland succession. On the one hand, pepper cultivation compares favorably with the normal swidden cultivation of food crops, since pepper gardens may be cultivated eight to ten years in succession, whereas swiddens are normally cultivated for just one or at most two years. On the other hand, the longer cropping period in the pepper garden is only attained, in part, by the importation of nutrients from surrounding lands (which thereby "subsidize" the garden). In addition, whereas a multiple-year forest fallow will restore the former swidden and permit its recultivation, this does not suffice in the case of the pepper garden. For all of these latter reasons, Brookfield et al. (1990:497) blame pepper for the first "sustained attack" on the region's upland forests. One casualty of this attack is diminished land and resources to grow other crops well, just as the *Hikayat* suggests.

Malice and Government Disorder

The next sentence in the passage under study reads, "That [pepper cultivation] will cause malice all over the country and even the government will fall into disorder." The evidence from Jambi clearly suggests that cultivation of pepper led to ill-will, when involvement in the colonial trade obliged downriver to intensify its exactions (and on worse terms) from upriver, and the latter's awareness of their own best interests led

them to resist. The malice was spawned, therefore, by deviation from what Scott (1976) calls the "moral economy", in which basic subsistence is held sacrosanct. This deviation was perhaps an inevitable development from collaboration of the native state with the colonial powers, given the latter's interest in a set of values antithetical to the moral economy (cf. Andaya 1993a:119–20).

Government disorder enters with this new system of values. Abandonment of the moral economy gives every faction in the coastal courts a self-interest in striking their own deals with both the European traders and the upriver producers; and the Europeans had even greater incentives to do the same (cf. Hudson 1967:70). Indeed, Saleh (1976:215) interprets the *Hikayat*'s mention of "hot vapours" as a metaphor for "inter-family power rivalries, political intrigues, group conflicts and usurpations." European traders both contributed to and took advantage of these turbulent political waters, to advance their own agendas, typically by tipping the balance of power in favor of a given faction in exchange for a monopoly on the pepper trade.[26]

Rural Pretensions

The next line in the *Hikayat* reads, "The rural people will become pretentious towards the townsfolk if pepper is grown for commercial purposes, for the sake of money." The term "rural people" (translated from the term *sakai* in the original Banjarese text), in practice refers to the non-Malay, Dayak tribal peoples subject to Banjar rule, in contradistinction to the *rakyat* or members of the ruling Malay race (Ras 1968: 589,593). The traditional role of the Dayak in the Banjar kingdom was to supply the coast with the interior forest products that were its chief trade goods up to the end of the sixteenth century (Hudson 1967:67). The Dayak expanded on this role, when pepper was introduced, to be Banjar's first pepper cultivators. Hudson (1967: 56,67) writes, "The historical evidence seems to indicate that pepper cultivation in the Hulu Sungai was in the hands of Dayak swidden agriculturalists until the closing decades of the seventeenth century [. . .]." Pepper would have fitted well into the extensive, mobile,[27] low-density system of swidden cultivation that then prevailed; and the trade-based, non-agricultural Banjar kingdom had few alternatives in any case. As Reid (1993:35) writes, "Pepper cultivation was [. . .] developed in a particularly sparsely populated region of seventeenth-century Banjarmasin (southern Borneo) that had no previous tradition of pepper or even of intensive rice cultivation." The lack of a large *in situ* agricultural population available for pepper cultivation is reflected in the fact that slaves also played a significant role in this system.[28]

The passage under discussion continues to say that "The rural people will become pretentious." The traditional Dayak role in the Banjar kingdom, as collectors of forest products, was critically important; and this importance would have been further enhanced by the Dayak's initial involvement in pepper cultivation. The actual versus realized extent of this importance was the site of an ongoing contest between Dayak and Banjar. In a manner that typified the policy of coastal states toward interior, resource-producing populations all over the archipelago, Banjar sought to strengthen its negotiating position and weaken that of the Dayak by insulating them from contacts with other traders or outsiders (Hudson 1967:55).[29] As Vlekke (1961: 202) writes, "The sultans of Banjarmasin feared nothing so much as direct contact between the Europeans and the Dayaks, whom they cruelly exploited and oppressed." Hudson (1967:65) even suggests that some of the periodic relocations of the Banjar capital (for example, from Negara to Banjarmasin) "may have been motivated at least partly by an attempt to minimize contacts between foreign merchants and the Dayak people of the interior who produced the export commodities." The principal expression of "pretension" by the Dayak was probably passive resistance to pepper cultivation, perhaps coupled with flight from Banjar control. (Ironically, therefore, the Dayak could only demonstrate their important to the Banjar kingdom as pepper-producers—and their associated perceived "pretensions"—by ceasing production and/or producing for some one else.) This response to pressures to intensify cash-crop production has been documented for other Dayak, at other times and places, with other cash crops; [30] and it is based in part on a strong cultural commitment to subsistence rice culture.[31]

The Banjar response to the Dayak resistance to pepper cultivation was displacement of Dayak by Banjar. Hudson (1967:67) writes:

> As mere part-time cultivators, the Dayak were not

> able to meet the increasing export needs nor were they willing to give up their traditional way of life to become full-time commercial agriculturalists.

The result was a replacement, during the seventeenth and eighteenth centuries, of part-time Dayak pepper producers, operating within the overall framework of a system of swidden agriculture, by full-time Banjar pepper producers, operating within a system of sedentary agriculture. Hudson (1967:67–68) adds:

> By the end of the eighteenth century, pepper was being cultivated in more or less permanent plots in the Hulu Sungai, and there were inland regional pockets with relatively high population densities, from which we may infer that Dayak, with their shifting cultivation, had given way to Banjar-Malay sedentary agriculturalists.

Private Consumption

The next two lines in the *Hikayat* passage read, "If people grow pepper it should be about four or five clumps per head, just enough for private consumption. Even four or five clumps per head will cause much vapour, owing to the great number of people involved, let alone if it is grown extensively as a crop; the country inevitably would be destroyed." Analysis of the original Banjarese text suggests that the phrase "just enough for private consumption" also could be translated as "just enough to guarantee [sufficient income for] subsistence." The suggestion that this phrase refers not to pepper consumption but to the wider issue of subsistence is supported by the fact that this phrase is structurally opposed, within the overall passage on pepper, to the earlier phrase enjoining planting pepper "as an export crop." Further light is shed on this opposition by looking at the original Banjarese text of this earlier phrase: the reference to "export crop" turns out to be the translation of *dagangan negri* (Ras 1968:264). This term has in this context a narrower referent than just export or trade: it more accurately translates as "state trade," referring to the sort of state involvement in export that Jambi had in its collaboration with the European traders. The sense of "state trade" is more in keeping with the close regulation of the pepper trade by the Banjar kingdom, which was a rational response to the preeminent interest in pepper of foreign traders and powers and the consequent implications of this for Banjar economy and polity. A close personal involvement of the Banjar court in the pepper trade is evident from Saleh's (1976:208) suggestion that "By the end of the seventeenth century pepper was being cultivated in all the regions of Banjar, mostly on the big appanage lands of the king, the royal family and the ruling class." Thus, two different types of pepper production and trade are distinguished in this passage: production and trade carried out by and on behalf of the state is enjoined, while production and trade oriented toward household subsistence is approved.[32]

Andaya (1995:185) suggests that the traditional system of pepper cultivation in Jambi (before the sixteenth- to seventeenth-century boom) involved cultivation of a few stakes[33] of *pohon wang* "money trees" (citing Forbes 1885:135), to meet not all of the household's needs but just its periodic, non-subsistence needs for cash. This means that pepper would have been just one part of a wider "composite" household economy, likely comprising a subsistence sector of swidden (and perhaps also irrigated or swamp-based) cultivation of rice, and a market-oriented sector of forest product gathering and cultivation of export crops like pepper. This sort of economic setting—which still characterizes much of the agricultural economy in outer Indonesia today, as indicated by the earlier discussion of the Kantu' economy—is indicated by the use of the term "money trees" for pepper, since it only makes sense against a non-monetary subsistence background. Hudson (1967:67) suggests that this type of economy also characterized the initial system of pepper cultivation in Banjar: "The earliest commercial pepper was grown by Dayak as a part of the swidden complex, a situation that continued to the end of the seventeenth century in some interior regions." This Dayak system of pepper cultivation represents the one that is *permitted* in the *Hikayat*; it is replaced, when sedentary Banjar cultivators displace the Dayak, by the state-trade type of system that is *enjoined* in the *Hikayat*. The contest between these two systems is a *leit motif* of the history of commodity production in Indonesia (see Dove 1996).

Conclusions: The Banana Tree at the Gate

A notable omission from the *Hikayat* is any mention of the Dutch in the "pepper passages", despite the salient role that the Dutch played in the affairs (especially the pepper trade) of the Banjarese sultanate during the century in which

the *Hikayat* was written. Dutch interest in controlling the pepper trade in Southeastern Borneo led them to destroy the capital of the sultanate in 1612 and finally win concession of a monopoly on the pepper trade in 1635 (Suntharalingam 1963:37). An equally notable omission is the failure to cite pepper in any of the detailed lists of gifts, tribute, and trade that are given throughout the *Hikayat* (Ras 1968: 255,305,325,363,427,441), until the very end of the *Hikayat,* after the Dutch bombardment of Banjarmasin, when a mission to Mataram is described (Ras 1968:483): "They went to offer the diamond Misim together with a quantity of pepper, rattan, dish-covers and beeswax."

It seems highly unlikely that pepper was not present in gift and tribute (and simply trade) shipments earlier in Banjar history, especially in the case of China, which we know to have had a strong appetite for pepper (and a shipment of tribute to which is described in the *Hikayat* [Ras 1968:255]). The fact that pepper only appears in these shipments after the coming of the Dutch symbolically associates pepper with the Dutch era. The Dutch made pepper into something qualitatively different from all other trade commodities; and relations with the Dutch over pepper were qualitatively different from all other trading relations. In this sense, pepper was *not* part of the trade of Banjar before the coming of the Dutch. This politically-charged interpretation of pepper is supported by the fact that pepper first appears in a shipment of goods to Mataram intended to plumb its political intentions vis-á-vis Banjar.[34]

These two curious omissions are related. The coming of the Dutch is described in the *Hikayat* as follows (Ras 1968:465):

> About two years later [after the Banjar king had recommended, in vain, that they move the Banjar capital to a safer location], the Hollanders came. Four ships anchored south of Pulau Kambang and bombarded the town of Banjar. There was great consternation among the Banjarese.

This passage *follows* all four of the major passages warning against the planting of pepper. The implication, therefore, is that the coming of the Dutch follows the problematic circumstances surrounding pepper cultivation and is, therefore, to some extent explained by these same circumstances. That is to say, just as the Dutch brought pepper—in its politically charged sense—to Banjar, so now we see that pepper—again in its politically charged sense—brought the Dutch to Banjar. This interpretation is supported by a metaphor that is used by the Banjar king in his speech to the court two years before the arrival of (and bombardment by) the Dutch, in which he recommends the relocation of the capital (Ras 1968:463):

> I propose that we move the capital to somewhere on the Mangapan river [. . .] for it is like a banana tree in front of one's gate, too many people take an interest in it. Since this place lies near the sea it is an easy prey for an enemy. We had better move elsewhere. At that time none of the *dipatis* [governors] was willing to move because it would give too much trouble.

As it turns out (predictably, of course, since the purpose of the *Hikayat* is in part to glorify Banjar's rulers), the capital does indeed prove to be like a "banana tree" in front of the gate, and it is the Dutch who "take an interest in it." Since it is Banjar's pepper production and trade that is of most interest to the Dutch, we can see how pepper is to the kingdom as the banana tree is to the household. The *Hikayat*'s injunctions against pepper cultivation thus represent a (failed) attempt to remove this "banana tree in front of the gate."

ACKNOWLEDGMENTS

I first carried out research in the interior of Borneo from 1974 to 1976 with support from the National Science Foundation (Grant #GS-42605) and with sponsorship from the Indonesian Academy of Science (LIPI). I gathered additional data during six years of subsequent work in Java between 1979 and 1985, making periodic field trips to Kalimantan, with support from the Rockefeller and Ford foundations and the East-West Center, and with sponsorship from Gadjah Mada University. A recent series of field trips to Kalimantan, beginning in 1992, have been supported by the Ford Foundation, the United Nations Development Programme, and the John D. and Catherine T. MacArthur Foundation, and with sponsorship from BAPPENAS and Padjadjaran University. Initial analysis of these data was supported by a fellowship in Yale University's Program in Agrarian Studies. The author is grateful to Barbara Andaya, Peter Boomgaard, Carol Carpenter, Lawrence Kaplan, and two excellent anonymous reviewers for *Economic Botany* for constructive comments on an earlier draft of this paper. The author also is grateful to John Cusick for assistance with library research, to Helen Takeuchi for editorial assistance, and to Budhi Gunawan for the Indonesian translation of the abstract. Earlier findings from this study were presented at the Annual Meeting of the American Institute of Biological Sciences (Society for Economic Botany) in Honolulu, 9–13 August 1992, at the 91st Annual Meeting of the American Anthropological Association in San Francisco, 2–6 December 1992, and at the Koninklijk Instituut voor Taal-, Land- en Volkenkunde's 27–29 June 1996 workshop on the "Environmental History of Indonesia." The author alone is responsible for the analysis presented here.

LITERATURE CITED

Andaya, B. W. 1993a. Cash cropping and upstream-downstream tensions: The case of Jambi in the sev-

enteenth and eighteenth centuries. Pages 91–122 *in*: Anthony Reid, ed., Southeast Asia in the early modern era: trade, power, and belief. Cornell University Press, Ithaca.

Andaya, B. W. 1993b. To live as brothers: Southeast Sumatra in the seventeenth and eighteenth centuries. University of Hawaii Press, Honolulu.

Andaya, B. W. 1995. Women and economic change: The pepper trade in premodern Southeast Asia. Journal of the Economic and Social History of the Orient 38–2:165–90.

Bartlett, H. H. 1957. Fire in relation to primitive agriculture and grazing in the tropics: an annotated bibliography. Vol. II. University of Michigan Department of Botany, Ann Arbor.

Biro Pusat Statistik (BPS) (Central Bureau of Statistics). 1995. Statistik Indonesia: statistical yearbook of Indonesia 1994. BPS, Jakarta.

Blacklock, J. S. 1954. A short study of pepper cultivation with special reference to Sarawak. Tropical Agriculture [Trinidad] 31:40–56.

Brookfield, H., F. J. Lian, L. Kwai-Sim, and L. Potter. 1990. Borneo and the Malay Peninsula. Pages 495–512 *in* B.L. Turner, William C. Clark, Robert W. Kates, John F. Richards, Jessica T. Mathews, and William B. Meyer, eds., The earth as transformed by human action. Cambridge University Press, Cambridge.

Brosius, J. P. n.d. Prior transcripts, divergent paths: resistance and acquiescence to logging in Sarawak, East Malaysia. Comparative Studies in Society and History.

Burkill, I. H. 1966. A dictionary of the economic products of the Malay Peninsula. 2 vols. Ministry of Agriculture and Cooperation, Kuala Lumpur.

Cramb, R. A. 1988. The commercialization of Iban agriculture. Pages 105–134 *in*: S. R. A. Cramb and R. H. W. Reece, eds., Development in Sarawak: historical and contemporary perspectives. [Monash Paper on Southeast Asia No. 17.] Center of Southeast Asian Studies, Monash University, Clayton (Victoria, Australia).

Cramb, R. A. 1993. Shifting cultivation and sustainable agriculture in East Malaysia: a longitudinal case study. Agricultural Systems 42:209–26.

Crawfurd, J. 1820. History of the Indian archipelago: containing an account of the manners, arts, languages, religions, institutions, and commerce of its inhabitants. 3 vols. Archibald Constable, Edinburgh.

de Beer, J. H. and M. J. McDermott. 1989. The economic value of non-timber forest products in Southeast Asia: with emphasis on Indonesia, Malaysia and Thailand. Netherlands Committee for IUCN/WWF, Amsterdam.

Dove, M. R. 1986. The practical reason of weeds in Indonesia: peasant versus state views of *Imperata* and *Chromolaena*. Human Ecology 14–2:163–90.

Dove, M. R. 1993. Smallholder rubber and swidden agriculture in Borneo: a sustainable adaptation to the ecology and economy of the tropical forest. Economic Botany 47–2:136–147.

Dove, M. R. 1996. Rice-eating rubber and people-eating governments: peasant versus state critiques of rubber development in colonial Indonesia. Ethnohistory 43–1:33–63.

Dove, M. R. n.d.. Political Ecology of Pepper in the "Hikayat Bandjar": the Historiography of Commodity Production in a Coastal Bornean Sultanate. *In* Man and Environment in Indonesia, 1500–1950, D. Henley and F. Colombijn eds. Verhandelingen series. Leiden: Koninklijk Instituut voor Taal-, Land- en Volkenkunde.

Drewes, G. W. J. (ed. and trans.). 1979. Hikajat Potjut Muhamat: an Achehnese epic. [KITLV, Bibliotheca Indonesica 19.] Martinus Nijhoff, The Hague.

Duke, J. A. and J. L. duCellier. 1993. CRC handbook of alternative cash crops. CRC Press, Boca Raton (FL).

Echols, J. M. and H. Shadily. 1992. Kamus Indonesia-Inggeris: an Indonesian-English dictionary. Third edition. P.T. Gramedia, Jakarta.

Forbes, H. O. 1885. A naturalist's wanderings in the eastern archipelago: a narrative of travel and exploration from 1878 to 1883. Sampson Low, London.

Hapip, A. D. 1977. Kamus Banjar-Indonesia (Banjar-Indonesian dictionary). Pusat Pembinaan dan Pengembangan Bahasa, Departement Pendidikan dan Kebudayaan, Jakarta.

Hardon, H. J. and J. T. White. 1934. Gebrande aarde (tanah bakar). Landbouw 10–2:49–75.

Hatch, T. 1981. Preliminary results of soil erosion and conservation trials under pepper (*Piper nigrum*) in Sarawak, Malaysia. Pages 255–262 *in* R. P. C. Morgan, ed., Soil conservation: problems and prospects. Wiley, New York.

Heidhues, M. F. S. 1992. Bangka tin and Mentok pepper: Chinese settlement on an Indonesian island. Institute of Southeast Asian Studies, Singapore.

Hirth, F. and W. W. Rockhill (eds and trans). 1911. Chau Ju-kua: his work on the Chinese and Arab trade in the twelfth and thirteenth centuries, entitled *Chu-fan-chi*. Imperial Academy of Sciences, St. Petersburg.

Horne, E. C. 1972. Javanese-English dictionary. Yale University Press, New Haven.

Hudson, A. B. 1967. Padju Epat: the ethnography and social structure of a Ma'anyan Dayak group in Southeastern Borneo. [Ph.D. thesis, Cornell University, Ithaca (N.Y.).] University Microfilms, Ann Arbor.

Jacobs, J. 1894. Het familie- en kampongleven op Groot-Atjeh: eene bijdrage tot de ethnographie van Noord-Sumatra. 2 vols. E. J. Brill, Leiden.

Jongejans, J. 1918. Een en ander over Semangka. Tijdschrift voor Indische Taal- Land- en Volkenkunde. 58:229–300.

Kurin, R. 1983. Indigenous agronomics and agricultural development in the Indus basin. Human Organization 42–4:283–94.

Lindblad, J. T. 1988. Between Dayak and Dutch: the economic history of Southeast Kalimantan, 1880–1942. [KITLV, Verhandelingen 134.] Foris Publications, Dordrecht.

Marsden, W. 1966. The history of Sumatra. Third edition. Oxford University Press, Kuala Lumpur.

Monier-Williams, Sir M. 1899. A Sanskrit-English dictionary. Clarendon Press, Oxford.

Noorlander, J. C. 1935. Bandjarmasin en de compagnie in tweede helft der 18de eeuw. M. Dubbeldeman, Leiden.

Osche, J. J. 1977. Vegetables of the Dutch East Indies: survey of the indigenous and foreign plants serving as pot-herbs and side-dishes. With R.C. Bakhuizen van den Brink. [Original 1931. Bogor (Buitenzorg): Indische Groenten.] Australian National University Press, Canberra.

Padoch, C. 1982. Migration and its alternatives among the Iban of Sarawak. [KITLV, Verhandelingen 98.] Martinus Nijhoff, The Hague.

Peluso, N. 1983. Markets and merchants: the forest product trade of East Kalimantan in historical perspective. M.Sc. thesis, Cornell University.

Pelzer, K. J. 1945. Pioneer settlement in the Asiatic tropics: studies in land utilization and agricultural colonization in Southeastern Asia. American Geographical Society, New York.

Potter, L. 1988. Indigenes and colonisers: Dutch forest policy in South and East Borneo (Kalimantan) 1900 to 1950. Pages 127–149 *in* John Dargavel, Kay Dixon, and Noel Semple, eds., Changing tropical forests: historical perspectives on today's challenges in Asia, Australasia and Oceania. Centre for Resource and Environmental Studies, Canberra.

Purseglove, J. W. , E. G. Brown, C. L. Green, and S. R. J. Robbins. 1981. Spices. Vol.1. London: Longman.

Ras, J. J. 1968. Hikajat Bandjar: a study in Malay historiography. [KITLV, Bibliotheca Indonesica 1.] Martinus Nijhoff, The Hague.

Reid, A. 1993. Southeast Asia in the age of commerce 1450–1680. Vol. 2: expansion and crisis. Yale University Press, New Haven.

Reid, A. 1995. Humans and forests in pre-colonial Southeast Asia', Environment and History 1:93–110.

Richards, A. 1981. An Iban-English dictionary. Clarendon Press, Oxford.

Roseberry, W. 1991. Anthropologies and histories: essays in culture, history, and political economy. Rutgers University Press, New Brunswick.

Saleh, M. I. 1976. Pepper trade and the ruling class of Banjarmasin in the seventeenth century. Pages 203–221 *in* Papers of the Dutch-Indonesian historical conference, held at Noordwijkerhout, The Netherlands, May 19–22. Bureau of Indonesian Studies, Leiden and Jakarta.

Schrieke, B. 1966. Indonesian sociological studies: selected writings of B. Schrieke. Second edition, Part one.[Original 1955. The Hague: N V. Uitgeverij van Hoeve.] W. van Hoeve, The Hague.

Scott, J. C. 1976. The moral economy of the peasant: rebellion and subsistence in Southeast Asia. Yale University Press, New Haven.

Siegel, J. T. 1969. The rope of god. Berkeley: University of California Press.

Speelman, C. 1670. De handelsrelaties van het Makassaarse rijk volgens de notitie van Cornelis Speelman uit 1670. Pages 96–121 *in* J. Noorduyn, ed., Nederlands historische bronnen, 1983, vol.III. Verloren, Amsterdam.

Suntharalingam, R. 1963. The British in Banjarmasin: an abortive attempt at settlement 1700–1707, Journal of Southeast Asian History 4–2:33–50.

Tsing, A. L. 1993. In the realm of the diamond queen: marginality in an out-of-the-way place. Princeton University Press, Princeton.

Vayda, A. P. and A. Sahur. 1985. Forest clearing and pepper farming by Bugis migrants in East Kalimantan: antecedents and impact. Indonesia 39: 93–110.

Vlekke, B. H. M. 1961. Nusantara: a history of Indonesia. Rev. ed. Les Editions A. Manteau S. A., Bruxelles. P. T. Soeroengan, Jakarta.

Waard, P. W. F. de. 1964. Pepper cultivation in Sarawak. World Crops 16–3:24–30.

Waard, P. W. F. De. 1989. *Piper nigrum* L. Pages 225–230 *in* E. Westphal and P. C. M. Jansen, eds., Plant resources of South-East Asia: A selection. PUDOC, Wageningen.

Wilkinson, R. J. 1959. A Malay-English dictionary. 2 vols. MacMillan, London.

Wolters, O. W. 1967. Early Indonesian commerce: a study of the origins of Srivijaya. Cornell University Press, Ithaca.

Zoetmulder, P. J. 1982. Old Javanese-English dictionary. 2 vols. Martinus Nijhoff, The Hague.

ENDNOTES

1. This is spelled *Hikajat Bandjar* in the original: I have modernized the spelling of all Indonesian (also Malay, Banjarese, Javanese, and Kantu' [Iban]) terms.
2. This injunction is given added weight by the fact that in two of these cases, it is the ruler's last act before he "disappears" or departs the mortal world (Ras 1968:331–32,373–75).
3. Compare with the Englishman Marsden's (1966: 139) paean to the pepper gardens of Sumatra:

> A pepper garden cultivated in England would not, in point of external appearance, be considered as an object of extraordinary beauty [. . .]; yet, in Sumatra, I never entered one, [. . .] that I did not find myself affected with a strong sensation of pleasure. Perhaps the simple view of human industry, so scantily presented in that island, might contribute to this pleasure, by awakening those social feelings that nature has inspired us with, and which makes our breasts glow on the perception of whatever indicates the prosperity and happiness of our fellow-creatures.

4. See Siegel (1969:17–23) on pepper cultivation in nineteenth-century Aceh.
5. See Dove (n.d.) for an historically-oriented analysis of the pepper passages in the *Hikayat.*
6. But see Bartlett's (1957:385) proper distinction between the "shifting" involved in abandoning pepper gardens and that involved in fallowing swiddens.
7. The Kantu' say that they have had pepper for "generations" and that they first obtained it from Dayak living across the border in Sarawak.
8. There is considerable variation in the size of pepper smallholdings. Andaya (1995:175,179) gives a figure of 500–600 plants as being "the number traditionally invoked by *adat* or custom in seventeenth- and eighteenth-century Sumatra." This is of the same order of magnitude as Blacklock's (1954:47) average for Sarawak of 0.2 hectare (de Waard [1964:24] gives almost 0.4 hectare) containing 425 to 440 plants. On the other hand, Cramb (1988:121) writes that the early post-World War II pepper gardens of the Iban in Sarawak averaged just 50 plants, with the largest containing 100–200 plants and covering 0.1 hectare. By 1980, however, with households now depending more on their pepper gardens than their rice swiddens, the average household in Cramb's study population had 1.3 hectare under pepper cultivation (Cramb 1988:130).
9. Expert opinion holds that gardens should be made on steeply sloping land (even at the price of erosion) in order to combat the threat of foot-rot disease (*Phytophthora*) (Duke and duCellier 1993:396; Hatch 1981:256–57,259; Padoch 1982:113).
10. The use of burnt earth has been reported on both "native and Chinese" pepper gardens from a number of places in the archipelago, including not just West Kalimantan but also Sarawak, Bangka, and Belitung (Hardon and White 1934; Purseglove et al. 1981:23). Burning has been found to improve both soil fertility and structure (Hardon and White 1934). The disadvantage of this practice is that it extends the impact of pepper cultivation beyond the land on which it is actually grown: Blacklock (1954:45) reports that in determining the area of pre-World War II leases for pepper cultivation in Sarawak, the government assumed that 1.6 hectares of virgin forest were required to provide the burnt earth and wood ashes necessary to fertilize a pepper garden of 0.2–0.4 hectare, thus yielding a forest-garden ratio ranging from 4:1 to 8:1 (Purseglove et al. [1981:23] cite a ratio of 4:1). Burnt earth is not easily replaced: de Waard (1964:28) reports that when the use of burnt earth was replaced with the use of manufactured organic and inorganic fertilizer, the use-life of the average garden dropped from 15 years to 6–10 years.
11. Blacklock (1954:55) gives an average use-life of 12–15 years for pepper gardens in Sarawak, although disease may shorten this further (see also de Waard 1964:25–26), whereas Duke and duCellier (1993:397–98) give a range of 3–15 years (although they add that backyard gardens may last for up to a century in India!).
12. Former pepper garden sites can be, and are, successfully planted in rubber, however. Heidhues (1992:215) writes that degraded former pepper lands on Bangka are planted in not only rubber but also durian, coffee, and cloves.
13. A number of observers have noted a linkage between pepper cultivation and grassland succession (e.g., Blacklock 1954:42,47; Brookfield et al. 1990:497; Burkill 1966,II:1779; Potter 1988:129; Reid 1995:101–104); and some have even suggested that the mark of historic pepper cultivation can still be seen in contemporary grasslands. However, whereas pepper cultivation may precipitate grassland succession, other factors are necessary to perpetuate these successions, which are inherently unstable on their own (Dove 1986).
14. In contrast, rubber requires little attention, and tapping can be stopped and resumed at will as labor demand in the swiddens, and the need for cash or trade goods, waxes and wanes. The negligible cost of starting or stopping rubber tapping (in an existing rubber garden) and the ability to self-exploit household labor permit the Kantu' to respond adroitly, even inversely, to fluctuating market prices (Dove 1993:139–40,143–44, 1996:43).
15. Although pepper cannot be stored on the vine, it can be stored off the vine—and thus withheld from the market—for several years without loss of quality (Duke and duCellier 1993:398). Duke and duCellier (1993:398) suggest that this characteristic is exploited by international speculators (cf. de Waard 1964:24). Andaya (1993b:79) gives an historic example, "Pepper can be stored for several years without deteriorating, and by the middle of the seventeenth century, warehouses in Europe were filling up as sellers tried to keep the price high as consumers turned to ginger as a substitute."
16. This is reflected in Chau Ju-kua's comment on the fluctuation in the cost of pepper from thirteenth-century Central Java (*Su-ki-tan*): "At the right season and in good years, twenty-five taels of 'trade money' will buy from ten to twenty packages of pepper, each

package holding fifty pecks. In years of dearth or times of disturbance, the same sum will buy only half that amount" (Hirth and Rockhill 1911:83). Regarding similar fluctuations six centuries later, Schrieke [1966:56] writes, "It happened repeatedly that because of troubles between *negeri* [kingdoms] in the interior there would be no pepper shipped to the market in Jambi" (cf. Burkill 1966,II:1779).

17. This is not historically unique: Siegel (1969:17) writes that historic pepper cultivation in Aceh was concentrated in "frontier areas."
18. In the Chinese text used by Wolters, "long pepper" likely refers to *Piper longum,* which is native to India but not Java. If Java is indeed the location of the kingdom of *She-yeh,* then the plant to which the text refers is probably *Piper retrofactum,* which in appearance and use resembles *Piper longum* and has been traded from Java to China since ancient times (Burkill 1966,II: 1775,1782).
19. The Sanskrit term *pippali* is derived from the term for the sacred fig tree (*Ficus religiosa* L.), *pippala,* and its fruit (Monier-Williams 1899:627–628).
20. This suggests that India's westward pepper trade was first based on *Piper longum* and then only later on *Piper nigrum* (see Burkill 1966,II:1774,1777).
21. There are other Sanskrit terms that also designate black pepper (along with other plants, including other peppers, such as *Piper longum*), including *ushana* and *hapucha* (Burkill 1966,II:1776; Monier-Williams 1899:220).
22. Forest products continue to be important to the Banjarese today. In the highland Banjarese village of Rantau Balai, during the slack agricultural period between weeding and the harvest, most people leave the village to seek tradable products in the forest, including diamonds, gold, dammar, rattan, fish, and *kemiri' [Aleurites moluccana*])—which is mostly the same list of goods that the Banjar kingdom was sending abroad three and four centuries ago (cf. Tsing [1993:55–56] on the forest product trade of the nearby Meratus Dayak).
23. "Dammar" is a generic term for resin from a variety of dipterocarps, especially of the genera *Shorea.* It was used traditionally for torches, caulking for boat seams, and as a glue, incense, fumigant, and medicine (de Beer and McDermott 1989:38).
24. The burden of pepper cultivation on local labor resources was reflected in the great demand for, and use of, slave labor in pepper-producing regions in both Borneo and Sumatra. Reid (1993:35), citing Speelman (1670:112), writes that "One of Makassar's major exports to the region was 'male and female slaves fitted for labour in the pepper-gardens'" (cf. Andaya [1993b:80,96] on the prominent role of slaves in pepper cultivation in Jambi).
25. In many parts of Asia, nutrient-demanding and environmentally stressful crops are termed "hot", whereas those less demanding and more benign are termed "cold" (cf. Kurin 1983).
26. Pepper contracts were integral bargaining chips in all of the early conflicts in the pepper-producing regions between Europeans traders and indigenous rulers (Andaya 1993b; Schrieke 1966,I:62–63).
27. The contemporary swidden system of the Meratus Dayak of this region is still notable for its mobility (Tsing 1993).
28. See prior note #24.
29. This practice has continued down to contemporary times. Brosius (n.d.:17), referring to the relations between Penan hunter-gatherers and the agricultural Kayan and Kenyah of Sarawak, writes: "The presence of a Penan band in an area meant access to forest products and to the income generated by trade in those products. Longhouse [Kayan-Kenyah] aristocrats were proprietary about "their" Penan, and jealously guarded their prerogatives to trade with certain groups."
30. See Dove (1996) regarding Dayak resistance to complete commitment to rubber cultivation in West Kalimantan.
31. Hudson (1967:66) writes that "Although they [the Dayak in southeast Borneo] were willing to collect forest products and grow a little pepper to trade for Chinese goods, they were not willing to allow these secondary pursuits to interfere with the primary task of rice cultivation." He also adds "This Dajak reluctance to becoming overly dependent on a cash or trading economy at the expense of subsistence agriculture continues to the present day. It is one of the economic and psychological characteristics that sets the majority of the Southeast Barito Dayak off from the contiguous Banjars" (1967:66n.25).
32. Thus, the *Hikayat* is urging a return to a different type of market-oriented economy, not to a mythical pre-market "natural economy" (Roseberry 1991: 223).
33. Andaya (1995:175) cites the *Hikayat*'s recommendation of five to ten clumps as an indication of how many the "few stakes" might actually be. In fact, the *Hikayat* recommendations range from "a few pepper trees per head," to "about four or five clumps per head," or "about ten or twenty plants only," or "a few pepper trees per head" (Ras 1968: 443,265,331,375, or cf. Burkill 1966,II:1778).
34. The outcome of the three-sided relationship between Banjar, Mataram, and the Dutch eventually drove Banjar into the arms of the Dutch in 1635, for protection from Mataram, but at the price of granting the Dutch a monopoly on its pepper trade (Suntharalingam 1963:35).