The Peccary—
With Observations on the Introduction of Pigs to the New World

R. A. DONKIN
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PREFACE

The three living species of peccary inhabit a vast area of the New World, between roughly 35 degrees of latitude north and south of the equator. They are primarily forest or woodland animals, but two species (one of them only recently discovered) have adapted to scrub-dominated ecosystems, both natural and anthropogenic, particularly around the latitudinal and altitudinal margins of their range. The overall distribution has contracted since the beginning of European settlement, as a result of intensive hunting and reduction in the extent of preferred habitats. Local depletion of the population also occurs for the same reasons. Nevertheless, peccaries are remarkably resilient animals; their comparatively low fertility rates are matched by low (natural) mortality, and all three species are unspecialized feeders. Cultivated plants add to a wide variety of natural foodstuffs. Like pigs, peccaries are good pioneers, and when hunting pressures are relaxed, for whatever reasons, numbers usually recover.

In traditional societies, the peccary is hunted chiefly for meat, and within the combined distribution of the species probably no other animal has contributed more to human food supply. Europeans have valued both the meat and, on a much larger scale, the hides. As far as is known, the peccary has never been domesticated, that is, bred regularly in captivity, but juveniles are often reared (for food), and some are tamed and treated as pets. Perhaps the conditions and processes that would have led to domestication were disrupted by the European conquest (and the introduction of the pig). At the same time, other kinds of relationship with animals may have partly substituted for domestication. These controversial questions are taken up in the concluding sections of the monograph.

The accompanying maps, mainly on a continental scale, serve to locate evidence referred to in the text. They represent states of knowledge, the pattern of discovery over time, and the adventitious recording and survival of information. New evidence (not to mention what has inadvertently been missed) will undoubtedly modify whatever tentative conclusions it has been possible to draw from the distributional (and other) record.
PART I: DISTRIBUTION, HABITAT, AND BIOLOGY
A: DESCRIPTION

The first scientific descriptions of the collared and the white-lipped peccary (*Tayassu tajacu* and *Dicotyles pecari*) were supplied by Félix de Azara, as part of a natural history of the quadrupeds of Paraguay, in 1801. All previous accounts are to a varying extent unsatisfactory. The earliest known reference to "wild pigs of two kinds" is in Hans Staden's observations (1547–1555) on eastern Brazil. However, even at this early date, one of the two may have been a feral European pig. Feral pigs were a source of confusion until the early nineteenth century and sometimes gave rise to the opinion that there were three species or genera (*Catagonus* sp. of the Chaco was only identified in the mid-1970s and cannot be recognized in earlier, general descriptions of the New World pigs). Other early authorities, including Bernardino de Sahagún and Francisco Hernández (ca. 1570), described only one animal (Fig. 1), either one or other species, or combined some of the characteristics of each. Although strong evidence that there were at least two kinds of peccary was available in the published work of those with first-hand knowledge of the American tropics, such as Pierre Barrère (1741), none of the leading systematists of the seventeenth and eighteenth centuries (John Ray, M. J. Brisson, Carl Linnaeus, and the Comte de Buffon) clearly distinguished between them.

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4 Sahagún, 1963: p. 10.
6 Barrère, 1741: pp. 160–162 (French Guiana or Cayenne). J. G. Stedman (Surinam, 1796: 1: pp. 355–356) described two kinds of "wild swine" (apparently the collared peccary and the white-lipped peccary) and a third kind, the *cras-pingo*, which he believed, probably correctly, to have originated in Europe (feral *Sus*) or Africa. Antonio Caulín ([1779], 1980: 1: p. 73) also referred to "tres especies de puercos monteses" in Nueva Andalucía (Venezuela).
7 Ray, 1693: p. 97.
8 Brisson, 1756: p. 111.
11 Buffon (ibid.) came closest, but was in doubt about the status of the larger animal reported by De La Borde from Cayenne. On Buffon, see Azara (1801), 1838: 1: p. 122.
Peccaries superficially resemble the Old World pigs, to which of course they are related (superfamily Suiformes). A stocky body, massive head, and short, thin legs are their more obvious physical characteristics. The white-lipped peccary is the larger of the two, adult specimens (of both sexes) weighing 50 to 75 pounds or more. White cheeks, snout, and lips contrast sharply with the gray-black color of the rest of the body. The more numerous races of collared peccary probably vary more in weight (average about 40 pounds). Their distinctive characteristic is a narrow, semicircular "collar" or diagonal band of lightish hairs, set against a pelage of medium gray (black mixed with white or tawny). The earliest known reference to the "collar blanco" is in Francisco Montero de Miranda's Descripción de la provincia de la Verapaz (1574). Juvenile peccaries are reddish brown in color with less distinctive markings.

Both species, contrary to the opinion of some early authors, have a dorsal gland about seven centimeters in diameter, first described as a "navel" (ombligo). This emits a light brown, musky substance, especially

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17 Fernández de Oviedo y Valdés (1526), 1950: p. 152, (1520–1555), 1959: 2: p. 45. Cieza de León ([1532–1550], 1853: p. 400, 1864: p. 174) and Hernández ([1571–1576], 1959: 1: pp. 311–312) knew that it was not a true navel ("pero no es un verdadero ombligo"), but the misunderstanding—or at least the description—persisted.
powerful and unpleasant in the case of the white-lipped peccary. Again both peccaries, but notably the larger species, have bristle-like hairs on the neck and back ("mane"), whence, presumably, the description *puerco espín* or *puerco espino*, also applied to the porcupine. Sahagún compared the bristles of the peccary to awls, Azara to the quills of the porcupine itself, *Coendou prehensilis*.  

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B: SCIENTIFIC NOMENCLATURE

Order, Artiodactyla (Owen, 1848).

The peccaries belong to the mammalian order Artiodactyla (previously a suborder of the Ungulata), even-toed ungulates, to which important domestic animals (cattle, sheep, goats, camels, llamas and pigs) also belong.

Family, Dicotylidae.

Between the order Artiodactyla and the family Dicotylidae (or Tayassuidae) categories of suborder or superfamily (Suiformes, Choeromorpha, Suoidea) are sometimes recognized. A minority of modern authorities have described the Dicotylidae—alternatively Dictyles or Dicotylinae—as a subfamily under the Suidae. The term Dicotylidae (from the Greek dis, "double" and kotule, "cavity"—"double navel") was introduced, as Dictylina, by H. N. Turner in 1849, the synonym Tayassuidae (from the genus Tayassu) by T. S. Palmer in 1897. The former therefore takes precedence.

Genera, Tayassu, Dictyles, Catagonus.

The relationships between the members of the Dicotylidae, and thus their respective biological status, have not been finally determined. The evidence presently available suggests the existence of three living genera. From the sixteenth century, several "kinds" (castas, especies, generos) of peccary have been reported. Linnaeus (1758) placed them all, together with the Old World pigs, in the genus Sus, although his Sus tajacu
referred specifically to the collared peccary (*Tayassu tajacu*).9 Sus continued to be employed by some authors until about 1820.10

Most systematic accounts of the peccary place the species either (a) under one or other of two synonymous generic names, *Tayassu* and *Dicotyles*, or (b) under both where two genera are recognized. *Tayassu* was established by G. Fischer (1814),11 *Dicotyles* by G. Cuvier (1817)12; each proposed a single genus to accommodate the two specific forms described from Paraguay by Félix de Azara (1801). Fischer later (1817) attempted to replace *Tayassu* with *Notophorus*.13 The latter cognomen was adopted by J. E. Gray (1868) for the collared peccary (*N. torquatus*), *Dicotyles* being retained for the white-lipped peccary (*labiatus*).14 Two other generic names have been proposed: *Adenonotus* (1828),15 including both species, and *Pecari* (1835),16 for the collared peccary (*torquatus*) alone. In 1901 C. H. Merriam introduced the subgenus *Olidosus* (under *Tayassu*) for the white-lipped peccary (*albirostris*).17

In the nineteenth century a single genus (generally *Dicotyles*) was preferred by the great majority of authors, and in the twentieth century either one (generally *Tayassu*) or two. M. O. Woodburne (1968), on the basis of a study of cranial myology and osteology, argued for two,18 and this usage was accepted by A. M. Husson in his monumental work on the mammals of Surinam (1978). Husson further showed that *Tayassu* (Fischer, 1814) must be reserved for the genus containing the collared peccary, and *Dicotyles* (G. Cuvier, 1817) for that containing the white-lipped peccary.19 However, the question of whether to recognize two genera is not finally settled. Recent work on a third peccary, assigned to

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11 Fischer, 1814: pp. 284–287 (*Tayassu pecari, T. patira*). Frisch's (1775: p. 3) *Tagassu*, followed by Elliot (1904: p. 61) and Goodwin (1946: p. 446), is non-Linnaean and unacceptable, as pointed out by Hershkovitz (1948: pp. 272, 274) and Woodburne (1968: p. 34 n.1). Trouessart (1904: p. 658) and Neumann (1967: p. 122) employ the latinized forms *Tagassus* and *Tagassus* respectively.
13 Fischer, 1817: p. 373.
14 Gray, 1868: pp. 43–45.
15 Brookes, 1828: p. 76.
17 Merriam, 1901a: p. 120. Followed by Elliot, 1904: pp. 65–66; raised to generic status by Trouessart, 1904: p. 658.
the genus *Catagonus*, has suggested a “closer relationship” between the two well known species than was concluded by Woodburne.\(^{20}\)

In the mid-1970s a living representative of the genus *Catagonus* (previously known only in fossil form, along with *Platygonus*, *Mylohyus*, and *Prosthenops*) was discovered in the Paraguayan Chaco.\(^{21}\) It is now apparent that the territorial range of *C. wagneri* (with both Guarani and Spanish names) extends to neighboring parts of Bolivia and Argentina.\(^{22}\)

According to R. M. Wetzel, “The three species of living peccaries meet in the Gran Chaco during what may be an interim period—the present—between a more arid cycle that favored thorn forest, steppe and *C. wagneri* and a moist cycle that will increasingly favor more mesic forests and *Tayassu*”\(^{23}\) (the collared and white-lipped peccary).

Species (*pecari, tajacu*) and subspecies.

The earliest valid specific name for the white-lipped peccary is *pecari* (Link, 1795),\(^{24}\) taking precedence over *albirostris* (Illiger, 1811) and *labiatus* (G. Cuvier, 1817). As to the collared peccary, *tajacu* (Linnaeus, 1758) is indisputably correct. The number of subspecies of *D. pecari* and of *T. tajacu* remain to be determined. C. A. Hill (1966) gives five and fourteen respectively,\(^{25}\) probably conservative estimates. E. R. Hall and K. R. Kelson (1959) mapped the approximate distribution of ten subspecies of *T. tajacu* north of Panama.\(^{26}\)

\(^{20}\) Wetzel, 1977a: p. 7. C. Groves (1981: p. 2) and S. J. Olsen (1982: p. 9) place both species under *Tayassu*. Earlier, Villa (1948: p. 523) had argued that the difference between the two was less than generic. A. R. Wallace (1853: p. 450) and E. Liais (1872: pp. 402–403) suggested three “species,” but all were placed within the genus *Dicotyles*.

\(^{21}\) Wetzel, Dubos, Martin and Myers, 1975: pp. 379–381.


\(^{24}\) Osgood, 1921: p. 35.


\(^{26}\) Hall and Kelson, 1959: p. 996.
C: DISTRIBUTION

The Dicotylidae originated in North America, but the living genera *Tayassu*, *Dicotyles* and *Catagonus* probably all evolved south of the Isthmus of Panama. Fossil *Tayassu* (collared peccary) and *Catagonus* have been reported from the Pliocene and Pleistocene of Argentina. The earliest evidence of fossil (collared) peccary in Middle America belongs to the late Pleistocene of Guatemala.

The distributions of the two most common species of living peccary (map 1) together cover the whole of Neotropica (*D. pecari* and *T. tajacu*) and adjoining parts of Nearctica (*T. tajacu*). Habitats range from semi-desert scrub to climax rain forest. Races of collared peccary are found from the southern United States (Arizona, New Mexico, Texas) to northern Argentina, excluding much of north-central Mexico, the Andean cordillera, and the Pacific littoral south of Ecuador. The white-lipped peccary belongs to the hot and humid tropics, from southern Vera Cruz (Mexico) to Paraguay. The most obvious question concerns their respective latitudinal limits.

Northern limits (map 2)

The collared peccary is now absent or very rare over a large part of the high plateaus of north-central Mexico. From broad eastern and western salients, penetration of the central region is by deep canyons, as

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in the Tepehuan country of Durango. The "wild pig" is mentioned by Felipp Ségesser in his account of the Pimería (Tecoripa) in 1737. It was important to the prehistoric Seri of Sonora. The Huichol and Cora of Jalisco and Nayarit, and the Cátita (Mayo and Yaqui) of Sonora and Sinaloa continue to hunt the species. The western distribution extends into central Arizona and southwestern New Mexico, To the east,

6 Treutlein, 1945: p. 186.
**Tayassu tajacu** is found in the scrublands of San Luis Potosí,12 and of Coahuila and Tamaulipas, and thence into Texas13 and extreme southeastern New Mexico.14 Between a hundred and a hundred and fifty years ago it was known as far east as the Red River valley in Arkansas.15 The destruction of natural habitat (pine-oak woodland as well as brushwood) and the introduction of firearms everywhere led to a contraction in the distribution of the peccary,16 but within the United States the enforcement

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14 Bailey, 1931: p. 10.
15 Audubon and Bachman, 1847: p. 240; Baird, 1859: p. 627; Trouessart, 1904: p. 817 (ab Arkansas); Hamilton, 1939: p. 368; C. A. Hill, 1966: p. 67. The "western limit is not well ascertained, though it is said by some to occur in California" (Baird, 1859: p. 627, unconfirmed).
16 According to D. D. Brand (1951: p. 162), the peccary became extinct in the *municipio* of Quiroga on Lake Patzcuaro (Michoacán) within the last 50 to 100 years. For contraction in distribution elsewhere, see Hunn, 1977: p. 226 (Tenejapa, Chiapas, Mexico).
of game laws has been followed by some expansion in both range and numbers.\textsuperscript{17}

The northern limit of the white-lipped peccary lies in southern Mexico, where the species is now rare or has locally disappeared in the course of the present century. There is only one known report from Campeche (1901).\textsuperscript{18} Peccaries reported from northern and eastern Yucatán and northern Belize are either collared or of undisclosed species (probably collared).\textsuperscript{19} A history of retreat southward and westward in the peninsula is indicated. However, the greater part of the Petén (Guatemala) still remains within the zone of \textit{Dicotyles pecari}. In 1935 it was said to be the more common species around Uaxactún.\textsuperscript{20} There are also reports from neighboring northern Vera Paz,\textsuperscript{21} where Montero de Miranda (1574) noted the presence of two kinds of peccary,\textsuperscript{22} and from northeastern Chiapas, the domain of the Chol-Lacandon.\textsuperscript{23} Up to about a century ago, the species could still be found on the forested slopes of the Volcán de Atitlán.\textsuperscript{24} Beyond Chiapas and, presumably, Tabasco, the distribution stretches to the Isthmus of Tehuantepec in southern Veracruz.\textsuperscript{25} M. D. Coe and R. A. Diehl (1980) observed that the white-lipped peccary had been hunted to extinction in the vicinity of San Lorenzo Tenochtitlán.\textsuperscript{26} There are several early notices of \textit{puercos monteses} in the Vera Cruz region, as far north as Jalapa, and some may refer to \textit{D. pecari}.\textsuperscript{27} Probably

\begin{itemize}
  \item[\textsuperscript{17}] Sowls, 1969: p. 223 (Arizona and Texas).
  \item[\textsuperscript{18}] Merriam, 1901b: pp. 120–121 (Apazote). Gaumer (1917: p. 67) lists \textit{D. labiatus} (Cuvier), jabali (\textit{chehui}kax), among the mammals of Yucatán.
  \item[\textsuperscript{19}] The white-lipped peccary ("warree") was first reported from Belize (British Honduras, no precise location) by R. Temple, 1860: pp. 206–207. Leopold ([1959], 1972: pp. 498, 499) includes the whole of Yucatán within the range of the white-lipped peccary. Tusks of both species have been found at Dzibilchaltun and Mayapan, northern Yucatán (Pollock and Ray, 1957: p. 639; Pollock, Roys, and Proskouriakov, 1962: p. 377; Wing and Steadman, 1980: pp. 326–327), but the animals may not have been captured or killed locally. Not reported archaeologically from Cozumel (Hamblin, 1980: p. 223; 1984: pp 123, 126).
  \item[\textsuperscript{20}] Murie, 1935: p. 28. Faunal remains of white-lipped peccary were reported by Ricketson and Ricketson, 1937: p. 204, and Kidder, 1947: p. 60; similarly from Altar de Sacrificios by Olsen, 1972: p. 244 (Classic and early Postclassic) and from Altar, Seibal, Macanche and Tikal by Pohl, 1976: pp. 97 ff. Both species are "now abundant when ramon nuts fruiting" (Pohl, 1976: p. 59).
  \item[\textsuperscript{21}] Alston, 1879–1882: p. 109.
  \item[\textsuperscript{24}] Alston, 1879–1882: p. 110. The site of Kaminaljuyú has yielded faunal remains (Kidder, Jennings and Shock, 1946: p. 157).
  \item[\textsuperscript{26}] Coe and Diehl, 1980: 2: p. 102.
the range also included the neighboring forested foothills of northern Oaxaca. To the south, the species apparently survives along the Pacific coast of Guatemala and probably at one time extended into Soconusco (southern Chiapas).

Southern limits (map 3)

The distribution of peccaries stretches southward from the Guiana-Brazilia heartland, between the eastern flanks of the Andes and the Atlantic seaboard. They were formerly present throughout the Gran Chaco and thence along the eastern piedmont and down the valleys draining to La Plata. The distribution has probably steadily contracted since the beginning of European settlement, particularly in the vicinity of major centers of population. In the territory of the Tsáchila (Colorado) Indians of western Ecuador the peccary is said to have "gradually disappeared, due to a sort of murrain, introduced with horses by the white settler." Florentino Ameghino (1889) maintained that, in pre-Columbian times, the collared peccary ranged as far as the province of Río Negro ("north of Chubut," that is about latitude 42 degrees). Other authorities put the southern limit (historically) between the Río de la Plata and the Río Negro. Sixteenth-century relaciones of Asunción and Tucumán mention "puercos del monte" and "puercos jabalies." The collared peccary is...
still common in the flatlands and hill country of the eastern part of the province of Salta "in sympatry with Catagonus wagneri," the recently discovered third living species of peccary.38 Pedro Lozano (ca. 1730–

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1745) appears to refer to both of the principal species in the Chaco, and to one or other (probably T. tajacu) in writing of the Guayaki of southern Paraguay. Peccary (T. tajacu, if not also D. pecari) have been reported from the Chaco in territories occupied by the Chamacoco, the Guaná or Chaná, the Terena, the Choroti, the Mataco, the Pilagá, and the western Toba, and in southern and eastern Paraguay, and neighboring Misiones (Argentina), by the Mbyá, the Chiripá and the Caingua. The most southerly known report from Brazil concerns the Caingang.

The white-lipped peccary formerly ranged as far south as northern Argentina (El Chaco to Misiones), probably just beyond the middle Paraná. E. Boman (1908) implies the presence of both species in the Sierra Santa Barbara, Jujuy, Argentina. The western Toba hunted the white-lipped peccary along the forested margins of the Bolivian and Argentinian Chaco. The missionary Martin Dobrizhoffer (ca. 1780) reported "four different species of wild boar," including perhaps the white-lipped peccary, in his account of the Abipón in the southern Chaco, west of the lower Paraná. Probably the whole of Paraguay and neighboring parts of Argentina lay within the range of the larger species at the time of first European contact.

Off-shore islands

Peccaries have been recorded for a number of off-shore islands. When and in what circumstances they were introduced are unknown. Grijalva

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39 Lozano, 1733: pp. 37, 40 (Gran Chaco Gualamba).
43 Oberg, 1949: p. 10; and, to the west, the Caduveo (ibid: p. 59).
45 Nino, 1913: p. 97 (Guisnay = Mataco); Métraux, 1946a: pp. 261, 264.
46 Métraux, 1946a: p. 264.
51 Ameghino, 1889: 1: p. 574; Ambrosetti, 1894b: p. 68.
and Cortés (1518–1519) found “puercos monteses” on the Isla de Cozumel,\(^56\) eighteen kilometers from the eastern coast of Yucatán. The first modern report was by C. H. Merriam (1901), who claimed the specimen as a new species, \(Tayassu\) \(nanus,\) only two-thirds the size of the common collared peccary (possibly the result of long isolation).\(^57\) This is supported by recent archaeological work.\(^58\)

There is prehistoric evidence of \(Tayassu\) sp. in Trinidad,\(^59\) as well as modern scientific references.\(^60\) Thomas Jeffreys (1762) found “plenty of wild hogs,”\(^61\) but he may have been referring to feral pigs. In Tobago, some forty kilometers northeast of Trinidad, there was, according to César Rochefort (1666), “une sorte de sangliers, que quelques Indiens nomment \(javaris\) et les autres \(pequires,\)”\(^62\) About 150 kilometers to the northwest, on the island of Carriacou, a clay head “resembling . . . the peccary” has been found.\(^63\) Bryan Edwards (1793) maintained that the peccary was “anciently” present in the Windward Islands (thus “proving” that they had been peopled from the south), but had subsequently been exterminated. The specimens that he had actually seen had been “carried thither from the continent as objects of curiosity.”\(^64\) Some may have been taken as far afield as the Leewards.\(^65\)

J. E. S. Linne (1929) suggested that peccaries “were kept as domestic animals on the Pearl Islands [thirty kilometers off the Pacific coast of Panama], at all events during the later [prehistoric] period. . . .”\(^66\)

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\(^56\) López de Gómara (1551–1552), 1954: 2: 28. \(Puercos\) \(monteses\) usually refers to the peccary. Fernández de Oviedo y Valdés ([1526], 1950: p. 151) also applied the description to feral European pigs on the West Indian islands. However, Díaz del Castillo’s ([ca. 1568], 1955: 1: p. 62 [1518]) “muchos puercos de la tierra [Cozumel], que tienen sobre el espinozol el ombligo” clearly refers to the peccary.


\(^58\) Hamblin, 1980: p. 234.

\(^59\) Wing, 1977: p. 58. Trinidad is about sixteen kilometers from the shores of Venezuela.

\(^60\) Dorst, 1967: p. 39 (\(D.\) \(tajacu\)); Méndez, 1970: p. 243 (\(T.\) \(tajacu\)). Kerr ([Gmelin/ Linnaeus], 1792: p. 352) observed that “[\(Sus\) \(tajassu\)] inhabits the warmest parts of America and . . . some of the West India islands.”

\(^61\) Jeffreys, 1762: p. 3 (cf., ibid.: p. 17, “wild boars called \(sajones\)” around Cathagena [Cartagena], probably peccaries).

\(^62\) Rochefort, 1666: p. 31. Also described in Rochefort and Poincy, 1658: p. 122, 1666: p. 70 (other islands too?).

\(^63\) Fewkes, 1922: p. 121.

\(^64\) Edwards, 1793: 1: pp. 87, 89. The Windwards extend from Dominica in the north to Grenada in the south and include Carriacou. D. Taylor (1938: p. 149) observed that “the Caribs [of Dominica] . . . rely upon their dogs to find and kill agouti and [wild] pig.” However the latter were probably feral \(Sus\) \(scrofa.\)

\(^65\) Roulin, 1835: p. 329 (“[J.-B. du Tertre] connaissait fort bien [les pécariis] qui, de son temps [ca. 1650], étaient quelquefois apportés de la côte de Cumana à Saint-Christophe par les barques venant de l'île de Tabago”). Martius (1867: 2: p. 318) gives \(zaino\) \(scuna\) as the Taino (Española) name for the peccary. For \(zaino\) (Spanish) see pp. 50–51 infra.

\(^66\) Linne, 1929: pp. 130–131.
However, the species has never been described (archeologically or otherwise) from these islands or from the neighboring island of Coiba.67

Collared peccaries are said to have been introduced to Saint Domingue (Haiti) and the Ile de la Gonave from Cartagena some time before 1787 by the then governor of the islands, La Luzerne.68 The idea of naturalizing the species, and thereby increasing the food supply, appears to have been thwarted by the Negro rebellion.

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D: HABITAT AND DIET

Habitat

The peccaries, like the wild pigs of the Old World, belong to a variety of woody environments and subsist on the products of the forest and of woodland and scrub formations. Of the two most common New World species, the collared peccary has much the greater latitudinal and environmental range, extending from the hot and humid tropics to lands that are seasonally colder and drier, and less heavily vegetated, than those occupied by the white-lipped peccary. The greater environmental tolerance of *Tayassu tajacu* is apparently matched by a significantly larger number of subspecies or varieties. There is a considerable area of overlap in the general distribution of the two species (map 1), which, according to P. Hershkovitz, "occupy similar if not practically identical niches in most of the Brazilian Subregion [of Neotropica] where they are sympatric." Nevertheless there are differences in preferred local habitat even within the humid tropics, and the two species do not consort together. There are no known reports of natural hybrids, although interbreeding has occurred in conditions of captivity.

White-lipped peccary: The white-lipped peccary is the less closely observed, as well as the more conservative, species, and "further information regarding its actual habitat is desirable." Moving in large, compact groups, it prefers climax rain forest, with a dense canopy and comparatively little undergrowth. In mythology and folklore, the species and its environment are often closely associated.

The largest numbers (and larger herds) probably inhabit undisturbed sections of riverine and marshy lowland, with much smaller numbers in interfluval tracts (*tierra firme*) and cooler montane forest. In some cases the latter may be relic or fugitive populations, following human exploitation of the valley lands. There are reports of white-lipped peccaries at

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1 Hershkovitz, 1972: p. 363.
2 Remarked by Azara (1801), 1838: p. 118.
4 Enders (1935: p. 478: Panama Canal Zone) stated that when white-lipped peccaries move into an area, other animals (presumably including the collared peccary) move out.
ca. 5,000 feet in Venezuela\(^6\) and Panama\(^7\) and on the upper slopes of the Volcán de Atitlán in Guatemala.\(^8\) They apparently range (or ranged) up to 6,000 feet or more on the eastern slopes of the Andes, "climatically very different from . . . eastern Brazil and the Amazon valley, but the [white-lipped peccary's] general characters are not peculiar."\(^9\) In the usually short dry season, "they concentrate along rivers and forest creeks and not seldom can they be seen swimming across rivers."\(^10\) Probably the white-lipped peccary rarely moves far from running water or shallow pools, where it is sometimes found wallowing.\(^11\) Both species appear to make use of a variety of microenvironments to combat extremes of temperature.\(^12\)

**Collared peccary:** Collared peccaries prefer dense undergrowth of secondary or remnant forest, paludal thickets, and tracts of scrub savanna (in the Chaco and elsewhere). Moving in single file, they can force a way through apparently impenetrable vegetation and sometimes form regular tracks. Man-made trails are generally avoided. When flatlands are periodically flooded, herds congregate on temporary islands of higher ground.\(^13\) On the other hand, collared peccaries have been observed at up to 8,000 feet in the *monte alto* of Central and lower Middle America.\(^14\) In higher latitudes, they inhabit pine and scrub-oak woodland\(^15\) and, along the northern extremities of their range, xerophytic brushwood (chaparral, cactus, mesquite, and acacia), notably along ravines and over rocky slopes, and avoiding the dry and open flatlands.\(^16\) In Sonora and Chihuahua peccaries are found up to ca. 7,500 feet,\(^17\) in central and southeastern Arizona to ca. 6,500 feet.\(^18\) In these peripheral areas the availability of water, ground cover and food supplies, and low nocturnal

\(^6\) Röhl, 1959: p. 141.
\(^8\) Alston, 1879–1882: p. 110 (also higher woodland in Costa Rica).
\(^10\) Husson, 1978: p. 352 (Surinam, quoting Geijskes, 1954). In the Vaupés region (Colombia), white-lipped peccaries occupy higher ground during the wet season, feeding on umari fruits, and later move towards the swamps (Silverman–Cope, 1973: p. 69). Husson also refers (on the authority of Penard and Penard, 1905) to dry-season migration towards the coast. R. H. Schomburgk ([1840–1844], 1923: 2: p. 130) observed that the white-lipped peccary swims "awkwardly," P. Hershkovitz (1972: p. 363) that both species are "excellent swimmers and cross rivers routinely." Husson (1978: p. 355) had no evidence of swimming by collared peccaries.
\(^14\) Frantzius, 1869: p. 296 (Costa Rica); Alston, 1879–1882: p. 108 (Guatemala); Goodwin, 1946: p. 447 (Costa Rica); Kelly and Palerm, 1952: p. 74 (Vera Cruz, Mexico).
\(^15\) Pennington, 1969: p. 128 (Chihuahua).
\(^16\) Bailey, 1931: pp. 10–11 (northern Mexico, Texas); Dalquest, 1953: pp. 207–208 (San Luis Potosí); West, 1964: p. 369 (western Sonora, north-western Sinaloa).
\(^17\) W. J. Hamilton, 1939: p. 368.
\(^18\) Neal, 1959: p. 177.
temperatures limit the distribution; and, from time to time, winter cold and shortage of food take their toll of numbers. L. K. Sowls found “an apparent direct relationship” between the amount of rainfall (and thus the quantity and quality of their food supply) and the percentage of young in samples of animals killed by hunters.

Diet

Both peccaries are omnivorous, although predominantly vegetarian. Francisco Hernández (1571–1576) referred to roots (raíces), acorns “y otros frutos del monte,” as well as to grubs and worms (gusanos, lombrices) “y otros animales semejantes que se crían en sitios húmedos, lacustres y pantanosos.” Such animals, found on or just below the surface of the ground, include many species of insects, toads and reptiles, and snakes. Again, as opportunity arises, peccaries will take the eggs of birds, turtles and alligators, fish trapped in pools, and even some carrion.

Peccaries are notorious crop-robbers, operating particularly at night. Raids on maize milpas (toppling the stalks to consume the cobs) have been reported from the time of Oviedo (1526). Using their prominent tusks, they grub for sweet potatoes and manioc roots, both the sweet and bitter varieties. Among the Quechua-speaking Canelo of eastern Ecuador, the peccary is known as lumu cuchi, the “manioc pig.” A taste for sugar cane and bananas has also been remarked. Raids on subsistence crops may locally be tolerated (or even encouraged) as a means of concentrating supplies of animal protein, the “garden hunting” reported from Panama. Similarly the Maracá (Colombia–Venezuela) most fre-

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23 Pennington, 1969: p. 70 (country of the Tepehua, Durango, Mexico).
24 Fernández de Oviedo y Valdés, 1950: p. 94.
25 Eckart, 1785: p. 512; Sánchez Labrador (ca. 1766), 1910: 2: p. 258 (“las raíces de batatas y mandioca,” territory of the Chana or Guana, northern Paraguay); Chapman, 1929: p. 74 (Barro Colorado island, Panama Canal Zone); Le Roy Gordon, 1957: p. 72 (Sinú region, Colombia); Moser and Taylor, 1963: p. 444 (Río Piraparana, extreme southwest Colombia, territory of the Tukano); Villas Boas, 1974: p. 265 (upper Río Xingu, Brazil).
28 Linares, 1976a: pp. 331–349, especially pp. 338–339, 345 (archaeological and contemporary evidence from the Agua cate peninsula). Earlier, Sauer (1966: p. 244) had suggested that “game [deer and peccaries] was perhaps most numerous near the settlements [of the Cueva], by the attraction of growing crops and uncultivated fields.”
quently hunt peccaries from stands (sikarto) erected in cultivated fields and along paths, with maize, plantains, and bananas placed so as to attract the animals.\textsuperscript{29}

It is accepted that peccaries subsist chiefly on wild plants (fruit, nuts and seeds, rhizomes and bulbs, mushrooms and other fungi, and fresh greens), many of which, in the humid tropics, are eaten by both species. Perhaps most important are the fruit and nuts of species of palm,\textsuperscript{30} such as \textit{Astrocaryum vulgare} (awarra), \textit{Jessenia polycarpa} (milpeso),\textsuperscript{31} \textit{Attalea regia} (maripa),\textsuperscript{32} \textit{Euterpe oleracea} (açaí), \textit{Iriartea} sp. (paxiúba),\textsuperscript{33} \textit{Scheelea zonensis},\textsuperscript{34} and \textit{S. liebmannii} (coyai, coyal real).\textsuperscript{35} The fruits of cacao (\textit{Theobroma cacao}),\textsuperscript{36} zapote (several species), umari (\textit{Poraqueiba sericea}),\textsuperscript{37} and membrillo (\textit{Gustavia superba})\textsuperscript{38} are also readily devoured. The white-lipped peccary is the better equipped to crack hard nuts.\textsuperscript{39} Some occasionally pass through the alimentary system in unbroken form, thus serving to disseminate particular tree species.\textsuperscript{40}

Seasonal changes of diet and of range according to the availability of resources are probably most important towards the drier margins of the distribution of (collared) peccaries.\textsuperscript{41} This is also, however, a feature of the humid tropics. R. K. Enders, writing of Barro Colorado Island (Panama Canal Zone), has described shifts in reliance upon almendro nuts (\textit{Geoffraea superba}), followed by “[wild] figs of many species,” and then palm nuts.\textsuperscript{42} Exudate gums and resins are sometimes eaten,\textsuperscript{43} and the flow of gum may be stimulated by the gnawing of bark by the peccaries. Species of grass are perhaps chiefly “famine foods” and are generally more typical of impoverished (periodically arid) environments.\textsuperscript{44}

The resources of the drier and/or temperate lands of the collared peccary include cactus stems (also a source of water) and fruit, notably the prickly pear (\textit{Opuntia spp.}), acorns and pine nuts, the berries of juniper and manzanita (\textit{Arctostaphylos glauca, A. tomentosa}), wild pota-

\textsuperscript{29} Ruddle, 1970: p. 41. According to Nietschmann (1973: p. 167 n.), at Tasbapauni (Miskito coast, Nicaragua) “collared peccaries are frequently killed in the plantations as they root up the plants, but they are usually left or dragged off into the bush” (the meat is rejected as food).


\textsuperscript{31} West, 1957: p. 41 (Pacific lowlands of Colombia).

\textsuperscript{32} Husson, 1978: p. 352 (Surinam).

\textsuperscript{33} Smith, 1976: p. 456 (Brazil).

\textsuperscript{34} Enders, 1935: pp. 471–472 (Panama).

\textsuperscript{35} Coe and Diehl, 1980: 2: p. 102 (southern Vera Cruz, Mexico).

\textsuperscript{36} Schomburgk, 1836: p. 269 (Essequibo region, Guyana).


\textsuperscript{38} Enders, 1935: p. 472 (Panama).

\textsuperscript{39} Kiltie, 1979: p. ii.

\textsuperscript{40} Chapman, 1931: p. 349.

\textsuperscript{41} Eddy, 1961: pp. 248, 251.


\textsuperscript{43} Enders, 1935: p. 472.

toes, and mesquite (*Prosopis juliflora, P. pubescens*) and acacia beans. The collared peccary is apparently (and probably necessarily) the more efficient exploiter of bulbs and rhizomes. It can locate such foodstuffs at a depth of five to eight centimeters by using the sense of smell. The size and range of herds are related to the territorial and seasonal distribution of food supplies, in particular the association between the characteristically large herds of white-lipped peccary and the presence of "clumped resources." The larger herds of both species are to be found in ecologically richer environments. Peccaries are often said to feed "erratically," but regular feeding grounds (*comederos*) have been described from areas normally undisturbed by man. They may also frequent salt licks, around mud holes and along streams.

46 T. A. Eddy (1961: pp. 248–257), in one of the few studies of the foods and feeding habits of the (collared) peccary, lists 40 species (providing fruit, berries, acorns, beans, foliage, tubers and nuts) from three study areas in southern Arizona.
The collared peccary has been intensively studied along the northern (arid) margins of its distribution, particularly in Arizona. There are also some detailed observations of both species from Barro Colorado island in the Isthmus of Panama. The white-lipped peccary is generally less well known, and the extent and significance of any regional variations in the behavior of the more numerous varieties of collared peccary are at present difficult to establish.

Reproduction and mortality. Peccaries breed from the age of twelve to twenty months. They do not form long-term pair bonds. Litters are small by comparison with domestic pigs, usually two over a period of twelve months. Peccaries are not, therefore, "very prolific" as maintained by some eighteenth-century authors. The gestation period of the white-lipped peccary (158 days) is generally longer than that of the collared peccary (142 to 145 days or a wider range). Births may occur at any time, although there is some evidence of a peak in summer (wet season) in areas with a sharply contrasting climatic regime. The young of the collared peccary move around after a few hours, are weaned after six to eight weeks, and remain with the mother for about a year. Captive specimens of the same species have been known to live for twenty or more years, the white-lipped peccary for up to thirteen years. In the natural state, peccaries form resilient populations, with relatively low mortality rates. Consequently they may "multiply rather quickly, even though females produce only two young per year." Apart from man, their principal enemies are the jaguar, the puma, and less commonly the boa (Eunectes murinus).

10 Kappler, 1887: p. 81. Nelson (1916: p. 448) adds the bobcat (Lynx rufus) and the coyote (Canis latrans mearnsi).
Size of herds. Both peccaries are gregarious. They form herds throughout their lifetime, with little or no tendency to separate into temporary, seasonal groups according to age or sex. The size of the herd is probably broadly related to the density of animals within a particular region. Over time, it is of course also affected by the ratio of births to deaths and by the migration of single animals or pairs, or more rarely small groups, between one herd and another (of the same species).

Actual numbers vary considerably, but herds of white-lipped peccary, the jabali de manada, are almost always the larger, normally much larger. Fifty is unremarkable, and two hundred or even more have been reported. Collared peccaries, on the other hand, usually form groups of ten to twenty, rarely as many as fifty. Isolated pairs and even solitary individuals (old males) have occasionally been observed.

Territory. Peccaries may be found moving about at any hour of the day or night. Probably both species are predominantly diurnal; in hot regions

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11 Sowls, 1974: pp. 144, 147 (collared peccary). E. R. Alston (1879–1882: p. 110), quotes a suggestion of F. D. Godman and O. Salvin [pers. comm.] to the effect that “female [white-lipped peccaries] with their young broods probably [keep] apart from the herd until the latter are of a sufficient size to shift for themselves,” but this suggestion has not been confirmed.


they feed chiefly in the early morning and late afternoon or early evening. From what little evidence there is, it appears that the white-lipped peccary shows the greater tendency to nocturnal activity.¹⁵

There is little information on the "territories" occupied by herds of white-lipped peccary. Presumably the size of such areas is directly related to the herd’s substantial food requirements and, in turn, to the resources of particular regions. In the case of the collared peccary, home ranges (in Arizona) of between one-fifth of a square mile and one-and-a-half square miles have been observed.¹⁶ Around water holes in arid regions and near preferred bedding sites, ranges may overlap to the extent of between 100 and 200 meters, but in general herds occupy discrete territories.

The purpose of the peccary’s scent gland is even now not fully understood. That it serves to demarcate territory is the most widely supported view.¹⁷ But it has also been suggested that the scent plays some part in courtship,¹⁸ that it "co-ordinates the herd’s movements,"¹⁹ and that it acts as an "alarm signal."²⁰ Apparently both species have a keen sense of smell. Some early commentators came to the conclusion that the orifice was part of the peccary’s breathing system.²¹ However, it was quite accurately, albeit briefly, described by Francisco Hernández (1571–1576),²² and Montero de Miranda (1574) recognized the ombligo as a kind of scent gland (respiradero hediondo).²³

Social organization. Studies of social organization (interaction, hierarchy, dominance, leadership) have been hindered by the difficulty of observing herds under natural conditions for a sufficient length of time. Among collared peccary, "a well-defined hierarchy can be observed in penned herds, but [this] is hard to detect in wild herds. Females are usually dominant over males."²⁴ Again, "strong following tendencies are apparent,

²² Hernández (1571–1576), 1959: 1: pp. 310–311 ("un ombligo . . . y en el cual se junta un humor acuoso que fluye si se aprieta con los dedos").
but . . . no clear evidence of leadership within herds."25 It has been reported that when (?) collared peccaries migrate, younger animals are to the fore and the older bring up the rear.26 White-lipped peccaries (typically in large droves) do appear to recognize a leader, usually an old animal, either boar or sow.27

PART II: THE PECCARY IN HUMAN ECONOMY AND SOCIETY
A: THE PRE-COLUMBIAN PERIOD

Osteological evidence

The bones and/or teeth of peccaries have been identified at several archaeological sites (map 4). Dates extend from the Preclassic (or Formative) to the period immediately preceding Spanish contact.  

<table>
<thead>
<tr>
<th>Species</th>
<th>Period</th>
<th>Site</th>
<th>Region</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preclassic</td>
<td>La Perra</td>
<td>Tamaulipas,</td>
<td>MacNeish, 1958:</td>
<td>p. 140</td>
</tr>
<tr>
<td>collared</td>
<td>Preclassic</td>
<td>La Victoria,</td>
<td>Coe, 1961:</td>
<td>p. 141</td>
</tr>
<tr>
<td>white-lipped</td>
<td>Preclassic</td>
<td>Parita Bay,</td>
<td>Willey, McGinnsey,</td>
<td>p. 151</td>
</tr>
<tr>
<td>collared</td>
<td>Preclassic and Classic</td>
<td>Barton Ramie</td>
<td>Belize</td>
<td>Willey, Bullard, Glass, Gifford, 1965: pp. 523–524</td>
</tr>
<tr>
<td>white-lipped</td>
<td>Preclassic and Classic</td>
<td>Dzibilchaltun</td>
<td>Yucatán, Mexico</td>
<td>Wing &amp; Steadman, 1980: pp. 326–327</td>
</tr>
<tr>
<td>collared</td>
<td>Classic</td>
<td>Lubaantun,</td>
<td>Belize</td>
<td>Wing, 1975: pp. 379–381</td>
</tr>
<tr>
<td>collared</td>
<td>Classic</td>
<td>Uaxactun,</td>
<td>Guatemala</td>
<td>Ricketson &amp; Ricketson, 1937: p. 204</td>
</tr>
<tr>
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<td>Classic</td>
<td>Uaxactun,</td>
<td>Guatemala</td>
<td>Kidder, 1947: p. 60</td>
</tr>
<tr>
<td>white-lipped</td>
<td>Classic and Postclassic</td>
<td>Kaminaljuyú</td>
<td>Guatemala</td>
<td>Kidder, Jennings, Schook, 1946: p. 157</td>
</tr>
<tr>
<td>white-lipped</td>
<td>? Postclassic</td>
<td>Coclé</td>
<td>Panama</td>
<td>Lothrop, 1937: p. 16</td>
</tr>
</tbody>
</table>

1 "Remains of both peccaries are abundant in most Maya sites" (Olsen, 1982: p. 8). According to A. J. Ranere (1980: p. 31), collared and white-lipped peccaries were "probably available" to the inhabitants of pre-ceramic shelters in the Sierra de Talamanca, Costa Rica. General statements in Restrepo Tirado, 1892b: p. 110 (Colombia); Rojas González, 1949: p. 71 (Zapotec: Oaxaca, Mexico); García, 1952–1953: p. 158 (To tonac: Vera Cruz, Mexico); Olsen, 1964: pp. 23–24 (southern United States); Borhegyi, 1965: pp. 6, 23 (Guatemalan highlands); Bowen, 1976: p. 20 (Seri: Sonora, Mexico); Wing, 1977: p. 58 (Middle America and Trinidad).

29
The animals were not necessarily obtained in the immediate vicinity of the above sites. In particular, the remains of white-lipped peccary at Dzibilchaltun and Mayapan suggest the possibility of live specimens or of carcasses brought in from a distance.²

The relatively high percentage of immature specimens at Cozumel (Yucatán) and at Cerro Brujo (Panama)³ point perhaps to the capture and raising of juveniles, for which there are contemporary parallels in both areas. In the opinion of M. E. D. Pohl, “the high concentration on peccaries in the Postclassic Period at Flores could signify that these animals were tamed for eating or ritual purposes.”³a At Seibal a walled structure may have been used as an animal pen.⁴ “Rough stone troughs,” recovered from several Mayan sites, could have served to water a variety of tame or penned animals, including peccary.⁵

Iconographic evidence

A rare model of a peccary (fig. 3) was found in the Preclassic of Tlatilco, Valley of Mexico,⁶ and “a head resembling a wild pig” in the Preclassic of Seibal, Petén.⁷ Pedro Simón (1626) refers to a ceremonial

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⁵ Gann, 1918: p. 55.
⁶ Preclassic figures of animals, including peccaries, are mentioned by Piña Chan, 1971: p. 174.
MAP 4. Pre-Columbian sites with osteological evidence of peccaries.
site (templo) in the territory of the Cipacua (northern Colombia) "en que adoraban un puerco espin de oro fino" (? peccary rather than porcupine). A realistic representation of a peccary appears in a band of glyphs over a doorway on the eastern façade of the Casa de Monjas at Chichen Itza, Yucatán. Also at Chichen Itza there is a carving of a head-dress in the form of a peccary, and at Copan, Honduras, that of a monster with the body of a man and the head of a peccary.

Peccaries are portrayed in three pre-hispanic codices, two Mayan (Dresden and Tro-Cortesianus) and one Mixtec (Nuttall). They are identifiable "by their prominent snout, curly tail, bristling dorsal crest, and rather formidable tusks, as well as by the possession of hoofs," but the two species cannot be distinguished. In Dresden there are two peccary-head glyphs, a peccary seated on a serpent, and a creature that combines the hoofs and bristles of the peccary and the scales of a reptile. Three panels show the peccary in association with the sky. Nuttall includes a strikingly realistic representation (fig. 4), as well as a

10 Maudslay, 1889–1892: 3: pl. 45. See Tozzer and Allen (1910: p. 353) on "stone mask-like figures" that may represent peccaries, in façade decoration in northern Yucatán.
11 Maudslay, 1889–1892: 1: pl. 46. The peccary does not appear in G. Kubler's list of animals in The Iconography of the Art of Teotihuacan (1967: p. 14). In a study of the Conte style from Panama, O. F. Linares (1976a: p. 11) concluded that "the general rule seems to be that animals that were eaten were not used in iconography."
12 For studies of animal representation, see Stempell, 1908; Seler, 1909; Tozzer and Allen, 1910.
14 Dresden (Fürstemann), 1880: pp. 43b, 45b; Thompson, 1972: p. 43b.
15 Dresden (Fürstemann), 1880: p. 62; Stempell, 1908: p. 712 [fig. 7]; Seler, 1909: p. 403 (fig. 240); Tozzer and Allen, 1910: pl. 33 (6).
16 Tozzer and Allen, 1910: pl. 32 (6).
17 Dresden (Fürstemann), 1880: pp. 44b, 45b, 68a; Tozzer and Allen, 1910: p. 353, pls. 32 (2), 32 (4); Thompson, 1972: pp. 44b, 45b.
peccary with human hands and feet. The most arresting of the illustrations in Tro-Cortesianus are of peccaries caught in a noose (fig. 5). It is possible that such animals were taken alive.

In the post-hispanic Codex Mendoza (1535–1550), the name-glyph for Ixcoyamec or Ixcoyametl is made up of a conventional eye (ixtli) superimposed on the body of a peccary (coyámetl). The only other known references to the peccary in native sources are in the Popol Vuh

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18 Nuttall, 1902: pp. 73, 9 respectively; Seler, 1909: p. 402 [fig. 239].
19 Tro-Cortesianus (Anders), 1967: pp. 49a (Stempell [1908: p. 711] suggests agouti), 49c, 93c (peccary also on 30b and possibly 66); Seler, 1909: p. 404 (figs. 244a, 244b); Kelley, 1976: p. 120.
of the Quiché of Guatemala\textsuperscript{21} and in the \textit{Book of Chilam Balam of Chumayel}\textsuperscript{22}.

\textsuperscript{21} Jena, 1944: p. 190 (nim \textit{ac}); Edmonson (ed.), 1971: pp. 4, 21 (nim \textit{aq}, "great pig" [white-lipped peccary]). The \textit{Popol Vuh} is of pre-hispanic origin; the text used by Edmonson dates from 1550–1555.

\textsuperscript{22} Roys, 1933: pp. 96, 130 (ca. 1490–1510, and successive compilations up to the end of the eighteenth century).
B: EUROPEAN CONTACT

Early reports of peccaries

The peccary is mentioned in many sixteenth- and seventeenth-century sources (map 5), most of the natural histories and a substantial number of the relaciones geográficas. Before 1600 very few accounts make it clear that there were two species, but thereafter reports from the humid tropics (based either on personal observations or on hearsay evidence and inferences drawn from the native nomenclature) often refer to both. Generally the amount of supplementary information provided is very small, chiefly statements to the effect that the peccary was recognizably different from the wild pig of the Old World (notwithstanding some possible confusion with feral pigs), that they were commonly hunted, and that they, in turn, raided cultivated fields and gardens.

There are, however, a number of important exceptions to these unremarkable observations. Reports from the coastlands of the southern

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3 Laet (1633), 1640: p. 484 (Brazil); Biet (1652), 1664: p. 340 (Cayenne); Acuña (1639), 1698: p. 69 (Amazon); W. (M.) (ca. 1699), 1732: p. 297 (Miskito Coast, Nicaragua); Warren (1667), 1752: p. 925 (Surinam); Dampier (1681), 1906: 1: p. 41 (Miskito Coast, Nicaragua); Anon. (1607), 1908: p. 151 (Panama); Harcourt (1613), 1928: p. 95 (Guiana); Wafer (1680–1688), 1934: pp. 15, 64, 102–103 (Panama); León Pinelo (ca. 1650), 1943: pp. 50–51 (Tierra Firme); Cobo (1653), 1956: 1: pp. 358, 363–364; Abbeuille (1614), 1963: p. 249 (Ilha Maranhão); Jiménez de la Espada (ed.), 1965: 3 (4): p. 246 (1619, Maynas, eastern Ecuador/Peru); Ruiz Blanco (ca. 1690), 1965: p. 23 (Pirutí, Venezuela).
4 Regional observations in: Thévet, 1558: p. 95, 1568: p. 77a, 1575: 2: p. 936b (Cayenne); Lério (1557/1578), 1592: p. 180, 1600: p. 137 (Brazil and Nicaragua); Vargas Machuca, 1599: p. 153; Fleckmore, 1654: p. 71 (Brazil); Coreal (1666–1697), 1722: 1: p. 196 (Brazil); Raleigh (1595), 1848: p. 111 (Guiana); Cieza de León (1532–1550), 1853: p. 400, 1864: p. 174 (Portoviejo, Ecuador); Núñez Cabeza de Vaca [Pero Hernández] (1541–1544), 1891: pp. 118, 135, 1906: 1: pp. 182, 205 (La Plata); U. Schmidt (1535–1552), 1891: pp. 15, 19 (La Plata/Paraná); López de Velasco (1571–1574), 1894: pp. 431 (Quito), 442 (Piura, Peru), 454 (Santiago de las Montañas, Peru), 507 (Santa Cruz de la Sierra, Bolivia), 554 (La Plata), 557 (Ciudad Real [del Guairá], Paraguay), 565 (Brazil); Castillo (1675), 1906: p. 305 (Mojos); Baltasar de Ocampos (1610), 1907: p. 235 (Mañaries, Vilcapampa, Peru); Vázquez de Espinosa (ca. 1628), 1942: pp. 61 (Guiana), 208 (Chiapas), 644 (Santa Cruz de la Sierra, Bolivia); López de Gómara (1551–1552), 1954: 1: p. 154 (La Plata); Toribio de Oribe de Júarez (1580–1590), 1968: p. 302 (Río Marañón, Peru).
MAP 5. Locations of references to peccaries in sixteenth- and seventeenth-century sources. Relaciones geográficas (1–33) in accompanying list.
Relaciones geográficas
1. Santiago de León [de Caracas] (1572/1578)
2. Trujillo (1579)
3. Nueva Zamora (1579)
4. Santa Cruz de la Sierra (1571)
5. Quixos [Quijo] (1570s)
6. Piura (16th century)
7. Asunción (1594)
8. Quito (1573)
9. Otavalo (1582)
10. [Rio] Coraguana (16th century)
11. Los Maynas (1619)
12. Los Mojos (1564)
13. Vera Cruz (ca. 1571)
14. Valladolid (1570s), Sucopo (1579), Popola (1569)
15. Hueytalpan (1581)
16. Tucumán (16th century)
17. Chinantla (1579)
18. Mitla[n]tongo (1579)
19. Puerto de Guatulco (16th century)
20. Pochutla (16th century)
21. Tonameca (16th century)
22. Guatulco (16th century)
23. Chila (1581)
25. Xalapa de Vera Cruz (1580)
26. Xilotepec (1580)
27. Chepultepec (1580)
28. Tetela (1581)
29. Chilapa (1582)
30. Coatepec de Guerrero (1579)
31. Coatepec-Chalco (1579)
32. Huexutla de Hidalgo (1580)
33. Zumpango del Río (1582)
Caribbean indicate that peccaries were kept, fattened, and traded. In what is probably the earliest reference to the peccary, we learn that Columbus, off the coast of Costa Rica (Cariay) in 1503, took aboard two specimens "which an Irish wolfhound had not the courage to molest." According to Fernández de Oviedo y Valdés (1514-), writing of Tierra Firme and more particularly the Isthmian province of Cueva (which he knew personally), "sucking pigs" (lechones) were occasionally captured. But the most remarkable testimony comes from the lands around the Gulf of Uraba. In the vicinity of San Sebastián de Buenavista there were Indian traders, grandes mercadores y contratantes, who exchanged fish and salt and native pigs ('muchos puercos de los que se crian en la misma tierra”) for the gold and cotton cloth of tribes further inland. It is very doubtful whether the "pigs" were actually bred in captivity; more likely, our informant, Pedro de Cieza de León (ca. 1532), implies that captured juveniles were reared and fattened. A contemporary, Pascual de Andagoya, observed that in a particular valley on the Pacific coast (territory of the Barbacoa, Colombia) each dwelling had its pen for peccaries ('corrales de puerco de los naturales de allá”).

Similar statements are made by Antonio de Herrera (ca. 1600) and Pedro Simón (1623–1626). Simón is particularly informative. We are told that the Urabá fattened puerco de monte in their houses ('engordan en sus casas”), and that the Guazuzú were "requissimas de oro fundido, que lo habian en rescates [exchange] de . . . puerco de monte cebados y gordos.” The Abibe, too, appear to have been involved in the traffic

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5 Columbus, 1825–1829: 1: pp. 284 [in Diego de Porras’s account], 307 (1503), 1870: pp. 200–201, 1930: p. 302, 1963: pp. 353 [in Ferdinand Columbus’s account], 381 (1503). Amerigo Vespucci (1893: p. 18) refers to "pigs" (porci) in the account (written 1504) of his alleged first voyage to the New World in 1497–1498 (landfall south of Trinidad and Paria). Other animals mentioned he could not have seen. The record is essentially imaginary (Markham in Vespucci, 1894: pp. i–xlv). However, he appears to have incorporated some information gathered on his “second” (in fact, first) voyage with Alonso de Hojeda (estuary of the Orinoco and Gulf of Paria) in 1499–1500, and it is possible that he then sighted or heard of peccaries.


7 Cieza de León (1532–1550), 1853: p. 361, 1864: p. 37. Fernández de Enciso (Suma de Geografía [1519], 1948: pp. 221–222) mentions gold (Darién) and salt (Isla Fuerte) and "mucho puerco" (Darién and Santa Marta), but not trade in these products. See also Benzoni (1541–1556), 1572: p. 79, 1857: p. 115 (Cueva and Darién); Barlow (1521–1531), 1932: p. 175 (Darién); López de Gómara (1551), 1954: 1: pp. 96, 118 (Darién); Las Casas (1559), 1951: 2: p. 410 (Urabá).

8 Andagoya, 1829, p. 449 (opposite the island of Gallo, located on map 16). J. E. S. Linné (1929: pp. 130–131) suggested that peccaries were kept as "domestic animals" on the Pearl Islands off the Pacific coast of Panama. For this, however, there is no supporting evidence.

9 Herrera, 1934–1956: 10: p. 102 (San Sebastián de Buenavista, 1532), following Cieza.


in gold, cotton mantas, and puercos zahíños between the coast and the hinterland. Immediately to the east, in the middle Cauca valley, the Yamí "raised captured peccaries in their houses." A description (1610) of the shorelands of the Laguna de Chiriqui (Panama), south of Columbus's landfall at Cariay, mentions trade in tame (mansos) peccaries and tapirs and other commodities (caraña and chaquira), again for inland gold. The animals were valued for feasts and celebrations (convites y fiestas), particularly the much larger and rarer tapir. Commerce involving reared peccaries may have been commonplace in lower Central America and northernmost South America, as far east as Curíana. This is a region for which there are many later references to tame animals and birds, as well as to the Muscovy duck, the only species domesticated in the humid tropics of the Americas.

Francisco Hernández (1571–1576) observed that the coyámel of New Spain was tameable ("una vez que se domestica es apacible, se aficiona a los de casa y se granjea su cariño"), and in Tlaxcala (1531), according to Herrera, "many peccaries" were bought and sold. While there is no reason to doubt this, no similar observation for any other part of Middle America has come to light.

14 Zevallos, 1886: p. 157 (Río Tariri [Tarine, Sixaola] to the Escudo de Veragua). Caraña was a resinous, aromatic gum; chaquira, "mock pearl" or a kind of glass bead. The nature and significance of pre-Columbian trade in Panama and northern Colombia are considered by Helms, 1979: pp. 38–69, especially pp. 47, 56, 66. See also Linares, 1977: p. 73.
15 Cf. Fernández Guardia, 1913: p. 21 (among the principal articles of commerce in pre-Columbian Costa Rica were "tapirs and wild hogs, domesticated for killing at their festivals"). López de Velasco ([1571–1574], 1894: pp. 328, 330) mentions peccaries in Costa Rica.
16 See Cain (1779), 1966: 1: p. 73 ("y cogido alguno, se amansa, y domestica como los puercos caseros, a quienes se agregan, y muestran sociables"). 76, 78. Early references to peccaries in Anghiera (1511–1530), 1944: pp. 82, 83, 298 (hunting in Curíana), and Fernández de Oviedo y Valdés (1520–1555), 1959b: 3: pp. 80, 130, 164 (Cartagena, Santa Marta, Nuevo Reino de Granada). Kirchhoff (1948d: p. 483) observed that, north of the Orinoco, "people raised many animals in captivity. When young mammals refused to eat, women would feed them at their breasts." Thévet ([1558] 1568: p. 77) referred to a captured peccary in his account of Cayenne.
Pigs in the New World (map 6)

Pigs (*Sus* *scrofa* *domestica*) were among the first domesticated animals to be taken to the New World, and for several decades they were the most important species for food supply. The rearing of pigs had been part of the pastoral economy of southern Iberia since prehistoric times. Decline during the centuries of Moorish occupation was followed by renewed interest in the wake of the *Reconquista*.\(^{20}\) From the hinterland

of the ports of embarkation pigs were carried to the earliest island outposts of Spain and Portugal: to the Canaries, the Azores, Madeira, and the Cape Verdes. Livestock from the Atlantic colonies made up a significant proportion of what later passed to the Indies.21

Pigs (particularly the black- and russet-colored Iberian breeds, reared in open woodland) possessed pioneer qualities admirably suited to an age of exploration and colonization. They were omnivorous and, like the *conquistadores* themselves, hardy, mobile, and physically adaptable. They could more easily be transported by ship than other domestic mammals,22 and later be driven overland to supply expeditions. They were also economical, in the sense that a high proportion of their body weight consisted of edible meat and lard.

Introduction to the New World: Columbus, on his second voyage to the Indies (1493), took on board eight pigs as well as other animals at La Gomera (Canaries),23 all destined for the bridgehead in Española. According to Michele de Cuneo (28 October 1495) they “reproduced in a superlative manner, especially the pigs.”24 Other breeding stock followed,25 and Spain’s later mainland territories were supplied chiefly, if not exclusively, from populations established in the Islands. Swine were taken to Puerto Rico between 1505 and 1508,26 to Jamaica from 1509,27 and to Cuba (from Jamaica and possibly Española) in 1511.28 During the following decade animals from one or more of these islands were dispatched to the southern shores of the Caribbean, from Darién29 and Panama in the west to Coro30 and Cumaná in the east. Pigs reached Panama first from Darién (1519) and then from Jamaica.31 A royal grant to Panama in 1521 included 1,000 pigs from the *hacienda real* in Jamaica.32 A decade or so later the Isthmian population provided the

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21 Wernicke, 1938: p. 78.
24 In Columbus, 1963: p. 217.
25 Morrisey, 1957: p. 24; Deffontaines, 1957: p. 11. Las Casas clearly exaggerated in affirming “Destas ocho puercas se han multiplicado todos los puercos que hasta hoy ha habido y hay hoy en todas estas Indias....”
26 Coll y Toste, 1947: p. 62 (on the orders of Vicente Yáñez Pinzón). The occupation of the island commenced in 1508 under Hernán Ponce de León.
29 Deffontaines, 1957: p. 11 (1509, presumably from Española). This date appears to be somewhat too early. Santa María la Antigua de Darién was “founded” in 1510 following the evacuation of the unsuccessful settlement (1509) of San Sebastián on the eastern side of the Gulf of Urabá. According to J. Ignacio de Armas (1888: p. 176) pigs were brought from Cuba (after 1511).
30 Deffontaines, 1957: p. 11.
initial breeding stock for Peru. In 1540 Gonzalo Pizarro is said (by Garcilaso de la Vega) to have assembled 4,000 head of stock, "pigs and Peruvian sheep" (llamas), for an expedition to La Canela, "the land of Cinnamon," to the east of Quito. Pigs may have been landed on the coast of what later became Colombia as early as 1516. They apparently reached the central highlands between Popayán and Bogotá in the late 1530s from Peru and Ecuador (under Sebastián de Belalcázar) and from the Caribbean coast (under Gonzalo Jiménez de Quesada).

For the conquest and settlement of Mexico swine were brought from Jamaica and Cuba and imported through Vera Cruz. Cortés's expedition (1526–1527) to Honduras included a large herd of swine ("una gran manada de puercos"), some of which were released on the Bay Islands. Likewise, Hernández de Soto introduced pigs (from Cuba) to Florida ca. 1540. Before about 1518 the authorities in Española attempted to maintain a monopoly of animal breeding, with the notable exception of pigs, which multiplied very rapidly and, in the form of feral droves, ravaged cultivated crops, notably maize and sugar cane.

From the early years of the exploration of the New World the Spaniards and particularly the Portuguese released (soltura, from soltar "to turn loose") pigs and occasionally goats on uninhabited islands and stretches of inhospitable coast, primarily for the benefit of mariners who might later be shipwrecked. Consequently the first settlers in such places (English and French, as well as Spaniards and Portuguese) often found feral livestock. Humphrey Gilbert (1583) credited the Portuguese with the introduction of swine to the island of Sablon or Sable (Nova Scotia). Domingo Martínez de Irala (ca. 1540) left a sow and a boar on the island of San Gabriel in the estuary of the Rio de la Plata and gave instructions that others should be placed on Martín García. Some at least of the pigs introduced by Gonzalo de Mendoza (1538) to the province of La Plata appear to have come from Portuguese settlements.
on the coast of Brazil, most likely São Vicente. In the course of the 1530s the Portuguese began landing livestock (first pigs and fowl, later other animals) from Olinda southward. By about the middle of the century the descendants of pigs brought to La Plata had moved north to Paraguay and the region around Tucumán, near to the southern limits of expansion from Peru. Roulin’s observation, in 1835, that, within half a century, domestic swine had spread to latitude 40 degrees south (Río Negro) and to latitude 25 degrees north (therefore omitting Florida) was substantially correct.

Increase in numbers and the growth of feral populations. The important part that pigs played in the occupation of the New World was doubtless appreciated at the time, and indeed evidence to this effect exists in various relaciones. Pork-butchers’ shops (carnicerías) were quickly organized in Mexico City (1524) and Lima (1536). Pork was recommended, and might be reserved, for those who were ill, infirm, or convalescent. Prices of live pigs—sometimes fed on tribute maize—and of pig meat were at first high, and there was even a strong market in unborn sucking-pigs. Then, as the number of animals increased, prices fell sharply, sometimes to the point where it was hardly worth maintaining special pig farms (hatos de puerco).

There is ample eyewitness support for José de Acosta’s (1590) general observation that “swine . . . greatly multiplied in the Indies.” In Peru “sows proved very prolific.” Garcilaso de la Vega (1558) “saw two in the great square of Cuzco with thirty-two sucking pigs, each having put down sixteen.” Around Popayán and Pasto (Colombia), in the early seventeenth century, there were “countless hogs, with which they supply this country and ordinarily export much to Lima, a distance of 400

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44 Wernicke, 1938: p. 81.
45 Wernicke, 1938: p. 80; Deffontaines, 1957: p. 11.
46 Roulin, 1835: p. 324.
50 Cobo (1653), 1956: 1: p. 386; Armas, 1888: p. 176. This has also been reported from West Africa, where pigs were introduced by the Portuguese (De Bry, 1604: p. 81; cf. Marees, 1605: p. 61).
55 González Dávila (1518), 1864: p. 342 (Española). Ranches were at first known as hatos, and this is probably the earliest reference to pig farms in the Americas.
leagues. The growth in numbers was also remarked in parts of Guatemala and Mexico. By about 1700 more than 30,000 pigs were consumed annually in the city of Mexico. An obstacle to the expansion of swine is mentioned by Father Ignaz Pfefferkorn (1794–1795), writing of Sonora. There no one would consent to be a swineherd.

To expect a Spaniard to become one would be a sovereign offense. And no Indian can be induced to do it, not because his pride stands in the way, but because of his inherent, implacable hatred for swine. The animal is so abhorrent to him that he would suffer the severest hunger rather than eat a piece of domestic pork.

How widespread and persistent was the rejection of pork by the indigenous population of the New World has not been determined.

High fertility and feral populations were apparent within a decade or so in the restricted environments of the islands. In 1503 Nicolás de Ovando purchased the right to hunt cerdos silvestres in Española. Oviedo (1526) reported that “many of the swine carried from Spain . . . [had] become wild . . . in Santo Domingo, Cuba, San Juan [Puerto Rico] and Jamaica.” At the same time, those “that escaped to the forests on Tierra Firme did not live long, for they were eaten by jaguars, ocelots and cougars.” This presumably refers to that part of the mainland known to Oviedo personally (Cueva, the Caribbean littoral).

The situation in Española was confirmed by Las Casas (ca. 1550), by Acosta (ca. 1590) and by Cobo (1653). Edward Topsell (1607) repeated the opinion that the swine there grew “to the stature of mules.” In the mountains of Jamaica there were “countless herds . . . fair game to anyone who chose to kill them.” Diego de Velázquez (1514) claimed that the swine that he had introduced to Cuba had increased within three years to the barely credible total of 30,000. In Puerto Rico, too,

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59 Vázquez de Espinosa (ca. 1628), 1942: p. 357 (no. 1081).
64 Fernández de Oviedo y Valdés (Sumario, 1526), 1950: pp. 151–152, 1959a: pp. 50–51. Cf. ibid. (Historia General y Natural, 1520–1555), 1959b: 2: p. 184 (Jamaica). In the Sumario, Oviedo describes feral pigs as “puercos monteses” (usually applied to peccaries). Similarly, in the Historia General, “puercos salvajes” refers to both feral pigs (Jamaica) and peccaries, or “báquiras” (1959b: 3: pp. 80 [province of Santa Marta], 164 [province of Cartagena]).
66 Topsell, 1607: p. 665. The record of feral droves continues to modern times (Gabb [1870], 1881: p. 125).
animals multiplied prodigiously, and feral pigs were reported in 1582. On some of the smaller islands there were serious ecological and economic repercussions. In Bermuda (1594) the swine were "so lean that you cannot eat them, by reason the island is so barren," and a slightly later account (ante 1622) referred to damage to crops by feral pigs. There are also reports, spread over several centuries but pointing in the same direction, for Barbados, St. Thomas, Dominica, Sable, the Falklands, the Bay Islands, and the French possessions of Martinique, Guadeloupe, and St. Christophe.

Around the margins of eastern South America feral populations were less conspicuous, but nevertheless did not go unremarked. Here there were also effective predators (as first observed by Oviedo) and the risk of confusion with peccaries. In the interior of the continent, the introduction and adoption of pigs were often long delayed. Some groups still do not keep them and others treat the pig (and other domestic species) as a pet that is rejected as a source of food.

**Pigs of African origin.** Marcgravius's *Historiae Rerum Naturalium Brasiliae* appeared in Leiden in 1648. The author's patron was Joan Mauritz, governor of the Dutch possessions in Brazil (1637-1644), and Marcgravius's direct knowledge of Brazil was largely, if not exclusively, confined to the region around Pernambuco (Recife). Immediately following the section devoted to the peccary (*tajacu*), Marcgravius described and illustrated (fig. 6) *Porcus Guineensis*, the Guinea or Red river-hog, *Potamochoerus porcus* (one of three genera of African suids). This, we are told, had been introduced ("translatus") to Brazil from West Africa as a...
tame ("plane cicur"), but not explicitly domestic, animal.\textsuperscript{83} It is possible (as suggested by J. Reinhardt\textsuperscript{84}) that Marcgravius only saw the African hog in the menagerie maintained by Mauritz at his residence in Pernambuco. In any event, the Guinea hog is not mentioned by any earlier authority, such as Gabriel Soares de Souza (1587),\textsuperscript{85} or indeed by Marcgravius's contemporary and collaborator Gulielmus Piso.\textsuperscript{86} Furthermore, it is not entirely clear that later statements were based on information other than that provided by Marcgravius.

"The American Hog," wrote John Hill (1752),

is a native of many parts of South America; it is not only wild in the woods, but is kept tame about houses for the sake of its flesh. . . . The writers on the Brazilian animals have described it, and from them others. Ray and most of the moderns have called it \textit{Porcus Guiniensis}, the Guinea Hog.\textsuperscript{87}

Patrick Browne (1756), the Comte de Buffon (1767), and J. V. P. Erxleven (1777) each affirmed that the Guinea hog was numerous or prolific in the Americas.\textsuperscript{88} "Prolific" cannot apply to the peccary, but could be said

\textsuperscript{83} Commenting on Marcgravius, J. E. Gray (1868: pp. 36–37) has "naturalized," F. J. Simoons (1953: p. 80) "entirely domesticated."
\textsuperscript{84} Reinhardt, 1869: pp. 56–57.
\textsuperscript{85} \textit{Noticia do Brasil}, 1587 (1945: 2 vols.).
\textsuperscript{86} \textit{Indiae Utiriusque Re Naturali et Medica}, Amstelaedami, 1658.
\textsuperscript{87} J. Hill, 1752: p. 572. The first part of the statement suggests possible confusion with the peccary, which, however, is separately described under the "Musk Hog." \textit{Porcus Guineensis} Marcgr. in Ray, 1693: p. 96.
\textsuperscript{88} Erxleven, 1777: p. 185 ("Brasiliam translatus, ubi hodie copiosisimus cicur"); Browne (1756), 1789: p. 487 ("breeds a greater number of pigs than any other kind"); Buffon, 1884: 9: p. 235 ("multiplié en Amérique").
of both domestic and feral varieties of *Sus scrofa*, including any of Asiatic origin. According to J. E. Gray, the Guinea hog will not breed with the domestic pig, but there are also statements to the contrary.

As well as being introduced as a curiosity, the Guinea hog (and likewise the Guinea fowl and chicken with black flesh) may have reached the New World as deck cargo intended as provisions; the same has been suggested for the Muscovy duck, moving in the opposite direction. The American duck and the Guinea fowl were, of course, domesticated; the Guinea hog, like the peccary, is occasionally tamed. Tame specimens of *Potamochoerus porcus* have been reported from the northeast Congo (among the Mangbetu, the Abarambo, and the Niam Niam), the lower Niger, and Liberia. Whether or not associated with the slave trade, African pigs could have been transported to South America at any time after the middle decades of the sixteenth century. At present, however, the importance of their contribution to the suid population, domestic or feral, remains obscure.

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C: FOLK NOMENCLATURE

Luso-Hispanic names (map 7)

The most common European names for the peccary derive from its physical resemblance to the domestic pig (Spanish *puerco*, *cerdo*; Portuguese *porco*) and the wild boar (Arabic/Spanish *jabali*, hence *javelin, javelina*; Portuguese *javali*). They date from the earliest knowledge of the animal in the territories around the southern and western shores of the Caribbean (Tierra Firme). *Jabalí* was employed by Pietro Martire d'Anghiera (ca. 1510) in accounts of Coiba (Panama) and Curiana (Venezuela).\(^1\) The name may refer to either or both species of peccary, but properly only to the larger and more gregarious, made more explicit by the description *jabalí de manada* (troop or drove). The Anglicized form, in use along the Caribbean coast of Central America and in Guiana, is *warree* (*varí, warrí*).\(^2\)

*Puerco de monte* generally refers to the collared peccary, *puerco de manda* (*manada*),\(^3\) *puerco de tropa* and *puerco jabalí* to the white-lipped peccary. *Puerco de la tierra*\(^4\) presumably includes both. Portuguese *porco do matto* is usually the collared peccary, but a distinction may be drawn between the *porquinho do matto* (collared) and the *porco do matto* (white-lipped).\(^5\) The latter is more commonly known as *porco de queixo branco* ("white-jawed pig") or simply *queixada*, referring either to its distinctive jaw or to its habit of clashing the teeth. The comparable Spanish description, *cariblanco* (*carrillo blanco,* "white cheeked"), is apparently confined to Costa Rica.\(^6\)

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2. Bartholomew Sharpe (1680) in Burney, 1803–1807: 4: p. 94 (Isthmus); Dampier (1681), 1906: 1: p. 41 (Miskito coast, Nicaragua); Wafer (1680–1688), 1934: p. 64 (Isthmus); W. (ca. 1699), 1732: p. 297 (Miskito coast); Bancroft, 1769: p. 125 (Guiana); Stedman (1772–1777), 1796: 1: pp. 355–356 (Surinam); T. Young, 1842: p. 170 (Miskito coast); Squier (1855), 1969: p. 192 (? Honduras, Costa Rica, Nicaragua); Conzemius, 1932: p. 165 (Miskito coast); Frost, 1974: p. 159 (Tortuguero, Costa Rica). The *warree* is usually contrasted with the smaller "pecary."
5. Tastevin, 1923: pp. 702, 740. Soares de Souza (1587; 1945: 2: pp. 136–138) appears to include both species under *porco do matto*.
6. First noted in Frantzius, 1869: p. 296. Also the common name of a monkey, *Cebus hypoleucus*, in South America.
MAP 7. Hispanic regional names for the peccary.

Associations with colloquial names for "hog" include *chancho*, thus *chancho del monte*, the collared peccary, but also the common name of the agouti, *Dasyprocta* spp., in Peru; *cochino* [*coche, cuche, cuchi*] de

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monte; and marrano [de monte], thus moran, marino, moro. In Nicaragua jagüilla ("little jaguar") is sometimes used to describe the white-lipped peccary.

Two other Spanish names are rather more obscure. One is tatabaro or tatabaro, peculiar to Ecuador and Colombia (? and Darién). F. J. Santamaria distinguished between tatabaro (collared peccary in Ecuador) and tatabro (white-lipped peccary in Colombia). The earliest known use of the latter (or indeed of either) is in Juan de Velasco’s Historia del Reino de Quito (1789). There appears to be some connection with tayasú, taitetú (Tupi-Guarani, collared peccary), and tatú, “armadillo.”

The name saínó (sayno, sajone, sagino, sajino, sajino, saguino, zaínó, zaino, zahino, yayno, zaino, sajino, zaino, zaino, caino, caino, cahino) was in use from at least the middle of the sixteenth century. Cieza de León (ca. 1550) has puercos zainos (Gulf of Uraba, Colombia). López de Velasco (1571–1574) puerco cayno (Caribbean coast of Panama). In 1619 puerco zaynos de monte were reported from the province of Maynas in the eastern lowlands of Peru/Ecuador. José de Acosta (1590) refers simply to los saynos and this, or a cognate, was subsequently applied to one or other or both species of peccary throughout early Tierra Firme—from southeastern Mexico and Central America to northern South America.

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9 Pineda, 1845: p. 24 (Chiapas); Alston, 1879–1882: p. 107 (collared peccary, Mexico); Gadow, 1908: p. 374 (? both species, southern Mexico).


14 B. T. Solari (1928: p. 140) has tateo = tatabra.

15 See infra p. 52 n. 33.

16 Cieza de León, 1862: p. 361.


America—where the greatest variety of Hispanic names occurs. Thence the distribution extends southward along the Andean montaña and adjacent lowlands, perhaps as far as the Gran Chaco. Saino may be derived from saín ("fat"), sainar ("to fatten"), or from zaino ("dark-colored" and/or "vicious," of animals), or from cano ("grey-haired"), or again from seno ("cavity"), referring to the peccary's prominent scent gland.

**Vernacular names**

Middle and South America gave birth to several hundred languages. Many can be grouped into major or minor families; others appear to be independent or are of doubtful affiliation. A substantial number have disappeared since they were discovered and partly recorded in the sixteenth century or later. Available vocabularies differ widely in provenance and quality and employ different systems of transliteration. Etymological studies are rare. Tracing the origins and connections of particular names is correspondingly difficult.

Where both species of peccary are present in a particular area, they are usually, if not invariably, given separate (but often related) names. A choice of more than two names suggests distinctions based on superficial appearance, age, or sex; and/or the use of synonyms, including hybrid forms with Spanish or Portuguese or other Amerindian elements; and/or confusion with feral pigs (Sus scrofa).

**South America**

The most important language families from the point of view of peccary nomenclature are both South American: Tupí-Guaraní and...
Cariban, contributing *tayasú* and *pecarí* respectively. These and their recognizable cognates are more widely distributed than other names. *Tayasú* and *pecarí* were incorporated in the early scientific nomenclature. They have also given rise to loan words in Portuguese (*caitetu*) and Spanish (*ba'quira*), which may complicate the problem of establishing what local names are employed.

Tupí-Guaraní (map 8)

*Tayasú* (the *Tayassu* [1814] and *tajacu* [1758] of science). This has been recorded from the very extensive Tupí-Guaraní realm over a period of more than 400 years. It is not surprising, therefore, that there are many variants. At the beginning of the nineteenth century Félix de Azara pointed out that, in Paraguay, *tayasú* alone may refer to either or both of the peccaries or to the domestic or feral pig. Generally, however, it is reserved for the peccaries, more often than not the larger species (thus similar to Spanish *jabalí*). The elements are *tāi* (tooth) and *acu* [guacú, guasu] (large).

The earliest known reference to the name (*teygaju dattu*) is in Hans Staden’s (1547–1555) account of eastern Brazil. Jean de Léry (1557), also on the basis of first-hand knowledge, gives *taiaussou*, and Soares de Souza (1587) two species, *tajacuete* or *tajacuquita* (white-lipped) and *tajacutirica* (collared). From the second half of the seventeenth century, naturalists quoted chiefly Marcgravius, who had briefly described and quaintly illustrated *tajacu caaigoara* ("of the woods or monte," *ka'aguy*), the collared peccary. Similarly *kuré* ("pig") may be combined with

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33 Staden, 1557: part II, chapter XXX (no pagination); *teygasu dattu* in Staden, 1592: p. 129, *teygasu dattu* in Staden, 1874: p. 160, and *tanhaç-ütatü* in Staden, 1963: p. 148. The armadillo (*tutí*), subject of the following chapter, is called *dattu* in 1557, *tattu* in 1592, *dattu* in 1874, and *tatú* in 1963. Vázquez de Espinosa (ca. 1628) 1942: p. 674) referred to "animals like pigs, which they call *tataus* (armadillos)." Resemblances between the armadillo and a "sucking pig" were remarked by Pfefferkorn (Sonora, 1794–1795 [1949: p. 114]). The collared peccary sometimes takes refuge in the burrow of the giant armadillo.
MAP 8. Tribal and linguistic distributions. A—Apiaca; C—Caingua; Ca—Calianá; Ch—Chiriguano; Co—Cocama; M—Mundurucú; O—Omagua; Oy—Oyampí; S—Sirionó; T—Tapirapé.
ka'aguy.37 Another qualifying word is tinga,38 implying a pungent odor (of the white-lipped peccary).

Staden’s teygaju dattu reappears as tayasu-titu39 and, much more commonly, as taitetu or caitetu—the collared peccary. Seventeenth- and eighteenth-century sources, commencing with Ruiz de Montoya’s Vocabulario de la lengua Tupí o Guaraní (1639), refer to the former or one of the many cognates;40 caitetu belongs to the nineteenth century.41 The corresponding name for the white-lipped peccary, tänicati (tanihca-tí, taniğ-catî, tagnicate), is apparently first recorded by Azara (ca. 1800);42 it combines the Guaraní words for “jaw” (tanyka) and “whiteness” (tí), the Portuguese queixo branco or queixada.

Modern authorities attest to variants of tayasú (or of taitetu, caitetu) in use among the Mundurucú,43 the Omagua,44 the Apiaca,45 the Calianá,46 the Caingua,47 the Sirionó,48 the Kagwahí,49 the Cocama,50 the Oyampí,52 and the Chiriguano.53 Adoption by tribes speaking languages other than Tupí-Guaraní seems to be rare, although some sources are equivocal. According to A. Simson (1886), tayasó is the name for the white-lipped peccary among the Pioje,54 a Tucanoan-speaking people in eastern Ecuador, to the northwest of the Omagua.55

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43 Martius, 1863: p. 477, tathié; Coudreau, 1897b: p. 196, iradié-tiou; Strömber, 1932: p. 29, dad’ek’u, kaititu (collared peccary), dad’e, dad’e wayaqa (white-lipped peccary); Nimuendajú, 1932: p. 99, zadektýu (collared peccary), radyé (white-lipped peccary); Murphy and Murphy, 1974: p. 63, caititu (collared peccary).
44 Coudreau, 1897b: p. 187 (tazaou).
46 F. Vogt, 1904: p. 209 (tajaçu); Cadogan, 1973: p. 98 (Pái-Cayuá, Chiripá, tajasú; Mbyá, tajachíu).
50 Martius, 1867: 2: p. 300.
51 Martius, 1867: 2: p. 323.
52 Bayo, 1931: p. 189 (tayasu).
54 Cf. also Botocudo curåhk-niptiacu nióm, white-lipped peccary (Martius, 1867: 2: p. 182).
MAP 9. Tribal and linguistic distributions. A—Apalai; Ar—Arára; B—Bacairì; C—Cumanagoto; Ch—Chaima; G—Galabi; H—Hianácto-Umáua [Carijona]; I—Ingarico; M—Macusi; Ma—Mape and Chakê; Mk—Makiritare; Mp—Mapoyo; P—Paraviyana; Pa—Panare; Pu—Puricoto; S—Saparà; T—Taulipang and Arequina; Tr—Trio; W—Waiwai; Wa—Wayumara; Y—Yauarána [Yabarana].
The name "peccary" comes from Cariban *paki:ra*,66 thus *bákira*, *pakir*, *pakira*, *patirá*, *pockiero*, *pecarí*, among the many variants. There may be an ancient connection with Tupi-Guarani *kuré* (? *paq-kuré*). Cariban *paki:ra*, unless used generically (as in the early literature), refers to the collared peccary; however, *bákira* or *vákira*, as a loan word in Spanish, is applied to the larger species.67

The name appears in very early accounts of Tierra Firme. First, there is an obscure passage in Columbus's record (7 July 1503) of his fourth voyage. Off the Caribbean coast of the Isthmus (Cariay-Veragua) he took on board a wounded monkey and a pair of "pigs" (clearly peccaries).68 We are told that the former was known as *begare*. This is almost certainly a mistake,69 either a syntactical error or a misunderstanding by Columbus and possibly others of the ship's company. If, however, *begare* corresponds to *pakíra*, it is not immediately clear how it came to be current in this non-Carib area.70 Fernández de Oviedo y Valdés (1520–1555), who knew the Isthmus well, says that the native pig of Cueva and Castilla del Oro (east of Veragua) was called *chuche* (? Spanish *cochino*), in "other provinces" of Tierra Firme *bákira*.71 Elsewhere he singles out Santa Marta and Cartagena,72 the nearer hinterland of which was not occupied by Caribs.73 *Bákira* is also mentioned in a *relación* of the province of Caracas in 1572–1578.74 Apparently the name had been widely diffused and adopted in the lands around the southern margins of the Caribbean.75

Evidence from the seventeenth and eighteenth centuries relates chiefly to the heartland of the Carib domain—Guiana,76 Surinam,77 Cayenne,78
and neighboring parts of Brazil and Venezuela.  

The distribution of Carib tribes known to employ, or to have employed, \textit{pakira}, \textit{pingo}, or some cognate name is similarly concentrated, except for the Bacaíri of central Brazil (? \textit{pāhu}; \textit{posēka}, \textit{pohēká}).

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Collared Peccary</th>
<th>White-Lipped Peccary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apalai (1924)</td>
<td>pakiri</td>
<td>poiño</td>
</tr>
<tr>
<td>Chaima (1680)</td>
<td>paquera</td>
<td>puuique</td>
</tr>
<tr>
<td>Cumanagoto (1680, 1683)</td>
<td>paquera, vaquira</td>
<td>puuique</td>
</tr>
<tr>
<td>Galibi (1867, 1971)</td>
<td>pockiero, pagi:la</td>
<td>pingo, pi:ngo</td>
</tr>
<tr>
<td>Ingario (1928)</td>
<td>pakila</td>
<td>peyinge, peyinké</td>
</tr>
<tr>
<td>Macusi (1847–1848, 1867, 1908, 1932)</td>
<td>peraka, paraka</td>
<td>poinké, puinká</td>
</tr>
<tr>
<td>? Mape and Cháke (1914)</td>
<td>báquiro</td>
<td></td>
</tr>
<tr>
<td>Mapoyo (1975)</td>
<td>pakira</td>
<td>poinke</td>
</tr>
<tr>
<td>Panare (1982)</td>
<td>paika</td>
<td>pinké</td>
</tr>
<tr>
<td>Paraviyana (1847–1848, 1867, 1932)</td>
<td>pakira</td>
<td>poinké</td>
</tr>
<tr>
<td>Puricoto (1924, 1928)</td>
<td>pakilá</td>
<td>peyinge, pi:yinkú</td>
</tr>
<tr>
<td>Saporá (1928)</td>
<td>pakíla</td>
<td>peyinge</td>
</tr>
<tr>
<td>Taulipang and Arecuna (1928)</td>
<td>pakíla</td>
<td>peyinge, peyingo</td>
</tr>
</tbody>
</table>


72 Tauste (1680), 1888: p. 36; Yangues (1683), 1888: p. 157; Ruiz Blanco (ca. 1690), 1888: p. 175.


76 Osgood, 1914b: p. 46.


Near neighbors of Cariban-speaking tribes who appear to have adopted pecari-related names include the Warrau (pakitye, pakilye),89 the Makú (pekeleya),90 the Maipure and Ature (paquira),91 and the Arawakan Wapishana (bakur)92 and Maopityan (bakur).93 Jivaro pakkí is the most isolated.94 Carib hāųyá ("jabali")95 is represented in Azumara hiyá,96 Wayumará hīyé (white-lipped peccary) and haki:lá (collared peccary),97 Hianácoto Umáua hakita (collared peccary);98 and, among Arawakan tribes, in Manao haya,99 Yavitero ahiya (white-lipped peccary),100 Mandauáca ahida, ahí:da (white-lipped peccary),101 Juri ahtá,102 and possibly Guinau iuá:ra.103 Hāųyá may incorporate a root form of the word for peccary, in turn related to Arawak abúyá.

Arawakan (map 10)

Arawak abúyá (abuia, abuie, "to feed") is the white-lipped peccary.104 The name is applied in the Guianas,105 along the upper Orinoco,106 and

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92 Farabee, 1918: p. 221.
94 Karsten, 1920: pp. 9, 12, 1935: pp. 171, 570 (pakki, yankípi, collared peccary; unta pákki, white-lipped peccary); swine are known as kuchi. Quechua (in origin Spanish). The Jivaro occupy territory to the north of the Rio Marañon, chiefly in southeast Ecuador.
96 Farabee, 1924: p. 244 (unlocated).
98 Koch-Grunberg, 1908: p. 45.
100 Goeje, 1928: p. 226.
102 Martius, 1867: 2: p. 271.
104 Goeje, 1928: p. 226, abúyá = "bush hog, taiasu, Dictotyles labiatus," the white-lipped peccary; however, in two of the Arawakan languages (Maráte, Marauha or Marawa) it is identified as D. torquatus, the collared peccary. Elsewhere, Goeje (1928: p. 259) has "bush hog, peccary, taitetui" [collared peccary] = abúyá or matúla. Other authors also identify abuíya (or derivatives) as collared peccary; perhaps the name has generic status.
in the northwest of the basin of the Amazon. Variants of *abüya* have been recorded for the following members of the Arawak-Maipure linguistic family:

- **Adzáneni**  
  *apija, apidzal, ahida,*107 ápidzal108
- **Arekana [Uarekena, Arekana]**  
  *abida,107 abida109
- **Baniva [Baniwa]**  
  *abida, abida110 habia, habia,109 abiatcshy,111 habia112
- **Baré**  
  *abida,107 abida,109 habia,109 habia,109 abiatcshy,111 habia112
- **Cariaya**  
  *apitsa, apitsa109
gutery113
- **Carutana [Karutana]**  
  *apitsa,107 apitsa109
gutzya107
- **Catapolitani**  
  *apitsa109
gutzya107
- **Cayuishana [Cauixana]**  
  *apuya,107 abüía114
gapia107
- **Jumana**  
  *api107
gapia107
- **Maipure**  
  *abiatschy113
gapia109
- **Manao**  
  *abiatschy113
- **Marawa [Marauha]**  
  *abi107
- **Mariate**  
  *api107
gapia107
- **Pase [Passe]**  
  *abaeghua107
- **Piapóco**  
  *apida,107 apitsa,115 apitsa107
gapitsa109, apitsa115, apitsa109
- **Siusi**  
  *apitsa,107 apitsa, apitsche109
- **Tariana**  
  *api107, apia109
- **Uainumá**  
  *hapychische107
- **Uirina**  
  *abiaxe17
- **Waracú**  
  *abüy118

The white-lipped peccary is also known in the Guianas as *keherum, kairuni.*119 Richard Schomburgk (1840–1844) derived this from the Macusi (Cariban) word *kair,* “evil smelling.”120

On the upper Orinoco the collared peccary is called *chamu* (Achagua), *dzamulito* (Adzáneni), *tsamilitu* (Catapolitani), *dzamu* (Piapóco), *yamulitu* (Tariana), and *samoliti* (Siusi and Carutana).121 In the southwest Amazon

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112 Martius, 1867: 2: p. 286.
113 Martius, 1863: p. 477.
114 Ibid.
115 Chaffanjon, 1889: p. 328.
119 Brett, 1851: p. 37 (kaero); Martius, 1867: 2: p. 311 (keherum); Thurn, 1883: p. 109 (kairun); Beebe et al., 1917: p. 465 (kairun, karuata). See also Schomburgk, 1837: p. 321 (kairuni); Roth, 1924: pp. 182–183, 479 (kairuni, karuata); Harris in Harcourt, 1928: p. 95n (kairun); Perry, 1970: p. 39 (kairi).
Map 10. Tribal and linguistic distributions. A—Arawak; Ac—Achagua; Ar—Arekena; B—Baré; Bn—Baniva; Br—Bauré; C—Campa; Ca—Canelo; Cb—Cuniba; Ci—Catapolitani; Cj—Cujisenayeri; Cm—Canamari; Cn—Cayuishana; Cr—Cariaya; Cu—Carutana; G—Goajiro; Gu—Guinau; In—Inapari; Ip—Ipurina; J—Jumana; M—Machiguenga; Ma—Maina; Mc—Macusi; Mn—Manao; Mo—Mojo; Mp—Maipure; Mr—Marawa; Mt—Maopityan; P—Piapóco; Pe—Pasé; Pi—Paumari; Po—Piro; S—Shipibo; Si—Siusi; T—Tariana; U—Uainumá; Ui—Uirina; W—Waraicú; Wp—Wapishana; Y—Yavitero.
the same species may be known as meriti: Canamari merit, Inapari meriti, Ipuriná merit, miriti, Cuniba mōriti, Cujisenayeri merit, Paumari myrycy, and Piro meriči, miditchi.\textsuperscript{122} The corresponding name for the white-lipped peccary is irari (Ipurinai and Inapari), Cuniba iyarō, Cujisenayeri iaiłò, and Piro iyali, ilavi, xihari.\textsuperscript{123}

Tucanoan

The eastern Tucanoan-speaking peoples occupy a consolidated area between the Río Caquetá and the Río Vaupés (southeastern Colombia), with the Carijona (Cariban) to the west and mainly Arawakan tribes to the north, south, and east. I. Goldman recognized eighteen “sub-tribes.”\textsuperscript{124} Their dialects are known chiefly from the work of T. Koch-Grüenberg.\textsuperscript{125} Yehsé or some cognate is applied to the white-lipped peccary and the same or more usually a compound word, incorporating yehsé, to the collared peccary (Appendix). The suffix often takes the form of puro, puru, peraga, or potiro, which may indicate Caraban influence. Among the Siona-Secoya (western Tucanoan) the white-lipped peccary is known as sēsē, the collared peccary as ya:wi.\textsuperscript{126}

Quechua (map 10)

In highland Quechua sintiru describes both species of peccary (but not the domestic pig, khuchi).\textsuperscript{127} It is included in the lexicographical works of Antonio Ricardo (1586) and Diego González Holguín (1608).\textsuperscript{128} According to Bernabé Cobo (1653), “los puercos jabalies, llamados de los indios cintiru, se crían solamente en las tierras calientes y al montaña, y no en mucha cantidad.”\textsuperscript{129} At the time of the Spanish conquest Quechua was spoken throughout the central Andes and in adjacent sectors of the


\textsuperscript{123} Farabee, 1922: p. 66; Goeje, 1928: p. 226. Cf. Catukina (non-Arawak) urirý (Martius, 1867: 2: p. 163). According to Koch-Grüenberg (1914b: p. 78), irari also refers to the European pig. Other Arawakan names are listed in the Appendix. Note, in particular, Baré araùa, Mandauáca arúa, alúá, Marawa arua, araùa, Waraicú alúá; Baniva and Carutana soará, isoará; Mariate kāpēná, Uainumá capéna, cabēná.

\textsuperscript{124} Goldman, 1948: p. 764.

\textsuperscript{125} Koch-Grüenberg, 1913: p. 960, 1914a: pp. 226. Cf. Catukina (non-Arawak) urirý (Martius, 1867: 2: p. 163). According to Koch-Grüenberg (1914b: p. 78), irari also refers to the European pig. Other Arawakan names are listed in the Appendix. Note, in particular, Baré araùa, Mandauáca arúa, alúá, Marawa arua, araùa, Waraicú alúá; Baniva and Carutana soará, isoará; Mariate kāpēná, Uainumá capéna, cabēná.

\textsuperscript{126} Friederici, 1947: p. 268. The same word, used as an adjective, means “montés” (Lara, 1971: p. 258).

\textsuperscript{127} Friederici, 1947: p. 268. The same word, used as an adjective, means “montés” (Lara, 1971: p. 258).


\textsuperscript{129} Cobo, 1956: 1: p. 358.
montaña, whence it spread eastward in colonial times.\textsuperscript{130} Variants of sintiru have been reported from the Machiguenga\textsuperscript{131} and the Campa,\textsuperscript{132} Arawakan tribes to the north of Cuzco.

Along the montaña and in the eastern lowlands of Ecuador and Peru the name huangana (guangana, wangana) is also employed, perhaps more particularly of the white-lipped peccary. Huangana is probably of Quechua origin, but the precise derivation remains obscure.\textsuperscript{133} Mentioned by León Pinelo and Father Cobo,\textsuperscript{134} it was in use among the Maina (Peru/Ecuador) in the seventeenth and eighteenth centuries.\textsuperscript{135} The Quechua-speaking Canelo (Ecuador) refer to the white-lipped peccary as huangana,\textsuperscript{136} and this is apparently one of several names known to the Campa.\textsuperscript{137} It has also been reported from the valleys of the Pachitea\textsuperscript{138} and Pastaza\textsuperscript{139} and the province of Loreto (Peru) generally.\textsuperscript{140}

\textit{Middle and Central America}

Nahuatl (map 10)

Alonso de Molina's \textit{Vocabulario} (1555) gives coyametl, pitzotl ("puerco") and quauhtla coyametl, quauh coyametl ("puerco montes javalin").\textsuperscript{141} Pitzotl was specifically the coati (Nasua narica narica), but as Bernardino de Sahagún (ca. 1570) explains, "anyone who is a great eater, intemperate, is called pecotli".\textsuperscript{142} Thus it might be applied to the (collared) peccary,\textsuperscript{143} properly called quauhcoyametl ("forest peccary"). Francisco Hernández

\textsuperscript{130} Steward, 1948d: p. 514 (map 6).
\textsuperscript{131} Farabee, 1922: p. 39 (cintori).
\textsuperscript{132} Weiss, 1972: p. 193 (shintori).
\textsuperscript{133} Not in Ricardo (1586), 1970; González Holguín, 1608; Tschudi, 1853; Middendorf, 1890; Lira, 1944 (all apparently based on highland vocabularies); included by Santamaria (1942: 2: p. 103, collared peccary), but not Friederici, 1947. Martius (1867: p. 295) has uankana (as well as sintiru) — Quechua, "white-lipped peccary." In a study of the Shipibo (eastern Peru), R. Campos (1977: p. 59) refers to huangana (Castellano, white-lipped peccary), but as such it can only be a loan word.
\textsuperscript{134} León Pinelo (1650), 1943: 2: p. 51 (provincia de Pacamoros); Cobo (1653), 1956: 1: p. 364 ("En las provincias de Tierra Firme se dice a este animal zahino, y en este reino del Perú lo llaman sus naturales guangana").
\textsuperscript{136} Whitten, 1976: p. 68. The Canelo adopted Quechua from the close of the sixteenth century.
\textsuperscript{137} Denevan, 1972: p. 179.
\textsuperscript{138} Pierret and Durojeanni, 1966: p. 273 (white-lipped peccary).
\textsuperscript{139} Landerman, 1973: p. 53 (Quechua, collared peccary).
\textsuperscript{140} Paz Soldan, 1862: pp. 532, 686. See also Cabrera and Yepes, 1940: p. 280 (collared peccary); Perry, 1970: p. 39 (white-lipped peccary).
\textsuperscript{141} A. de Molina, 1970.
\textsuperscript{142} Sahagún, 1963: p. 10; identified by Martín del Campo, 1941: p. 496.
\textsuperscript{143} See Dugès, 1869: p. 138 (quapicotl); Starr, 1902: p. 78 (pizotole); Brewer and Brewer, 1962: p. 55 (cuapizotl).
(1571–1576) has "el coyámetl, que algunos llaman quauhcoyámetl porque es montés, otros quauhtla coyámetl y otros quauhpezotli." 144

Macromayan (map 10)

_Citam_ (quitam, chitam, hispanized to guitame) is applied, usually with some adjectival qualification, to both peccaries and to the European pig. 145 The earliest known reference (quitam) is in a _relación_ of Sucopo (near Valladolid, northern Yucatán) of 1579. 146 In Tzeltal (of Tenejapa, highland Chiapas), according to E. S. Hunn, _citam_ is "pig," _wanal citam_ "bush pig" or peccary, with up to four subdivisions of the latter, probably "corresponding to the adults and juveniles of the two species." 147 In Yucatán and adjacent parts of Chiapas _citam_ may refer particularly to the collared peccary, 148 _keken_ (kekem, qeqem) to the white-lipped peccary. 149 A late seventeenth-century account of Chol-Lacandon (Chiapas) gives _cehcem_. 150 In Quiché, Quekchi, Pocoman-Poconchi, Uspantec (central highlands of Guatemala), and Cakchiquel (to the south), the pig is known as _ak_ (’aq, ’ahq, aj ”k), the peccary as _quiché ak_ (“bush pig”). 151 In Aguatec and Mam _ak_ becomes _boch_. 152

Chibchan and Misumalpan (map 8)

The languages of Central America, south and east of the lands of Mayan occupation, include two important families, Chibchan (Panama, Costa Rica) and Misumalpan (Nicaragua, part of Honduras). In these languages peccaries are known by a considerable number of names (Appendix), with similarities within and between the families. In Tala-

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145 Stoll, 1884: p. 56.


152 Stoll, 1884: p. 56, stzelá boch, boch; 1887: p. 141, stself boch, xboch; Reynosa (1644), 1897: p. 331 (tzelah ixboch). In outlying areas of Macromayan, Gulf Coast Huasteca and Totonac, Mixe of southern Oaxaca, and Popoluca of southern Vera Cruz, different names are applied (Appendix).
manca the white-lipped peccary is known as sené, in Bri-Bri sin, in Guaymí (Changuena, Chumula, Gualaca) siri, in Cabécar sir-bí, in Tirribi and Terraba shir (all Chibchan); in Sumo sēvi, in Ulva šiū (Misumalpan); and in Subtiaba (Hokan, northwest Nicaragua) sīnū. Other subdivisions of Guaymí have motú-kri (Move), metu-kri (Norteño), motořoro-kri (Penonomeño). The collared peccary is ka'sir or kas'-ri among the neighboring Bri-Bri and Cabécar. The Miskito (Misumalpan) call the species buksa (whence the Anglicized bookser), the Rama (Chibchan) mūksa, to which are perhaps related Sumo mulkus, múlucus, and Ulva mōlōkōs.

156 Gabb, 1876: p. 594; 1883: p. 480.
160 Ibid., p. 944.
161 Ibid., p. 164.
D: HUNTING

Methods and equipment (map 11)

Traps

Peccaries may be captured alive, and then either killed or the juveniles taken to be tamed, reared, and fattened. Among tribes living between the estuary of the Orinoco and northern Brazil (Waiwai, "old Warrau," a few Caribs of the Pomeroon coast,¹ Macusi,² and Wapishana³), conical cages resembling fishing creels are placed over the end of a hollow log or the entrance to a hole in the ground (such as the burrow of the giant armadillo) where a peccary—almost invariably the collared peccary—has taken refuge (fig. 7). The animal is then allowed to leave the hole or is forced out by using pointed stakes or torches.⁴ The Makú (Colombia) build a corral around the hole, placing dead wood and tying vines between adjacent trees.⁵

The ancient Maya trapped peccaries in a kind of noose, as shown in the Codex Tro-Cortesianus (p. 34 supra). It is likely that the method was more widely employed. The Câhita (Mayo, of northwestern Mexico) set rope snares for deer and peccary that are "possibly aboriginal."⁶

Drives and the use of nets were reported by Pascual de Andagoya (1514– ) from Coiba, western Panama (territory of the Guaymí). Here peccaries "were caught with large nets of stuff like hemp, called by the Indians nequen [henequen], the meshes being a finger in breadth. These nets were fastened at the entrance of a wood where there was a herd of peccary, which came against the nets and were unable to get through the meshes. Then the people called out, the nets fell over the peccaries, and they were killed with lances. . . ."⁷ The method, accompanied at times by the firing of tall grass, implies a more open, parkland landscape than exists at present.⁸ According to Pietro Martire d’Anghiera (1516),

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¹ Roth, 1924: p. 183 (the lower Pomeroon was mainly occupied by Arawak).
² Farabee, 1924: p. 43.
³ Farabee, 1918: p. 52.
⁴ Peccaries hunted by the Câhita (north-western Mexico) "were sometimes smoked out of dens in the rocks" (Beals, 1943: p. 13). H. Sick (1959: p. 43) and K. I. Taylor (1972: p. 14) also refer to the use of smoke. A Mundurucú (Brazil) myth relates how a band of collared peccary (catitú) entered a hole, which was then blocked, and one animal released and killed daily (Murphy, 1958: pp. 86–87).
⁵ Silverman-Cope, 1973: p. 73 (collared peccary).
⁷ Andagoya, 1865: p. 18.
jabalés were also caught in pits (fosos), dug along trails and disguised with branches (ramaje). Fernández de Oviedo y Valdés (1514–1526) echoed Andagoya in observing that the Indians of Tierra Firme (probably the province of Cueva, Cuna territory, to the east of Coiba) "trap deer and pigs with branches and . . . nets, into which the animals fall. At times they hunt and beat them out, and with a great number of people they attack them and take those that they kill with arrows [saetas, more correctly 'darts'] and spears."  

Anghiera, 1944: p. 298. Anghiera's observation was based on expeditionary reports by Francisco Becerra and Gonzalo de Badajoz in 1514.

10 Fernández de Oviedo y Valdés (1526), 1950: pp. 117–118, 152 (cepos, traps for
Fig. 7. A pescary trap. Waiwai, Guiana. W. Roth, 1924, pl. 44.
Drives towards carefully positioned nets may have been the preferred method in lower Central America. The only known report for South America concerns the Witoto (eastern Peru), who "capture peccaries, deer and tapirs in a great net, six feet high and a thousand or fifteen hundred feet long, which is stretched among the trees in a suitable place in the forest."12

At the end of the nineteenth century the Cainguá (northern Argentina) used peccary "traps."13 In Paraguay, according to Félix de Azara (ca. 1800), "the natives observe the paths [taken by collared peccary], and forming a long hedge of branches on each side, with a deep pit at the end, they frighten them by hallooing . . . and drive them towards the ditch, which is generally filled with them."14 One of the hunting rituals performed by the Mundurucú (Brazil) "simulates the use of a runway of stakes to trap peccaries."15 The Shucuru' (eastern Brazil),16 the Terena and the Mbayá (Brazil-Paraguay)17 also prepare concealed pitfalls, and this simple procedure is probably widely employed in the Selval region.18

Men and dogs

Peccaries are hunted both by individuals and by groups of men, occasionally assisted by dogs.19 Some tribes do not appear to have possessed (hunting) dogs when first contacted;20 elsewhere they have probably been acquired comparatively recently.21 When dogs are said to


1 Armas, 1888: p. 69.
14 Azara, 1838: p. 119.
16 Hohenthal, 1954: p. 112. Hans Staden ([1547–1555], 1874: p. 160) remarked that the peccary was "very difficult to catch in traps, which the savages [of eastern Brazil] use for the purpose of catching game."
17 Métraux, 1946a: p. 257; Oberg, 1949: p. 10. See also Armas, 1888: p. 70.
19 Brettes, 1903: p. 340 (Arhuaco-Cagabá, Colombia); Nordenskiöld, 1912: p. 48 (the Chaco), 1920: p. 31 (Chiriguano, southern Bolivia, Chané, northern Argentina); Farabee, 1918: p. 51 (Wapishana, Guiana-Brazil—both species of peccary), 1924: pp. 43, 51–54, 155 (Macusi, Waiwai, Wapishana, Guiana-Brazil); Schomburgk (1840–1844), 1923: 2: p. 129 (Guiana, ? Macusi); Roth, 1924: pp. 182–183 (Guiana); Wafer (1680–1688), 1934: p. 21 (Darien); Karsten, 1935: p. 173 (Jivaro, Ecuador); Stirling, 1938: p. 105 (Jivaro); Horton, 1948: p. 280 (Mundurucú, Brazil); Lotrop, 1948: p. 253 (Panama [Coiba]); Métraux, 1948b: p. 451 (Caingang, Brazil); Dreyfus, 1963: p. 29 (Northern Kayapó, Brazil); Henry, 1964: pp. 100, 157 (Caingang); Hurault, 1968: p. 6 (Wayana, French Guiana); Murphy and Murphy, 1974: p. 63 (Mundurucú).
20 Nimuendajú, 1939: p. 94 (Apinayé); Lowie, 1946b: p. 482 (Ge); McKim, 1947: p. 99 (Cuna); Carneiro, 1974: p. 132 (Amahuaca). The Sirionó had no dogs in the late 1940s (Holmberg, 1950: p. 29).
21 Nimuendajú, 1946: p. 75 (Eastern Timbira); K. I. Taylor, 1972: p. 15 (Sanumá [Yanomamí]). Seldom employed by the Boruca of Costa Rica (Stone, 1949: p. 8) or by the Cashinahua of eastern Peru (Kensinger, 1975: p. 28, except in hunting some small animals).
be used and the species of peccary is named (a minority of observations), the less gregarious but also more predictable collared predominates.22 Dogs cut out and surround stragglers. Drove of white-lipped peccaries, on the other hand, make a considerable noise and may also be detected some distance away by their characteristic odor. Dogs would jeopardize a silent approach.23 The Makú (Colombia) bind their muzzles with vines to prevent barking.24 The "only value [of dogs] in attacking white-lippeds may be as 'bait,' that is, when they come rushing back to their masters with peccaries charging at their heels."25 Much will therefore depend on whether dogs are regarded as of much assistance in hunting generally and on whether the hunt has been organized with peccaries, of one or other or both species, in mind.26

The Djuka, bush Negroes of Surinam, "dress" or prepare their dogs by forcibly administering (sometimes through the nostrils) an infusion of the dried meat of the animal to be hunted, especially the peccary.27 The Jívaro (Ecuador) anoint a new hunting dog with the blood of the first peccary that is killed.28 Among the Waiwai and the Wapishana the dogs' senses are sharpened by having their muzzles "smeared with pepper or with evil-smelling apoporé bark," or they may be given a decoction of apoporé bark to drink.29 The former is also practiced by some Amazonian settlers who rub the noses of their dogs with the leaves of *Piper lanceolatum*.30 The Siona-Secoya (eastern Ecuador) feed their dogs a mixture of plantains boiled with the magical leaves of *Xanthosoma* sp. (the latter supplied by shamans) prior to hunting the collared peccary.31

The Shipibo,32 the Machiguenga,33 and the Cashinahua34 of eastern Peru normally hunt alone, the Cashinahua combining only to attack tapir and peccary. The Cubeo (southeast Colombia) "until recently"

22 Alston, 1879–1882: p. 108 (Vera Paz, Guatemala); E. A. Goldman, 1920: p. 74 (Panama); Miller, 1930: p. 18 (southern Mato Grosso); Beals, 1943: p. 13 (Cáhita, north-west Mexico, outside the range of white-lipped peccary); Kelly and Palerm, 1952: p. 74 (Tajin Totonac, outside the present range of white-lipped peccary); Gilmore (1950), 1963: p. 382; Yde, 1965: p. 122 (Waiwai, Guiana-Brazil, usually not used in hunting white-lipped peccary); Silverman-Cope, 1973: p. 73 (Makú, Colombia); Vickers, 1976: p. 118 (Siona-Secoya, Ecuador); Pennington, 1979–1980: 1: p. 211 (outside the range of white-lipped peccary); Coe and Diehl, 1980: 2: p. 102 (Río Chiquito, Vera Cruz, Mexico).
26 K. I. Taylor (1972: p. 16) refers to a dog that "specialized in collared peccary, paca and agoutí" (Sanumá [Yanomamó]).
27 Kahn, 1931: pp. 81–82.
29 Yde, 1965: pp. 120, 122.
34 Kensinger, 1975: p. 27.
hunted peccaries in groups.\textsuperscript{35} Parties of the Siona-Secoya\textsuperscript{36} and the northern Aché (eastern Paraguay) pursue the white-lipped peccary, but not the smaller species.\textsuperscript{37} White-lippeds are “one of the few [animals] that are sometimes hunted co-operatively” by the Sirionó (eastern Bolivia).\textsuperscript{38} Similarly, the Northern Kayapó (Brazil)\textsuperscript{39} and the Amahuaca (eastern Peru)\textsuperscript{40} band together to hunt the larger species, but no other animal. Members of some tribes hunt “peccaries” both alone and cooperatively,\textsuperscript{41} but the latter is more frequently reported.\textsuperscript{42} A combined expedition may be organized after a herd has been sighted by a lone hunter. “Peccaries evidently forage slowly enough that they will still be in the neighborhood the next day, so that a proper hunt can be well planned.”\textsuperscript{43} Parties may consist of only two or three (often related) individuals\textsuperscript{44} or much larger groups, sometimes all the adult males of entire communities.\textsuperscript{45} When white-lipped peccaries are reported, a communal drive is almost invariably organized. Tracking may occupy several days. Wherever possible, herds are approached against the wind,\textsuperscript{46} then surrounded. Peccaries are most vulnerable when driven into water,\textsuperscript{47} or when caught crossing rivers (fig. 8),\textsuperscript{48} and when concentrated on islands.

\textsuperscript{35} I. Goldman, 1963: p. 10.
\textsuperscript{36} Vickers, 1976: p. 97.
\textsuperscript{37} Hawkes, Hill, O’Connell, 1982: p. 383 (the Capuchin monkey and the paca are also hunted cooperatively).
\textsuperscript{38} Holmberg, 1950: p. 25.
\textsuperscript{40} Carneiro, 1974: p. 124.
\textsuperscript{41} Stout, 1948a: p. 257 (Cuna, Panama); Oberg, 1949: p. 10 (Caduveo, Brazil); Redfield and Villa Rojas, 1962: p. 48 (Maya, Yucaítan, Mexico); Henry (1941), 1964: p. 100 (Caingang, Brazil); Chagnon, 1968: p. 29 (Yanomamö, Brazil-Venezuela).
\textsuperscript{42} Dobrizhoffer (1784), 1822: 1: p. 270 (Abiçon, Paraguay); Farabee, 1924: p. 43 (Macusi, Guiana-Brazil); Gillin, 1936: p. 3 (Carib, R. Barama, Guiana); Stirling, 1938: p. 105 (Jívaro, Ecuador); Fejos, 1943: pp. 40–41 (Yagua, eastern Peru); Beals, 1945a: p. 12 (Cáhita [Mayo], ? Yauki, northwest Mexico); Métraux, 1946b: p. 451 (Caingang, Brazil); Stout, 1947: p. 22 (San Blas Cuna, Panama); Kirchhoff, 1948c: p. 448 (Guahibo and Chiricoa, Venezuela); Lipkind, 1948: p. 181 (Carajá, Brazil); Steward and Métraux, 1948b: p. 730 (Yagua, eastern Peru); Murphy, 1960: p. 54 (Mundurucú, Brazil); Barandiaran, 1962: pp. 15–16 (Yecuaná, Venezuela); Dreyfus, 1963: p. 29 (Northern Kayapó, Brazil); Friel, 1968: p. 94 (Xikrín: Northern Kayapó); Wilbert, 1972: p. 42 (Yanomamö [Yanoama], Brazil-Venezuela); Kaplan, 1975: p. 38 (Piaroa, Venezuela); Dumont, 1976: p. 62 (Panare, Venezuela); Wagley, 1977: p. 62 (Tapirapé, Brazil).
\textsuperscript{43} Beckerman, 1980: pp. 94–95 (Barí, Venezuela).
\textsuperscript{44} Brettes, 1903: p. 340 (Arhuaco-Cagabá, Colombia; rarely bands); Farabee, 1918: p. 54 (Wapishana, Guiana-Brazil); Stone, 1949: p. 8 (Boruca, Costa Rica).
\textsuperscript{45} Stirling, 1938: p. 105 (Jívaro, Ecuador); Murphy and Murphy, 1974: p. 63 (Mundurucú, Brazil).
\textsuperscript{46} Holmberg, 1950: p. 25.
\textsuperscript{47} Stirling, 1938: p. 105 (Jívaro, Ecuador); Métraux, 1946a: 257 (Mbaya, Paraguay-Brazil).
FIG. 8. A band of white-lipped pecaries, attacked as they swim across the River Marowijne, Surinam. A. Kappler, 1887.
during the wet season. In such circumstances substantial numbers are likely to be slaughtered.

Weapons

The lance and the bow and arrow are the principal traditional weapons used in hunting peccary. Blowguns have only rarely been reported (Jivaro, Yagua). According to José Gumilla (ca. 1745), Indians living along the lower and middle Orinoco employed, besides the bow and arrow, barbed "harpoons" (arpones) of bone or iron, securely attached to a shaft by a cord. On impact, the shaft was thrown free, but quickly got caught in the undergrowth. This was the "lance tied to cords" of the Maipure, mentioned by Humboldt (1799–1800). The "Waiwai (Guiana-Brazil) use a detachable bamboo-headed arrow for the same purpose and with similar results." According to Jens Yde (1965), the Waiwai hunt peccary "with the bamboo-bladed arrow orahnó, with the harpoon-arrow taruríkù, and with the harpoon-like arrow yóchopóto." Harpoon-like metal points are also employed by the Barí (Colombia). Before the introduction of firearms, the Siona-Secoya (eastern Ecuador) used lances with detachable points against peccary and tapir.

The bow and arrow is reported rather more frequently than the lance. Some tribes use both. A preference for one or the other may

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49 Lipkind, 1948: p. 181 (Carajá, Brazil); Wagley, 1977: p. 62 (Tapirapé, Brazil).
50 Stirling, 1938: p. 105 (together with other weapons).
51 Steward and Métraux, 1948b: p. 730. The blowgun belongs chiefly to the northern and western basin of the Amazon/Orinoco (Yde, 1948: p. 305 [map]).
52 Gumilla, 1791: 1: p. 257.
54 Roth, 1924: pp. 182–183.
56 Beckerman, 1980: p. 92 (against tapir, peccary, and bear).
60 Gumilla (ca. 1745), 1791: 1: pp. 257–260 (along the Orinoco); Farabee, 1918: pp. 51–54 (Wapishana, Guiana-Brazil); 1924: p. 43 (Macusi, Guiana-Brazil); Wafer (1680–1688),
sometimes be inferred, but the available information is usually neither explicit nor unequivocal. Peccaries caught in nets (lower Central America and locally elsewhere) were presumably dispatched with lances or clubs. The use of poisoned arrows appears to be exceptional (Makú, Yaño-mamö, Yagua, Macusi). In hunting the white-lipped peccary, the Sirionó “take with them only their bamboo-headed arrows (tākwa), as only these are effective in killing such a large animal.” Traditional weapons, of whatever kind, have the advantage of local manufacture. They are employed with great skill, based on long experience, and are also virtually silent—and correspondingly effective against animals found in herds. Again, to hunt with lance or arrow may be regarded as “more thrilling” and possibly more manly. Nevertheless, firearms of various kinds have been adopted since at least the middle of the eighteenth century and are now widely reported in use against the peccary. They appear to be employed more by lone hunters than by parties of hunters, and in areas remote from European influence they have rarely (if at all) entirely displaced traditional weapons.

Products of the chase

Meat (map 12)

For many aboriginal groups—whether primarily hunter-gatherers or horticulturists—peccaries are (or have been) among the principal game animals. They have probably contributed more to human diet than any

61 Silverman-Cope, 1973: p. 73 (white-lipped peccary, paralyzed within about 100 meters).
63 Fejos, 1943: p. 41.
64 Farabee, 1924: p. 43.
65 Holmberg, 1950: p. 25.
67 Lozano, 1873–1874: 1: p. 288 (escopeta, in the region of La Plata and the Chaco).
other terrestrial species. Lionel Wafer (1680–1688) observed that the *pecary* (collared) and the *warree* (white-lipped) were the "chief game" of the Indians of Darién.69 Similarly, peccaries are known to have been "important" to, or a "favourite food" of, the Campa (Peru),70 the Sirionó (Bolivia),71 the Bororo (Brazil-Bolivia),72 the Chapacura (Brazil-Bolivia),73

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69 Wafer (1699), 1934: p. 102.
the Akwé-Shavante (Brazil), the Carajá (Brazil), the Caingang (Brazil),
the Tukano (Colombia), the Guayúpe (Venezuela-Colombia), the
Maya (Mexico-Guatemala), the Cahuita, and the Zapotec (Mexico).
In Guiana, according to R. H. Schomburgk, they were "more productive
than . . . any other animal of the chase." Over a period of one month
in a community of the Achuará Jívaro (Ecuador), the two species
accounted for 60 percent by weight of the total harvest of animals.
The white-lipped peccary has been described as "the principal game
food" (Mundurucú, Brazil), "the most useful animal" (Guayaki, Para-
guay), and "the main stock of meat" (in Tortuguero, Caribbean coast
of Costa Rica). According to R. B. Hames, it is "the most important
game [animal] for the majority of neotropical hunters." A number of
calculations of the percentages of meat contributed by game animals to
the diet of various aboriginal groups put the white-lipped peccary in first
or second place and above the collared peccary. Such calculations refer
to communities of the Barí (northern Colombia-Venezuela), the Yano-
mamó (Venezuela-Brazil), the Yecuaná (Venezuela), the Miskito
(Nicaragua), the Makú (Colombia), the Siona-Secoya (Ecuador).

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75 Lipkind, 1948: p. 181.
77 Fulop, 1954: p. 101 (among "los animales mas codiciados"). Woolly monkeys and
peccaries are "the most esteemed game" of the Barasana of Colombia (S. Hugh-Jones,
82 Schomburgk (1840–1844), 1923: 2: p. 129.
84 Murphy, 1960: p. 54.
86 Frost, 1974: p. 159.
87 Hames, 1980: p. 42.
88 Beckerman in Ross, 1978: p. 18 (white-lipped peccary in first place, collared peccary
in third); ibid., 1980: pp. 94–95 (agouti in second place; peccaries together marginally more
important [kilograms of meat per person per year] than exploited species of monkey).
89 Lizot, 1979: p. 151 (white-lipped peccary in first place, collared peccary in third); Ross
90 Hames, 1979: pp. 232, 238 (white-lipped peccary in second place). Cf. Hames and
91 Nietschmann, 1972a: p. 50, 1973: pp. 83, 107, 165 (white-lipped peccary next to the
turtle; the meat of the collared peccary is rejected).
92 Silverman-Cope, 1973: p. 89 (white-lipped peccary in first place, collared peccary
in second).
percent] in first place, collared peccary [19.3 percent] in second). Cf. Hames and Vickers,
Shipibo (Peru),\textsuperscript{94} and the Aché (eastern Paraguay).\textsuperscript{95} In a Surinam village, over a one-month period (ca. 1970), the number of white-lipped peccaries killed was more than double that of collared peccaries.\textsuperscript{96} A survey (1966) of 430 families along the lower Ucayalí (Peru) revealed that game contributed 23.65 percent of animal protein (fish, 61.68 percent), and of this the white-lipped peccary accounted for the largest proportion, followed by the collared peccary.\textsuperscript{97} On the Río Pachitea (ca. 1965) more meat than fish was consumed; however, the white-lipped peccary ranked only ninth by weight (3.10 percent) and the collared peccary third (16.5 percent).\textsuperscript{98} Likewise, the collared peccary was found to occupy a higher rank among the Sharanahua (Peru)\textsuperscript{99} and the Amahuaca (Peru).\textsuperscript{100}

Peccaries are generally important for several reasons. They are among the larger mammals of Neotropa, and the combined distribution of the two species is very extensive. Their overall density is comparatively low, but yet is higher than that of the much larger tapir, another favorite food animal. It is rare for the meat of either species to be totally taboo (pp. 83–86 infra). The white-lipped peccary has the larger cruising radius and is less predictable than the smaller species; on the other hand, it is found in larger bands, a circumstance that facilitates multiple kills. It has also been argued (notably in the case of the Yanomamó) that endemic warfare between large, widely spaced villages in effect creates extensive "buffer-zones," which in turn "constitute reserves [where] many species (especially the larger mammals) may rebound in numbers after a decline in human predation pressures."\textsuperscript{101}

\textsuperscript{94} Campos, 1977: p. 59 (white-lipped peccary in first place, collared peccary in second: note, 22,137 kilograms in error for 2,137 kilograms). See also Smith, 1976: p. 456 (three agrovilas along Brazil's transamazon highway: at one, white-lipped peccary in first place, collared peccary in fourth; at another, white-lipped peccary in second place, collared peccary in fourth; and at the third, longest occupied and now with little virgin forest in close proximity, collared peccary in fifth place, white-lipped peccary not among the thirteen species listed).

\textsuperscript{95} Hawkes, Hill, and O'Connell, 1982: p. 386 (white-lipped peccary in first place and collared peccary in sixth in terms of "average calories per consumer day": but collared peccary and deer in first place and white-lipped peccary in seventh in terms of "rates of caloric resources to handling time" [cost/benefit analysis]).

\textsuperscript{96} Lenselink, 1972: p. 40.

\textsuperscript{97} Pierret and Durojeanni, 1967: pp. 10, 15.

\textsuperscript{98} Ibid., 1966: p. 273.


\textsuperscript{100} Carneiro, 1974: p. 124 (collared peccary in fifth place, white-lipped peccary not mentioned—below eleventh place). Analysis of faunal remains from the archaeological site of Cerro Brujo (Panama) indicated that the collared peccary was the most important game animal in terms of usable meat (Linares and White, 1980: p. 183).

The collared peccary provides up to 40 pounds of meat, the white-lipped peccary 50 pounds.\textsuperscript{102} If the site of the kill is some distance from the camp or village, slaughtered animals may be butchered immediately and the quarters roasted.\textsuperscript{103} Oviedo (1526) remarked that in the climate of Tierra Firme (Panama) "fish and meat soon spoil if they are not roasted on the same day that they are killed or caught."\textsuperscript{104} The most common method of preserving peccary meat is by smoke-drying. This "[the Indians of Darien] do abroad if they kill a great many pecary, birds . . . and bring the pieces home ready dried," wrote Lionel Wafer (1680–1688).\textsuperscript{105} Preliminary smoking in the bush may be followed by a similar operation, and more rarely by further processing, in the village.\textsuperscript{106} Hans Staden (1547–1555) described from eastern Brazil how dried fish and meat were pounded, passed through a sieve, and reduced to a powder that "last[ed] a long time; for they have not the custom of salting fish and meat."\textsuperscript{107} Smoke-drying of peccary meat has been specifically reported from the Cayapa (Ecuador),\textsuperscript{108} the Yagua (Peru),\textsuperscript{109} the Nambicuara (Brazil),\textsuperscript{110} the Canelo (Ecuador),\textsuperscript{111} the Chocó (Colombia),\textsuperscript{112} the Makú (Colombia),\textsuperscript{113} the Tukano (Colombia),\textsuperscript{114} the Waiwai (Guiana-Brazil),\textsuperscript{115} and the Maya (Mexico);\textsuperscript{116} also from Guiana,\textsuperscript{117} Panama and Darién,\textsuperscript{118} and the lower Ucayali (Peru).\textsuperscript{119} Sun-drying\textsuperscript{120} may be associated with salting, but the latter is apparently rare.\textsuperscript{121} Until very recently, some of the Northern Kayapó (Brazil) were unfamiliar with both salting and drying.\textsuperscript{122} The Bayano Cuna (Panama) either smoke or parboil surplus

\textsuperscript{102} Nietschmann, 1973: p. 165.
\textsuperscript{103} Holmberg, 1950: p. 25 (the Sirionó).
\textsuperscript{104} Fernández de Oviedo y Valdés, 1959a: p. 29.
\textsuperscript{105} Wafer, 1934: p. 103. Also, apparently, the Makú of Colombia (Silverman-Cope, 1973: p. 74, white-lipped peccary).
\textsuperscript{106} Bennett, 1968b: p. 43.
\textsuperscript{107} Staden, 1874: p. 132.
\textsuperscript{108} Barrett, 1925: p. 75.
\textsuperscript{109} Fejos, 1943: p. 41.
\textsuperscript{110} Oberg, 1953: p. 89.
\textsuperscript{111} Whitten, 1976: p. 178.
\textsuperscript{112} Wassén, 1935: p. 86.
\textsuperscript{113} Silverman-Cope, 1973: p. 74.
\textsuperscript{115} Yde, 1965: p. 123.
\textsuperscript{116} Gann, 1918: p. 21.
\textsuperscript{117} Bernau, 1847: p. 41.
\textsuperscript{118} Cullen, 1866: p. 265; Lothrop, 1948: p. 253.
\textsuperscript{119} Pierret and Dourojeanni, 1967: p. 154.
\textsuperscript{120} Castelnau, 1850: 2: p. 48 (Rio Tocantins, central Brazil); sun-drying is also mentioned by Wassén, 1935: p. 86 (the Chocó).
The efficacy of these methods depends on the time and care expended; “dried meat,” under tropical conditions, is said to keep for anything from a few days to several weeks. At the same time, large quantities of fresh meat may be consumed in feasting or, more often, distributed among kinsfolk and other members of the community. The regular disposal of peccary meat, according to some system of reciprocity, has been widely reported. Some may also be traded. The Makú supply the Tukano with forest products, particularly smoked meat. A document of 1573–1575 refers to the exchange of fish for gold, deer meat, and “barbecued” peccary between Indians along the shores of Lake Maracaibo and others further inland.

Minor products

Hides. Local interest in peccary hides is rather infrequently reported. The Jivaro (Ecuador) are said to value the skins, and the neighboring Canelo use them to cover drums. The latter custom was also reported from sixteenth-century Vera Paz (Guatemala). In the middle of the eighteenth century Abipón women (Paraguay) stitched together skins to make “travelling dresses.” A. Métraux refers to large, peccary-skin bags, and maintained that the Chaco Indians “employ skins to a far greater extent than do most South American tribes.” Among the Waiwai (Brazil–Guiana), “the cylindrical cover for the quiver containing poisoned arrow points is made from the skin of the poinko [white-lipped peccary].” The Mundurucú “sell hundreds of peccary hides every year to traders,” and hides are occasionally traded by the Tenetehara (Brazil).
and the Sharanahua (Peru). The same has also been reported of the Indians of the Gran Chaco and of mestizos settled along the lower Ucayali and the Río Pachitea (Peru).

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136 Siskind, 1973: pp. 70, 169-171 (the skin of the collared peccary being the more valuable, fetching 20 soles as against 5 soles for that of the white-lipped peccary).
138 Pierret and Dourojeanni, 1967: p. 16 (skin of the collared peccary, 22 soles, that of the white-lipped peccary, 10 soles).
A local market in peccary hides is probably both old and geographically commonplace. They were occasionally used as boot leather and in making chairs. From the second half of the nineteenth century a substantial international demand developed, particularly for the thin, strong, and bristle-marked skins of the collared peccary, used in the manufacture of gloves and jackets. The chief sources of supply were (and remain) northern Argentina and Mexico and the Southwest of the United States. About 1885, San Antonio (Texas) was a collecting point, one firm handling 30,000 in a season. W. J. Hamilton (1939) found that “so great has the demand become, even though the hides bring only 25 or 50 cents, that the animals [collared peccary] have been virtually extirpated over much of their range in the past five years. More than 85,000 Mexican hides came into Nogales, Arizona, a few years ago.” Recently, imports to the United States amounted to 18,000 per annum. In 1977 some 3,000 peccary hides were marketed in the province of Salta, Argentina; and between 1972 and 1979 over 300,000 from the whole of Argentina were exported.

Teeth and bone. Peccary teeth (some worked) have been found in archaeological deposits at Cozumel (Preclassic), Dzibilchaltun (Preclassic and Classic), and Mayapan (Postclassic), Yucatán. Recent ethnographic accounts, notably from northeast South America (map 13), refer to their use as cutting implements and as decoration. During initiation rites, Warrau boys (Venezuela) “slashed their chests and arms with peccary tusks”; similarly, Betoi hunters (Colombia) made scarification awls of peccary bone (? tusks). The Macusi (Guiana-Brazil) have “knives of peccary teeth,” and among the neighboring Waiwai “the canine teeth of the pakri [collared peccary] are inserted in the double scraper, pákriyórū (yórū, tooth), used for smoothing the bow staff.” The Yanomamó (Venezuela-Brazil) and the Pacaguará (Bolivia) employ the jawbone for the same purpose. Peccary tusks, set in wax, serve as sights on the blowguns of Indians in the Guianas and along the rivers Orinoco and Vaupés.

141 J. A. Allen, 1896: p. 54. In Zavala county in 1886, hides are said to have been used as “currency.”
142 W. J. Hamilton, 1939: p. 368.
143 C. A. Hill, 1966: p. 7. See also Dalquest, 1953: p. 208 (San Luis Potosí, Mexico); Lewis, 1970: p. 44.
146 Métraux, 1949b: p. 376.
147 Hernández de Alba, 1948c: p. 398; Métraux, 1949c: p. 581 (quoting J. Rivero, 1736 [1883]).
148 Farabee, 1924: p. 52.
151 Métraux, 1949a: p. 250.
"Necklaces" or "collars" of (worked) peccary teeth have been reported from the Yuruna (Brazil),\textsuperscript{152} the Cashinahua (Peru),\textsuperscript{153} the Piojé (Ecuador),\textsuperscript{154} the Arecuna-Taulipang (Guiana),\textsuperscript{155} and the Lacandon (Chiapas, Mexico).\textsuperscript{156} Teeth are also used as "children’s ornaments" (the Parintintin,

\textsuperscript{152} Nimuendajú, 1948a: p. 229.
\textsuperscript{153} Kensinger, 1975: pp. 170, 174.
\textsuperscript{154} Simson, 1886: p. 195.
\textsuperscript{155} Schomburgk, 1841: p. 204. For Brazil-Guiana, see also Schomburgk (1840–1844), 1923: 1: p. 274 (vicinity of the River Rupununi, men with big necklaces, poeng-kere, of peccary teeth); Burton in Staden, 1874: p. 160 (eastern Brazil, chiefs with necklaces).
\textsuperscript{156} Palacios, 1928: p. 150.
Brazil)\textsuperscript{157} and for "decorating headdresses, cloaks, drums and shoulder slings" (the Canelo, Ecuador).\textsuperscript{158} The Wapishana and the Atorais (Brazil-Guiana) carry peccary tusks as charms or talismans to ensure success in the chase.\textsuperscript{159} Lower jaws are prized as hunting trophies by the Waiwai;\textsuperscript{160} and among the Canelo lower jaws of both species of peccary are placed in the walls of the *ichilla huasi*, the women’s part of the house.\textsuperscript{161} Peccary hoofs are made into "bells" (Guiana, and the Northern Kayapó, Brazil)\textsuperscript{162} and into rattles worn on the ankles (Tapirapé, Brazil),\textsuperscript{163} the wrists (Mbayá, Paraguay-Brazil),\textsuperscript{164} or on belts (Yaqui, Mexico).\textsuperscript{165}

**Bristles.** There are a few references to the use of peccary bristles. In bundles they may serve as both brush and comb (Chaco,\textsuperscript{166} specifically the Abipón\textsuperscript{167}). Sirionó boys (eastern Bolivia) sometimes glue the bristles to their hair.\textsuperscript{168} The Tapirapé wear masks decorated with tufts of peccary hair,\textsuperscript{169} and C. Nimuendajú observed that among the Parintintin (Brazil) "the hafted ends of [arrow] points now and then have a beautiful fabric of black and white hairs of the [collared] peccary."\textsuperscript{170}

\textsuperscript{157} Nimuendajú, 1948b: p. 287.  
\textsuperscript{158} Whitten, 1976: p. 171.  
\textsuperscript{159} Coudreau, 1886–1887: 2: p. 315.  
\textsuperscript{160} Fock, 1963: p. 159; Yde, 1965: p. 123.  
\textsuperscript{161} Whitten, 1976: p. 68.  
\textsuperscript{162} Roth, 1924: p. 465; Frikel, 1968: p. 105.  
\textsuperscript{163} Wagley, 1977: p. 62.  
\textsuperscript{164} Métroix, 1946a: p. 336.  
\textsuperscript{165} Spicer, 1980: p. 12.  
\textsuperscript{166} Métroix, 1946a: p. 280.  
\textsuperscript{167} Dobrizhoffer (ca. 1750), 1822: 1: p. 271.  
\textsuperscript{168} Holmberg, 1950: p. 19.  
\textsuperscript{169} Wagley, 1977: p. 62.  
\textsuperscript{170} Nimuendajú, 1948b: p. 289.


**E: TABOO, CEREMONY AND MYTH**

Rejection of peccary meat (map 14)

Where the peccary is not hunted for food, hunting generally is unimportant (but game not necessarily scarce) and fishing correspondingly important. When first contacted, the Sae (southern Colombia) "ate no meat whatsoever." Other tribes that do not consume peccary meat (Camayurá, Trumá, Guicuru [Kuikurus]) cluster around the headwaters of the Rio Xingu. The Guicuru kill only to protect their crops and for sport. Dependence on fish is likewise characteristic of the neighboring Apalakiri (Kalapalo), among whom, however, the rejection of peccary (and most other) meat has been described as a "self-imposed taboo." The "traditional aversion" of the Warrau (Orinoco delta) to hunting was also accompanied by a strong interest in fishing. Taboos are difficult to distinguish from indifference (and unfamiliarity) where some alternative resource is valued more highly.

Rejection of peccary meat may reflect the fear that whoever consumes the meat will assume one or another of the characteristics of the animal. The Mataco (Argentine Chaco) "never eat peccary lest they get toothache and their teeth chatter as do those of this animal when it is roused." In the middle of the seventeenth century, the Caribs of Tobago were said to avoid peccary (and pig) meat in case "they should have small eyes [considered a deformity] like those of that beast." According to A. Simson (1886), the Záparo of the Río Napo do not eat "heavy meats" (peccary, tapir) that "would impede their agility and unfit them for the chase."

Other kinds of calamity may also be anticipated. In the early 1830s, both male and female Yuracaré (eastern Bolivia) refrained from eating peccary meat while clearing forest, so to avoid the risk of being crushed.

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4 Wilbert, 1972: p. 89 (the peccary, báquiro, is now hunted).
5 Métraux, 1946a: p. 261. According to Nino (1913: p. 97) the Guisnay, neighbors of the Mataco (and sometimes included with them), hunt the peccary.
7 Simson, 1886: p. 168.
by falling trees.\textsuperscript{8} The Toba (northern Argentina) "fear that the meat of the collared peccary and domesticated pig will give them ulcers of the nose."\textsuperscript{9} Peccary liver is rejected by the young men of the Guayaki (Paraguay); to do otherwise would, it is thought, make them poor

\textsuperscript{8} Orbigny (1826–1833), 1835–1847: 3: pp. 203–204 ("Lorsqu’ils vont abattre les arbres pour déficher un champ, ils se gardent bien, ainsi que leurs femmes, de manger la chair du pécari [sanglier de ces contrées], dans la crainte de se voir écraser par les arbres qui tombent").

\textsuperscript{9} Métraux, 1946a: p. 261. Karsten (1932: pp. 38–39) states that the Toba hunt both species of peccary, but whether for food is not clear.
marksmen. The Siona-Secoya (eastern Ecuador) believe that a pregnant woman who eats peccary meat will give birth to a child with clubbed feet.

Many taboos are associated with the human life cycle, notably pregnancy and childbirth. Some include all meat (the Desana, Makú, Waiwai, Yanomamó, Shavante, Tenetehara, Eastern Timbira, Tucuna). Both parents of an unweaned Tenetehara child must abstain from "the meat of macaw, white-lipped peccary and tapir." Among the Yanomamó the flesh of all large game is denied to pregnant women and their spouses. After certain critical events (birth, adolescent rites, parenthood, illness) in the life of a Barasana, peccary meat is among the last to be sanctioned as food. The parents of a sick Kagwahiv (Tupí) child avoid killing or eating the white-lipped peccary. Kayapó women during the first month of pregnancy are not allowed to eat peccary meat. The Jivaro ban meat to parents of a newborn child and to females at the time of their first menses, and similarly the flesh of the white-lipped peccary (among other animals, but not the collared peccary) to betrothed couples for up to two years. Aspiring shamans also avoid "wild boar" (? white-lipped peccary). After the delivery of a first child, the Camacan require the husband to avoid the meat of the peccary, tapir, and monkey. Peccary, deer, and tapir ("strong meat") are included in a similar prohibition by the Cashinahua. Among the Waiwai "a menstruating woman must never eat the flesh of game that has been hunted or caught by dogs, which particularly refers to the poinko [white-lipped peccary]. . . ."

In the mind of the Desana (Eastern Tukano), a "young man does not form part of the circuit [of sexual energy] because he is not married; in eating [peccary, tapir, deer, and monkey] useless energy would be accumulated, diminishing the total potential without being able to replace it." At the same time and somewhat paradoxically, a married man, wishing any son to be "spiritually" similar to him, "seeks to

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13 Wagley and Galvão, 1948a: p. 142.
16 Kracke, 1981: pp. 107, 136. To kill a tapir or white-lipped peccary is thought to be harmful to a sick person; to eat the flesh, only mildly so.
21 Kensinger, 1981: p. 161 (for several weeks after the birth of a child).
22 Fock, 1963: p. 159 (see also p. 158, meat of the poinko taboo for two years after the first menses).
increase his [sexual] energy by means of restrictions and dietary prescriptions. He should not eat tapir, peccary or monkey meat because the flesh of these animals is impure. . . ."24 The Desana live along the tributaries of the Rio Vaupés, where fish are not abundant. A. D. Wallace (1853) found that some of the Indians of this region ate the meat of the collared peccary, but not that of the white-lipped peccary or the tapir.25 In general contrast to these customs, pregnant women of the Sirionó (eastern Bolivia) believe that to eat peccary meat will ensure the birth of a valiant and industrious child.26

Some Arawak communities of the Pomeroon coast of Guiana refuse the meat of peccaries (and of other animals) found to contain young.27 The Miskito of Tasbapauni (Nicaragua) reject the collared but not the white-lipped peccary.28 No other report from Central America has been found. A relación of Vera Cruz (1571) states that the flesh of puercos javalies was not eaten,29 but whether this applied to both species and to the Indian or the European population is not clear.

Restraints on overhunting (map 14)

Living creatures are incorporated in many magico-religious beliefs. The idea that animals in general and certain species in particular have "spirit guardians" or "masters" that prevent over-hunting, or may take revenge in the event of over-hunting, is widespread in South and lower Central America.30 To maintain good relations with the master, and to ensure a sufficient supply of game, the hunter must at all times exercise moderation.

The Cashinahua (Peru) are expected to shoot no more game than the community can reasonably consume.31 Among the Tenetehara (Brazil), peccaries especially are thought to be "owned" by Marana ŝwa, Lord of the Forest, and unnecessary slaughter, for example when large herds are trapped by flood-water, is strongly condemned.32 Marana ŝwa may punish by inducing sickness or by bringing bad luck in hunting. The spirit-master among some other Tupian tribes is called Korupira (Kuri-Pira),33 as Caapora the name is also reported from the Shucuru' (eastern Brazil).34

24 Ibid., p. 61. Cf. ibid., 1976: p. 313 ("[A] man whose wife is expecting a child should eat neither tapir, peccary nor monkey meat because this might affect the good health of his yet unborn offspring").
25 Wallace, 1853: p. 485. See also Whiffen, 1915: p. 145 ("Peccary is taboo among many tribes").
28 Nietschmann, 1972a: p. 54; 1973: p. 167; pork is rarely eaten.
The corresponding figure in Chiriguano mythology is known as Coquena.\(^{35}\) The Chiripá and Mbyá (Paraguay-Brazil) honor the "Owner of the Pigs" in ritual song and dance.\(^{36}\) The Shipaya (Brazil)\(^{37}\) and the Taulipang-Arecuna (Guiana-Brazil)\(^{38}\) also have "peccary masters." According to the Campa (Peru), certain game animals, including the peccary, are raised by benevolent spirits that reside in the mountain ranges.\(^{39}\) The Jirara and Airico (Colombia), on the other hand, "believe in an evil spirit which has charge of peccaries."\(^{40}\) Women of the Canelo (Ecuador) maintain contact with Nunghuít, wife of the forest soul master, by means of black "stones" that come from the stomach of the peccary.\(^{41}\)

The Mundurucú "refrain from taking more game than can be eaten by the village, for it is considered a grievous offence against the spirit mothers of the animals to commit slaughter or to kill an animal only for its hide."\(^{42}\) The "spirit mothers" of the peccary (daje si) and the tapir (biu si) are most commonly invoked to protect and to guarantee increase in numbers. According to the Maracá, "all species are . . . protected by a particular guardian (Yorsathê), which prevents the hunter killing too many of the same species within a short timespan."\(^{43}\) The Opaie-Shavante (southern Brazil) believe that a peccary herd must never be entirely destroyed.\(^{44}\) Caduveo hunters (Paraguay-Brazil), in the course of their active life, are allowed to kill only a limited number of animals of each species.\(^{45}\) Nggiyûdn is the name given by the Caingang to the "soul" or presiding spirit of the natural world. When peccaries are scarce, it is said that "Nggiyûdn has become angry with us and has closed up the pigs in his corral."\(^{46}\) Scarcity is thus visualized as a punishment; wanton killing is a cardinal offense.\(^{47}\) A Yupa folktale recalls how a band of hunters was punished by Karau, Lord of the Animals, for slaughtering as many as thirty peccaries.\(^{48}\) Again, in the cosmology of the Miskito, the white-lipped peccary has a "keeper" (Wari Dawan) that prevents over-hunting.\(^{49}\) The Cabécar (Costa Rica) attempt to deceive the protector by giving animals plant names when a hunt is planned.\(^{50}\)

\(^{35}\) Nordenskïld, 1924: p. 33.
\(^{36}\) Cadogan, 1973: p. 98.
\(^{40}\) Hernández de Alba, 1948c: p. 398.
\(^{41}\) Whitten, 1976: p. 42.
\(^{42}\) Murphy and Murphy, 1974: pp. 63, 81–82. See also Murphy, 1958: p. 15.
\(^{44}\) Ribeiro, 1951: pp. 132–133 (queixadas).
\(^{45}\) Ibid., 1950: pp. 165–166.
\(^{50}\) Stone, 1962: p. 47.
Among the Desana (E. Tukano) the master and protector of animals is known as Vai-mahsè. Peccaries "move in herds about the hills chasing away intruders. These are sacred places that should be avoided, otherwise Vai-mahsè will be angered and will punish the offender with illness. . . . Only a hunter in a state of ritual purity, aided by the invocations of a payè [shaman], dares to go near a hill. . . ."51 At the same time, the feared "forest spirit" (boráro) can take the form of a peccary or a deer. "Peccaries are the favorite animals of the boráro, who gives his cry to frighten the hunter and protect his prey. In itself, it is dangerous to follow a peccary into the forest because it might lead the hunter directly to the boráro."52 "Another mechanism that restricts overhunting is this: According to cosmological myths all game animals are associated with certain constellations, as defined by the Tukano . . . a species can only be hunted after its constellation has risen over the horizon. . . ."53 The Barasana and Taiwano, neighbors of the Desana, regard certain animals, including the peccary, as "soul takers," sôri masa. If one is killed without "permission" from the spirit guardian, then illness and death may strike the hunter's community, and the souls of those who die in turn become sôri masa, replacing the lost souls of the slaughtered animals.54

According to the Sanumá (Yanomamô), all animals possess a "spirit" (uku dubi), which is released on death and can attack those who have ignored specific food prohibitions.55 Where the "soul" of the peccary is thought to be essentially the same as that of man, as among the Itonama, the flesh may be banned altogether.56 Medicine men (baris) of the Bororo "reincarnate themselves in the very animals which are most valued as food. All these animals are tabooed as food in their natural condition and require a special ceremony which removes their harmful qualities. . . ."57

The overall effect of selective taboos may be small, measured in terms of the number and proportion of animals saved from destruction. Whether they serve as effective agents of conservation is also questionable.58 On the other hand, restraints involving the supernatural do represent attempts to incorporate vulnerable resources in a balanced and self-sustaining cosmology in which man is an integral part of nature.59

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51 Reichel-Dolmatoff, 1971: p. 82. Cf. ibid., 1976: p. 315 ("[a shaman] will determine the number of animals to be killed when a herd of peccary is reported . . .")
56 Karsten, 1926: p. 276.
57 Ibid., p. 277. See also ibid.: p. 294 ("All animals . . . possess a spirit or soul which in essence is of the same kind as that animating man, and which survives the destruction of the body. All animals have once been men, or all men animals." Similarly Siskind, 1973: p. 153 [the Sharanhual]).
Hunting rituals, sacrifice, folklore and myth (map 15)

Hunting is a notoriously unpredictable activity. It is, therefore, not surprising that certain rituals (complementary to the supernatural restraints on overhunting) are observed or performed to promote success. Indians of the Guianas (Carib and Arawak) and the lower Orinoco (Warrau) employ “charms” (binas) to entice or attract. The bina may be a plant, the leaf of which bears a real or imaginary resemblance to a particular animal, for example, the peccary (the Macusi).60 The Atorais and the

Wapishana (Guiana-Brazil) carry peccary teeth as talismans, both to protect themselves and to facilitate success.61 The Betoi (Colombia) scarify the right arm with peccary bone.62 Sirionó boys (eastern Bolivia) sometimes glue the bristles of the peccary and the quills of the porcupine to their own hair "so as to make them good hunters of these animals when they grow up." 63

According to W. E. Roth (1915), when the Arawak of the Pomeroon coast kill a peccary containing young, the latter are buried under the spot where manioc is grated, in order to attract others64 (the fact that peccaries are fond of manioc may explain the location). With the same purpose, Indians along the Río Vaupés (Brazil-Colombia) bury the head of a peccary where the band was first encountered.65 The bones of game animals, or more rarely other parts of the body, may be collected or disposed of in some special way (burned, buried in the forest, thrown in streams), thereby to ensure that others of the same species will return.66 Shamans of the Waiwai (Brazil-Guiana), equipped with a peccary "claw," are reputed to be able to keep droves of the animal close to the village.67 The Amahuaca (Peru) occasionally drink the blood of the peccary (and of other animals) "for better luck in hunting." 68

Litanies that refer to peccaries are sometimes recited or sung prior to hunting (Jivaro, Ecuador;69 Cashinahua, Peru,70 Mbyá, Brazil-Paraguay,71 Piaroa, Venezuela;72 Maya, Yucatán, Mexico73). Shamans of the Siona-Secoya (Ecuador) are thought to have the power to "call" game that are normally corralled by their "keepers." 74 The Miskito and the Sumu (Nicaragua) believe that the "owner" of the peccaries "keeps them shut up at times and does not release them unless the sukya practices certain

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63 Holmberg, 1950: p. 29.
64 Roth, 1915: p. 284.
65 Coudreau, 1886–1887: 2: p. 171.
68 Carneiro, 1974: p. 131 (one of several things a hunter can do to bring success).
70 Tastevin, 1926: p. 160.
71 Vellard, 1939: p. 171.
72 Chaffanjon, 1889: p. 203.
74 Vickers, 1976: p. 121. Cf. Calella, 1941: p. 743 (shamans must "apply" to the spirit, uatî, of the peccary if hunting is to be successful).
rites of incantation and makes a small offering.”75 Similarly, according to the Makú (Colombia), each “House of Game” has a master who rears the game and who controls [their] release. . . . Certain men [shamans] have the power and knowledge to travel to the Game Houses in their spirit forms and bargain with the Master for the special release of game animals; they pay him with tobacco smoke, which is his favoured food. . . . Some very powerful shamans are able to close down a Game House altogether, or else to alter the spatial distribution of the monkey hair network [by which animals come to earth], thus controlling the presence and absence of game in particular parts of the forest.76

The Mundurucú (Brazil) have several rituals to invoke success. In one dance, ‘peccaries’ are pursued by hunters and dogs,77 and in another children take the part of young peccaries, regarded as a great delicacy.78 The spirit mother of all game animals, putch ši, and the spirits of particular species, including the peccary (daje ši), must be constantly propitiated to avoid reprisals for human misdemeanors and to ensure the welfare of the community. This is largely the responsibility of the shamans, some of whom may attempt to place the generic spirit in springs near their villages, where animals will thus congregate and hunting will be good.79 Dances symbolically associated with the peccary have also been reported from the Cubeo (Colombia)—the licentious hwananiwa or “wild peccary”80—and from the Taulipang-Arecuna (northern Brazil).81 The Tapirapé (Brazil)82 and the Guayaki (Brazil-Paraguay)83 celebrate a successful peccary hunt in song or dance.

Sacrifice and religion. Some sacrifices of peccary were apparently part of burial ceremonies (Guatemala,84 province of Santiago del Estero and the Chaco of Argentina85). The ceremonial slaughter of captured peccaries is practiced by the Eastern Timbira (Brazil),86 the Jivaro (Ecuador),87 and the Cashibo and Shipibo (eastern Peru).88 The Maya in early post-

75 Conzemius, 1932: p. 79.
77 Horton, 1948: p. 280.
78 Farabee, 1917: pp. 135–136. See also Strömer, 1932: pp. 119–120; Murphy, 1958: p. 60 (ceremony to gratify animal spirits, men adorned as peccaries, tapirs, and monkeys).
83 Cadogan, 1973: p. 98.
84 Borghegyi, 1965: p. 23.
85 Rusconi, 1931b: pp. 228–240 (the extinct genus Platygonus).
86 Nimuendajú, 1946: p. 44.
87 Farabee, 1972: p. 121.
Conquest times sacrificed peccaries.\textsuperscript{89} This has also been inferred from faunal remains at Mayapan,\textsuperscript{90} and from codical representations of peccaries caught in snares.\textsuperscript{91} In the cosmology of the Maya, peccary (and deer) were closely associated with agriculture, seasonal change, and annual renewal.\textsuperscript{92} The pre-hispanic 	extit{Codex Tro-Cortesianus} shows a fertility goddess surrounded by deer and peccary, among other animals (fig. 10). The Pacaguara (Bolivia) "worshipped their deities in the guise of . . . a peccary’s or some other animal’s head."\textsuperscript{93} Pre-Columbian models of the peccary (supra p. 30) may have had similar significance.

\textit{Folklore and myth.} Peccaries are prominent in Amerindian folklore. Most instructive are accounts of their mythical relationships with man. The Yauavo (Peru) are the "Peccary people" (\textit{Yawabu}).\textsuperscript{94} In a folktale common to the Guayaki, the Chiripá, and the Mbyá (Paraguay-Brazil) a young Indian is obliged to marry a peccary.\textsuperscript{95} Certain bands of the Mataco, the Toba, and the Chamacoco (Argentina-Paraguay) are named after animals, including the peccary.\textsuperscript{96} The \textit{yehsë} is regarded as the progenitor of one of the sibs (\textit{Yehsë-porâ}, "Sons of the peccary") of the Desana (Colombia).\textsuperscript{97} A number of widely distributed myths relate how, in a variety of circumstances, people (men, women, and children) were transformed into peccaries (the Warrau, Venezuela;\textsuperscript{98} the Sharanahua, Peru;\textsuperscript{99} the Cariri, Brazil;\textsuperscript{100} the Crahô and the Kayapô, Brazil;\textsuperscript{101} the Tenetehara, Brazil;\textsuperscript{102} the Mundurucú, Brazil;\textsuperscript{103} the Bororo, Brazil-Bolivia;\textsuperscript{104} the Mataco, Argentina).\textsuperscript{105} To shed light on the role of the peccary as an "intermediary" between animal (jaguar) and man (exemplified in tales belonging to the Kayapô, Opaié-Shavante, and Tucuna, Brazil), Lévi-Strauss analyzed versions of the transformation myths of the Kayapô, Tenetehara, and Mundurucú,\textsuperscript{106} and concluded:

\textsuperscript{89} Tozzer (ed.) in Landa, 1941: pp. 5 n. 24, 115 n. 528; Pohl and Feldman, 1982: p. 295.
\textsuperscript{90} Pollock and Ray, 1957: p. 640.
\textsuperscript{91} Hamblin, 1980: p. 245.
\textsuperscript{92} Thompson, 1970: p. 370; Pohl and Feldman, 1982: pp. 296, 299.
\textsuperscript{93} Métraux, 1948a: p. 452.
\textsuperscript{94} Ibid., 1948c: p. 660. See also Reichel-Dolmatoff, 1975: p. 58 ("women of peccary group," among the Kogi, Colombia).
\textsuperscript{95} Cadogan, 1973: p. 98.
\textsuperscript{96} Métraux, 1946a: p. 302.
\textsuperscript{97} Reichel-Dolmatoff, 1971: p. 200.
\textsuperscript{98} Wilbert, 1970: nos. 42, 69, 76, 95, 205.
\textsuperscript{100} Lowie, 1946c: p. 559.
\textsuperscript{101} Métraux, 1960: pp. 28–29; Wilbert, 1978: nos. 24, 32, 62, 64, 95, 96.
\textsuperscript{102} Wagley and Galvão, 1949: p. 134.
\textsuperscript{103} Murphy, 1958: pp. 70–73.
\textsuperscript{104} Lévi-Strauss, 1969: pp. 94–95.
\textsuperscript{105} Métraux, 1939: p. 61.
The *caitus* [collared peccary] and peccaries [white-lipped peccary] are therefore semi-human: the former synchronically, since they constitute the animal half of a pair whose other member is human; and the latter diachronically, since they were human beings before they changed into animals. If, as may be the case, the Mundurucú and Cayapo myths [involving the white-lipped peccary] preserved the memory of a technique of hunting that was no longer practised and consisted of driving peccaries into enclosures where they were kept and fed before being killed according to need, the first contrast is reduplicated by the second: semihuman on the mythic level, the peccaries could be semidomesticated on the level of techno-economic activity. If so, it would have to be admitted that the second aspect explains, and is the basis of, the first.

This may be usefully compared with the observations of G. Reichel-Dolmatoff:107

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107 Personal communication (unpublished manuscript: pp. 40–42).
In the view of most Vaupés Indians [Northwest Amazon], peccary are rather disgusting creatures [although their meat is highly appreciated]. . . foul-smelling, always foraging and grunting, and openly promiscuous. . . . All these characteristics make them readily comparable to the Makú Indians, especially to Makú women. The Desana, Pira-Tapuya and Tukano will often speak of these similarities and in many myths and tales Makú–peccary comparisons are described in detail. In many ways the Makú are still not thought to be "quite human"; thus they constitute a continuum between nature and culture and this is expressed in [the] peccary's occasional forays into cultivated fields . . . the Desana say that women who, in their animal image, eat forest products, as tapir and deer do, are outsiders, but that those like the peccary, who steal and eat cultivated field fruits, are "sisters," that is, they can be married.108

F: TOWARDS DOMESTICATION

Before the arrival of Europeans, the Muscovy duck, the turkey, and probably the (introduced) guinea pig were the only fully domestic animals within that part of the New World occupied by the two peccaries. On the other hand, many tame animals were kept, especially in the humid tropics of South and Central America. Captured peccaries are common enough, doubtless far more so than the adventitious evidence plotted in Map 16 (which does not include regional observations) would indicate. The collared species is most often mentioned, but white-lipped are certainly also reared. The latter, apart from the occasional tapir (Tapirus spp.), are the largest of the semi-domesticates.

Early evidence (prehistoric to ca. 1625) of the keeping of peccaries in the Mayan lowlands and Central Mexico, and in lower Central America and northern Colombia, has already been presented (pp. 38-39). Chiefly remarkable are the records of trade in reared peccaries in the Isthmus and the region around the Gulf of Urabá (the distribution is similar to that wherein nets were used to capture game, Map 11). Such trade has apparently continued to the present day in some remote areas. “A favorite commodity for exchange, especially with the Cabecares [Talamancan region, Costa Rica], is the wild pig. . . . These [tamed] pigs are fattened for a given feast . . . or are interchanged for salt and woven mantas with the Borucas.”

The sale of peccaries has also been reported

1 Tribal references, other than those referred to below, in Boman, 1908: 1: pp. 90-91 (? Diaguites, Argentina); I. Goldman, 1948: p. 772 (Vaupés-Caquetá region); Métraux, 1948e: p. 101 (Tupinamba, Brazil); Barker, 1953: p. 443 (Guáica, Venezuela).

2 Kerr ([Gmelin]Linnaeus), 1792: p. 352; Jardine, 1843: 9: p. 236; Buffon (ca. 1780), 1884: 9: p. 234; Schomburgk (1840-1844), 1923: 2: pp. 128-130, Farabee, 1924: p. 33 (Macusi, Guiana-Brazil); Miller, 1930: p. 19 (southern Mato Grosso, Brazil); Nimuendajú, 1946: p. 75 (Eastern Timbira, Brazil); J. B. Turner, 1967: p. 138 (N. Kayapó, Brazil); Nietzsche, 1973: p. 150 (Miskito, Nicaragua). Husson (Mammals of Suriname, 1978: p. 356) states that the young of D. pecari “cannot be tamed,” but this is clearly not generally true. Richard Burton (in Staden, 1874: p. 160 n.) remarked that the collared peccary was “hard to tame.” He may have been referring to adult specimens; the evidence for juveniles is otherwise.

3 Sack (Surinam, 1805-1807), 1810: p. 241 (‘‘they become very tame. . . . I never could learn whether a trial has been made to breed them when domesticated.’’); Zevallos (1610), 1886: p. 157 (dantos mansas, Panama); Woodroffe, 1914: p. 63 (upper Amazon); Kracke, 1981: p. 105.

4 For the eighteenth century, see: Stedman (1772-1777), 1796: 1: pp. 355-357 (Surinam); Dueñas (1792) in Izaguirre Ispizua, 1922-1929: 8: p. 245 (Pano, eastern Peru); Caulin (1779), 1966: 1: p. 73 (Nueva Andalucía); and cf. Figueroa (ca. 1650), 1904: p. 207 (Maina); Ximénez (1722), 1967: p. 57 (Guatemala).

from Surinam. In general, however, the traffic has probably declined with the introduction of the domestic and more prolific European pig.

Peccaries encountered in villages have often been described as "pets," being cared for (food and protection, particularly from dogs) by women and children, but also free to roam and to root for themselves. In fact,
they do not usually wander far, and apparently never voluntarily return to the forest. They may serve as "watches," raising the alarm in the event of intruders, like some tame birds; or they may be kept to "attract disease" and thereby protect their owners. The Caiungá (1894) of northern Argentina raised peccaries (and other animals) more as "curiosities," to amuse, than as a potential food supply. Nevertheless such "pets" may eventually be eaten, especially when they get older and become less appealing.

Pets, captured in the wild, are usually kept singly and are subject to imprinting on humans, a circumstance making it impossible or very unlikely that they will reproduce. Tame peccaries sometimes become very attached to their owners. More opportune circumstances exist wherever several individuals are penned, either for purposes of trade or as a general reserve of food, or again to provide for sacrifices, ceremonies and feasts. The latter would appear to be the more powerful motive. The Jivaro (Ecuador) mark the end of a particular celebration by slaughtering "a large number of young peccaries, which have been kept fat for the occasion"; the meat is then distributed to guests for their journey home. A Jivaro myth on the "origin of domestic pigs" relates how a young female peccary was raised and later kept in an enclosure. This proved to be too frail and was invaded by other peccaries. The idea of enclosures or stockades for captured peccaries is also suggested in myths preserved by the Mundurucú (Brazil), the Kayapó (Brazil), the Chiriguano (southern Bolivia), and, apparently less explicitly, by the Tenehara (Brazil).
Among the Eastern Timbira (Brazil), "tame" peccaries must generally be kept in cages to guard against constant brawls with dogs. The peccaries receive the names of human beings. At the terminal solemnity of certain major festivals a peccary must be ceremonially killed. . . . The inmates of the house loudly bewail the death, while no particular fuss accompanies the slaughtering of a domestic pig.21

Tame peccaries are also sacrificed by the Cashibo (eastern Peru) as part of a fertility rite, and by the neighboring Shipibo after a female puberty rite.22

According to Pedro Lozano (ca. 1750) the Guayaki had the "foresight" (providencia) to "domesticate" (domesticar) a few jabalí.23 The lowland Maya occasionally rear peccaries.24 Penning juveniles is "common practice" among the contemporary Guaymí of Bocas del Toro (Panama).25 Some Cuna erect pens inside their houses; the peccaries are not tamed or kept as pets, but are reared for food.26 "The Chocó [of the Pacific coast of Colombia] tether and fatten in the hut young peccaries that they chance to trap alive during a hunt."27 On the Caribbean slope of the Talamanca highlands (Costa Rica), captured peccaries are sometimes confined to "a semicircular pen of sticks . . . built against the inside wall of [a] dwelling."28

Penned animals must of course be regularly fed, a condition that could be a serious disincentive. On the other hand, peccaries are omnivorous. They also breed at any time of the year. If penning were practiced for any considerable length of time, fortuitously adapted pairs, of appropriate age, might be brought together. Since, however, peccary litters are small (usually not more than two), the long-term advantages of breeding in captivity would not be readily apparent. Again, perhaps the most favorable conditions existed where peccaries were regularly traded or were periodically sacrificed. Probably propitious, too, were certain widely held ideas: that peccaries were "semi-domestic"—raiding cultivated crops; that they were in some way related to man, even "semi-human"—transformation myths; and that they were kept in enclosures by spirit masters—"domestic animals of their protectors."29 Garden hunting, which

21 Nimuendajú, 1946: p. 75; Lowie, 1946b: p. 482. The Guayaki (Paraguay) also use cages or baskets.
22 Roe, 1982: pp. 110–111. Roe remarks that "peccaries here, as elsewhere in the lowlands, are associated with women" (see supra p. 94).
24 Nimis, 1982: p. 315. See also Hatt, 1938: p. 336 (Ticul, Yucatán); Steggerda, 1941: p. 145 (collared peccary as a "pet").
26 Bennett, 1962: pp. 39–40. Linné (1929: pp. 130–131) observes that the Chocó (northern Colombia) have pig pens under the floor staging of their pile dwellings, and he speculates that peccaries were kept in the same fashion.
27 West, 1957: p. 245.
29 Redfield, 1942: p. 118.
has been suggested as a possible substitute for domestication,\textsuperscript{30} may also have been in the nature of a prelude.

Successful breeding in captivity is unlikely to have escaped attention. Yet the only known allusion to breeding is in Juan de Velasco’s \textit{Historia del Reino de Quito} (1789). His annotated list of \textit{especies de puercos} includes \textit{“Huasi-cuchi, o puerco casero [huasi or wasi, Quechua “house”], no porque lo sea, sino porque se domestica fácilmente, y procrea con los llevados de otras partes. Es algo más bajo, pero talvez más largo que el europeo, negro con faja blanca que la ciñe todo el cuerpo y de carne muy gustosa.”}\textsuperscript{31} This appears to refer to the collared peccary.

\textsuperscript{30} Linares, 1976a: p. 331.
\textsuperscript{31} Velasco, 1946: 1: p. 118.
G: ANIMAL DOMESTICATION IN THE HUMID TROPICS

Relatively few domestic animals originated in the humid tropics. The peoples of South and Southeast Asia contributed to the domestication of the common fowl (*Gallus gallus*), the duck (*Anas platyrhyncha*), the pig (*Sus* spp.), and perhaps the dog (*Canis familiaris*). The principal herd animals (sheep, goats, cattle, horses, and camels) belong to the periodically arid and more open lands of West and Southwest Asia. In Africa domestic animals, apart from the cat, the ass (Nile valley/Ethiopia), the guinea fowl (? forest/savanna margins) and the Egyptian goose, are everywhere intrusive. The Guinea hog (*Potamochoerus porcus*) of West and Central Africa is reared but, as far as is known, has never been regularly bred. In the New World the forested lowlands provided only the Muscovy duck (*Cairina moschata*). The llama, alpaca, and guinea pig are Andean, the turkey Mexican,\(^1\) and the cultivated cochineal insect\(^2\) one or other or possibly both. The relevant regional similarities are thus:

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<th>South and Southeast Asia</th>
<th>West and Central Africa</th>
<th>Lowland tropics of the Americas</th>
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<tr>
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<td>bush pig (reared)</td>
<td>peccary (reared)</td>
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<tr>
<td>common fowl, duck</td>
<td>guinea fowl</td>
<td>Muscovy duck</td>
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The bush pig and the peccary were probably on the way to being domesticated at the beginning of the Age of Discoveries. The peoples involved were essentially horticultural (variably combined with hunting, fishing, and collecting) and, to an increasing extent, sedentary (or permanently settled in exceptionally favorable circumstances). From the very remote and largely notional "origin" of farming, the indigenous processes of cultural change among the unspecialized cultivators of the humid tropics appear to have been extremely slow. Influences emanating from "advanced" (culturally more specialized) societies were more powerful in the Old World, with its greater stock of domestic animals, the invention and diffusion of the plow, and the comparatively early emergence of forms of urban/theocratic organization—facilitated by the greater per capita food surplus possible with plow-farming. In the New World all cultivation was horticultural (based on hand implements) and generally unspecialized until the arrival of Europeans.

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1. The domestication of birds (Old and New World) and other New World domesticates are considered in Donkin, n.d., which is chiefly devoted to the Muscovy duck.
Fig. 11. “Men [Akwé-Shavante, Brazil] returning from the hunt with a captured peccary.” D. Maybury-Lewis, 1967: pl. 69.
The domesticates of the humid tropics (and the guinea pig) are scavengers; the pigs were also initially crop-robbers. Rather like volunteer plants, they invited attention. The major herd animals, domiciled in the lands of (later) “high” civilization in the Old World and the New, seem to have required more positive action, and thus greater motivation, on the part of man. The keeping of captured juveniles of many species, out of curiosity or for mere pleasure, is indeterminately old and appears to be particularly, but by no means exclusively, associated with the horticultural societies of the tropics. Chance breeding in captivity of a very few (adaptable) species might have led to domestication for primarily economic reasons, provided that supplementary feed presented little or no problem (omnivorous species, including scavengers—again pigs and poultry) and that hunting was relatively unrewarding. An interest in breeding animals (after chance occurrences), initially for ceremonial purposes, may have been common to all areas of successful domestication and a particularly powerful motive where difficult herd animals were involved—Southwest Asia and the Andes, in association with the origins of “organized” religion.

The keeping of pets (usually nurtured by women and children) and the incorporation of animals in folklore, mythology, and religious observances have been widely reported from the humid tropics. The American species include the peccary. But for European intervention, its domestication would probably have been achieved under one or the other, or the convergence, of two sets of circumstances: (i) ceremonial—the rearing of peccaries for purposes of sacrifice on specific occasions, and (ii) economic—trade in fattened animals, locally and very gradually substituting for hunting. Both practices are likely to have been more common before the profound cultural and demographic changes set in motion by the conquest, and also more common than the evidence, from the period of European contact onwards, can possibly prove. The historical and ethnographic record is related to the territorial expansion of exploration, settlement, and scientific enquiry. All that can be inferred is that the peoples of lower Central America and northern South America engaged in activities that could have led to domestication. Here Muscovy ducks were bred, many animals were kept as curiosities, and the peccary was sacrificed, traded, and indeed carried by man to some of the nearer islands. Future research may show, however, that this was only a peripheral manifestation of developments closer to the Amazonian heartland of South America.
### APPENDIX

### ADDITIONAL VERNACULAR NAMES FOR THE PECCARY

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CENTRAL AMERICA

Chibchan

Boruca  
kásir, kásir-úiko

Bri-Bri  
kas'-ri, kas-i-ri'

Cabécar  

Cuna

huedar
huédar, guatarra

Cuna [Tule; San Blas Cuna]
Guatuso

ášár
uxáuti

Guaymi [Muci]
Guaymi [Muríre]
Guaymi [Sabanero]
Térraba

shtuko

Tirribi

shtuk'-o
shtuko
shto-ko

Misumpalpan

Miskito  
úári

Rama  
molokós

Sumo  
mołokós

Úlua  
mołakoos, múlkǔs

Gabb, 1876: p. 594
Lehmann, 1920: 1: p. 319
Gabb, 1876: p. 594
Lehmann, 1920: 1: p. 140
Lehmann, 1920: 1: p. 130;
Bennett, 1962: p. 42;
Mendez, 1970: p. 239
Bennett, 1962: p. 42
Mendez, 1970: p. 243
Cullen, 1868: p. 172;
Lehmann, 1920: 1: p. 129
Lehmann, 1920: 1: p. 164
Lehmann, 1920: 1: p. 164
Lehmann, 1920: 1: p. 164
Lehmann, 1920: 1: p. 266
Gabb, 1876: p. 594;
Lehmann, 1920: 1: p. 266
Mendez, 1970: p. 239
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Arara
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Hianácoto-Umáua
Macusi
Makiritare
Maracá
Motilón
[? Mape, Bure, Chaké]

Arawakan

Arawak
Arekena
Arua
Baniwa
Baré
Cariaya
Carúhana
Cayuishana
Culino
Guinau

poon
tirigua
wóto, wóto, uotóime
whinga
kaampo
kokoona
kasáre
matula
dohala
urumaru
soára, tsoára
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Carapaná  kieše motiro  kiešeka kapān
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      oālihehe
Cueretu  zāesē
Desana  yeysēpuru, yeysēpulu  yeysē
          yeysē
Erúlia  kyēysē  yeysē
Omōa—see Buhágana
Palánoa  ye(y)ēpuro, ye(y)ēpulo  ye(y)ē, hālaye(y)ē
Piojé  sensē  yeysē
Piratapuyo  yeysēpuru  isēbarō  yusē tsutirō
[Uaikana]  Sāra—see Buhágana
Tsołoa—see Buhágana
Tucano  yeysēpuru(o)ro, yeysēpuru, iēxtsēbore
      iēxtsēbore  yeysē, iēxtsē  yeysē

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