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# JOURNAL OF IBERIAN ARCHAEOLOGY

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vol. 6  
2004



# JOURNAL OF IBERIAN ARCHAEOLOGY

(INSTITUTO DA COMUNICAÇÃO SOCIAL, LISBOA - REG. Nº 121692)

## **Publisher**

Association for the Improvement of Cooperation in Iberian Archaeology/  
Associação para o Desenvolvimento da Cooperação em Arqueologia Peninsular (ADECAP)  
R. Aníbal Cunha, 39 - 3.º - s. 7 - 4050 Porto - Portugal. Phone/Fax: +351 226 164 068  
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The deadline for submission is on 31 May for publication in the same year.

Vol. 6 of JIA was typeset and printed in Portugal by

Litografia A.C. - R. Conselheiro Lobato, 179 - 4705-089 Braga, Portugal.

e-mail: [geral@litografiaac.pt](mailto:geral@litografiaac.pt) - web page: [www.litografiaac.pt](http://www.litografiaac.pt)

**Depósito legal** n.º 125261/98

**ISSN:** 0874-2677

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Demands of financial support for this volume were presented to the University of Porto, the Fundação Calouste Gilbenkian, and the Fundação para a Ciência e a Tecnologia, Lisbon.

## **FCT** Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA E DA TECNOLOGIA

Apoio do Programa Operacional Ciência, Tecnologia, Inovação do Quadro Comunitário de Apoio III.

This edition was seven hundred fifty copies.

**Cover design:** V. O. Jorge. It is based on paintings at Fraga d'Aia rockshelter (Paredes da Beira, S. João da Pesqueira, Portugal), used also as the logo of ADECAP and of the 3rd Congress on Iberian Archaeology (Vila Real, September 1999).

# A STUDY OF THE FAUNAL ASSEMBLAGE FROM THE PREHISTORIC ENCLOSURE OF CASTANHEIRO DO VENTO (VILA NOVA DE FOZ CÔA)

by

João Luís Cardoso\* & Cláudia Costa\*\*

**Abstract:** In this article we present the results of an archeozoological study of the mammal remains from the prehistoric enclosure of Castanheiro do Vento (Vila Nova de Foz Côa). The faunal spectrum is very small – therefore the conclusions are limited – and dominated, in terms of numbers, by *Sus* sp. and *Oryctolagus cuniculus*. In terms of the protein mass consumed, however, the domestic ox predominates, followed by pig and sheep/goats. In addition, the existence of red deer should be noted which, together with rabbit, represents the hunted segment of the faunal spectrum.

It is also important to record the dominance of juveniles or sub adults, as well as signs of intense burning, indicating the practice of setting fire to the remains after eating. Interestingly, this evidence is displayed on the smaller bones, which would have had less nutritional value and were the only ones that could have been handled easily. This meant that they had been mineralised and were therefore better preserved, unlike the bones with greater nutritional value, which would have been destroyed in the location by acids in the soils.

**Key-words:** Faunal remains; mammals; taphonomy.

**Resumo:** Neste trabalho apresenta-se o resultado da análise arqueozoológica da fauna de mamíferos recolhida no povoado pré-histórico de Castanheiro do Vento (Vila Nova de Foz Côa). O espectro faunístico, ainda que muito pobre – o que inviabiliza conclusões seguras – é dominado, ao nível do número de restos identificados, por *Sus* sp. e por *Oryctolagus cuniculus*. Contudo, ao nível da massa proteica consumida, o primeiro lugar corresponde ao boi doméstico, seguido dos suídeos e da ovelha/cabra. É de assinalar, ainda, a existência de veado que, conjuntamente com o coelho, representa o segmento cinegético do espectro faunístico identificado. Importa registar a dominância de indivíduos jovens ou subadultos, bem como a frequência de marcas de fogo intenso, indício da prática de atirar para o lume os restos após o consumo. É interessante notar, a tal propósito, que estes correspondem a peças de pequenas dimensões e de escasso interesse alimentar, as únicas que poderiam ser manipuladas com facilidade. Tal facto conduziu à mineralização de tais elementos, o que propiciou a sua melhor conservação, ao contrário do verificado em segmentos anatómicos de maiores dimensões e com maior interesse alimentar, os quais terão sido destruídos no local devido à acidez dos solos.

**Palavras-chave:** Restos faunísticos; mamíferos; tafonomia.

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## 1. INTRODUCTION

This study focuses on the classifiable mammal remains collected from the prehistoric settlement of Castanheiro do Vento (Vila Nova de Foz Côa) during the 1999 to 2002 campaigns. The excavations were coordinated by Professor Vítor Oliveira Jorge, João Muralha, Leonor Pereira and António Sá Coixão. The collection came from layer 3, dating from the Chalcolithic, layer 2, which still does not have a sufficiently clear chronological and cultural classification, and layer 1, the surface layer, which had recently been disturbed by agricultural work (JORGE *et al.*, 2003a).

There were very few identifiable remains. Out of a total of 184, only 30 items could be classified anatomically and taxonomically, representing roughly 15% of the entire collection. Twenty three items came from layer 3, four from layer 2 and only one from layer 1.

The identification was carried out by consulting manuals (HILLSON, 1999; SCHMID, 1972) and the reference collection from the *Centro de Investigação em Paleoecologia Humana e Arqueociências* (Research centre for Human Paleoecology and Archaeological Sciences) (*Instituto Português de Arqueologia* – Portuguese Institute of Archaeology).

In designing this study we followed the methodology set out in a recently published work by one of the authors of this article (CARDOSO & DETRY, 2001/2002).

It was not possible to distinguish between the wild boar (*Sus scrofa*) and the domestic pig (*Sus domesticus*), due to the lack of sound diagnostic characters, so it was identified to genus only.

As the sample was small, it did not justify calculating the Minimum Number of Individuals (MNI).

## 2. A STUDY OF THE MATERIALS AND POST- MORTEM ALTERATIONS AND THEIR RELATIVE STRATIGRAPHIC DISTRIBUTION

There were five *taxa* identified in the three layers excavated: *Sus* sp., *Bos* sp., *Cervus elaphus*, *Ovis/Capra* and *Oryctolagus cuniculus*.

## 2.1. Layer 3 - Chalcolithic

**Table 1** – Distribution of bone remains identified in layer 3.

	<i>Ovis/Capra</i>	<i>Bos sp.</i>	<i>Sus sp.</i>	<i>O. cuniculus</i>	<i>C. elaphus</i>
	N	N	N	N	N
Frag. of cranium				1	
Single teeth	3	1	5		
Splinter of humerus diaphysis		1			
Complete pisiform		1			
Frag. of scaphoid		1			
Tibia diaphysis			1		
Frag. of pelvis				1	
Metatarsal diaphysis	1				
Proximal Metapod			1		
Distal Metapod			1		
Metatarsal II				1	
Proximal epiphysis of phalanx I				1	1
Phalanx I				1	
Phalanx III			1	1	
<b>TOTAL</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>7</b>	<b>1</b>

An analysis of TABLE 1 shows that pigs were numerically the most abundant group in layer 3. As a rule, the remains that were identified corresponded to milk or enclosed teeth and the metapods of individual juveniles.

With the exception of the tibia diaphysis (Fig. 2, n° 5), the anatomical distribution of the remains of *Sus sp.* that were recovered seem to indicate a higher incidence of pieces from areas of the body that represented lower nutritional values, such as the cranium and the extremities of the limbs.

In terms of *post mortem* alterations, it is important to emphasize the prevailing intentional use of fire, which is more evident in bones from the extremities, apart from the tibia diaphysis and the teeth, which displayed no signs of this.

The next two groups were sheep/goats and cattle, both represented by the same number of identified remains. The *Ovis/Capra* remains are teeth and metapods. As with the *Sus sp.* fragments, parts of the skeleton representing the greatest nutritional values are missing.

In terms of the age of the individuals, a fragment of an enclosed 3rd lower molar proves that juveniles were present, probably as a majority group, as a small and slender metatarsal diaphysis (Fig. 2, n° 3) also suggests. The morphology of this bone suggests, in all likelihood, the existence of sheep within the group in question.

In relation to individuals of *Bos* sp. (*taurus* or *primigenius*), two carpals, a pisiform (Fig. 2, nº 2) and a scaphoid were recovered, all from the left side of a young animal. An upper jugal tooth (Fig. 2, nº 1) and a splinter of humerus were also identified.

As with the remains from the other species, fragments from parts of the anatomy that represented low nutritional values predominated. The humerus splinter is the only piece of the *Bos* sp. that indicates a portion containing a higher level of protein.

It is the only species for which none of the samples display evidence of burning.

As for the species that were hunted, the most dominant, in terms of the amount of remains identified, is *Oryctolagus cuniculus* (based on the principle that there were no domesticated rabbits as yet). It also represents the second most abundant species, as TABLE 1 shows, followed by *Sus* sp. In comparison with the other taxa represented in the sample, the rabbit bones derive from a wide variety of parts of the skeleton, including the presence of pieces of the cranium, phalanx, pelvis and metapodials, with the parts of the anatomy that represented lower nutritional values predominating once again. With the exception of the fragment of the cranium and phalanx III of this species, which show signs of having been digested by predators, the remains observed display evidence of a sometimes very intense form of burning, that was also evident in the remains of the other species, such as the *Ovis/Capra* metatarsal fragment, (Fig. 2, nº 3) and the *Sus* sp. metapodials already mentioned.

Red deer (*Cervus elaphus*) is the least common species in layer 3, with only one proximal phalanx fragment recovered (Fig. 2, nº 4). This fragment displays an irregular transversal fracture apparently linked to the extraction of bone marrow. This type of fracture is usually associated with the boiling of remains; however, as this fragment is totally burnt, we may surmise that this would have been caused after consumption, by the object, which subsequently had no food value, being thrown into the fire. In fact, all the remains analysed that showed signs of burning belonged to parts of the body that represent low nutritional values. Moreover, the level of calcination that they all display indicates that the temperatures involved were very high and incompatible with the use of fire for normal culinary purposes.

To sum up, the signs of burning evident on the pieces recovered should not be related to the processing of meat for consumption, but rather to a secondary cultural action of throwing the bones onto the fire after consumption (ANTUNES, 1992).

In relation to other forms of *post mortem* action, it should be noted that on the *Sus* sp. tibia diaphysis signs of gnawing can be observed, caused by small and medium sized animals, probably dogs (Fig. 2, nº 5).

## 2.2. Layers 2 and 1

Table 2 – Distribution of bone remains identified in layer 2

	<i>Cervus elaphus/Dama dama</i>	<i>Bos sp.</i>	<i>Ovis/Capra</i>
	N	N	N
Metatarsal diaphysis			1
Proximal tibia epiphysis		1	
Metacarpal diaphysis	1		
Very fragmented calcaneum	1		
TOTAL	2	1	1

The sample obtained from the excavation of layer 2 is even smaller than that of layer 3 and, as it consists of only four items; it cannot provide any reliable conclusions, even though they have all been identified.

In this collection, the dominant species is *Cervus elaphus*, represented by two fragments. Alternatively, as the distal portion of the metacarpal is very small, it may belong to a fallow deer (*Dama dama*) (Fig. 1, n° 3). A *Bos sp.* distal epiphysis of tibia not connected to the shaft (Fig. 1, n° 1) indicates that this belongs to a young animal, the only member of this group.

A metatarsal diaphysis from an undetermined side of the animal (Fig. 1, n° 2) is also the only specimen identified from the sheep/goat group.

In contrast to the collection from layer 3, only one item displays signs of burning – the distal portion of the *Cervus elaphus/Dama dama* metacarpal already mentioned – which is bluish-black in colour, as if cooked on a fire.

Only one fragment was recovered from layer 1, a piece of a *Bos sp.* cranium.

## 3. SOME OBSERVATIONS ON THE DIFFERENTIAL PRESERVATION OF THE BONE REMAINS

In relation to the set from layer 3, the absence of bones from parts of the skeleton representing higher nutritional values could be explained by the fact that the animals were not consumed locally and that only the remains of butchered carcasses were left in the area that was subsequently excavated. However, this is not compatible with the existence of samples which do contain some protein value, such as the *Bos sp.* humerus splinter and the *Sus sp.* tibia diaphysis, which are proof that meat was consumed locally. It is more likely that the bones not burned after consumption deteriorated more rapidly, which would explain why they are under-represented in the collection.

In fact, it can be seen that the burnt remains correspond to parts from the extremities of the feet of species such as *Sus* sp., *Oryctolagus cuniculus*, *Cervus elaphus* and *Ovis/Capra*. The teeth and cranium show no signs of burning. There seems, therefore, to have been some form of selection of the anatomical segments that were thrown onto the fire. Perhaps due to their size, the larger remains, which were not so easy to handle, were not subjected to this action. There are no fundamental reasons, therefore, for accepting the hypothesis of differential consumption outlined above.

#### 4. SPATIAL DISTRIBUTION OF THE REMAINS

**Table 3** – Number of remains collected from each archaeological context in layer 3.

	Area A*	Bastion A	Bastion B	Bastion C	Bastion D	TOTAL
<i>Bos</i> sp.				1	3	4
<i>Sus</i> sp.		2		2	6	10
<i>Ovis/Capra</i>	2		1		1	4
<i>C. elaphus</i>				1		1
<i>O. cuniculus</i>	1				5	6
TOTAL	3	2	1	4	15	25

\* Not shown in Fig. 3.

As TABLE 3 and Fig. 3 show, the samples collected from layer 3 were concentrated within the bastions. Bastion D contained the largest amount of remains and also the greatest variety, both in terms of species – with all the species in the settlement represented – and in terms of their respective anatomical segments. It was also from Bastion D, which has still not been fully excavated<sup>1</sup>, that the samples representing the highest nutritional values were recovered, such as the *Sus* sp. tibia diaphysis and the *Bos* sp. humerus splinter, both collected from a niche containing three millstones (JORGE *et al.*, 2003b). It is also important to note that the rabbit (*Oryctolagus cuniculus*) is exclusive to Bastion D.

The samples from layer 2 came exclusively from Area A, the only area excavated where this layer was identified.

#### 5. FINAL REMARKS AND ECONOMIC SIGNIFICANCE OF THE COLLECTION

Apart from the scarcity of the remains from contexts related to the Chalcolithic occupation – which very much limits the representativeness of the conclusions that

<sup>1</sup> By the end of the 2002 campaign, only the upper 10/20 cm of the interior of this structure had been excavated.

can be drawn – the collection analysed from layer 3 reveals an important domestic element, namely the raising of cattle, undoubtedly the species which offered the greatest nutritional value, followed by sheep/goats and pigs, regardless of whether the examples identified were domesticated or not. Nevertheless, the presence of a sedentary human population is incontestable.

Animal husbandry would have been complemented by hunting red deer and rabbit in the surrounding area.

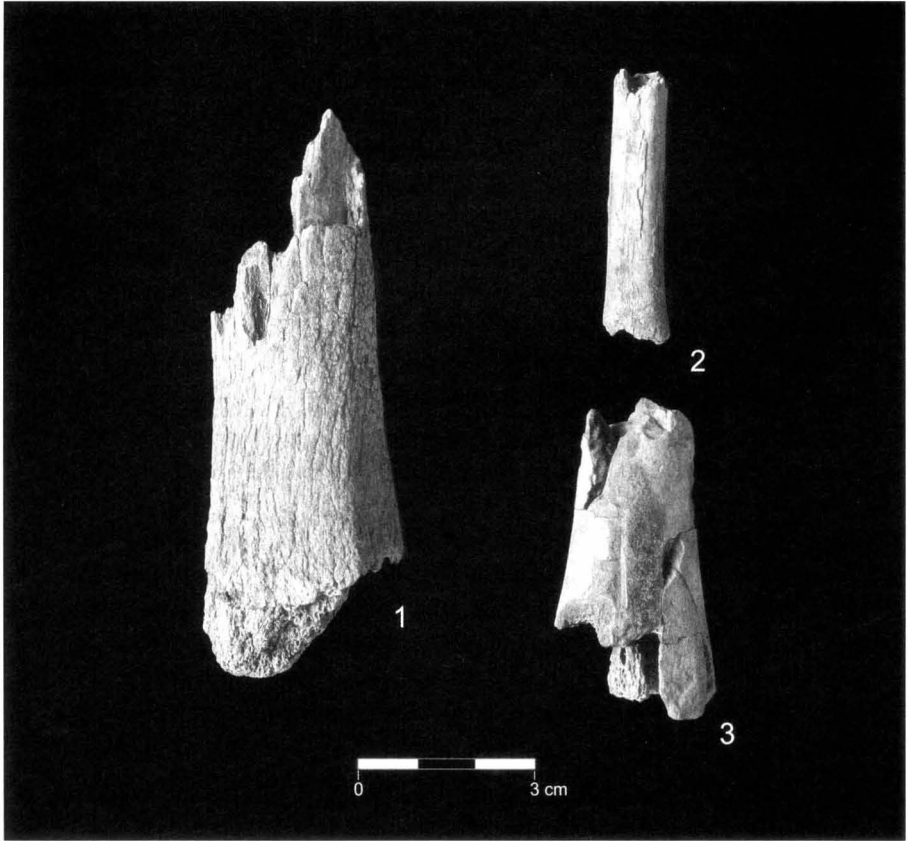
The range of fauna suggests that the vegetation in the immediate area around the enclosure was varied. There would have been meadows and pasture land suitable for the cattle and sheep/goats and also deciduous woods suitable for red deer and rabbits. They are all species whose “habitats”, although markedly diverse, nevertheless favoured woods and forests which safely preserved the contemporary ecosystems in the region.

## ACKNOWLEDGMENTS

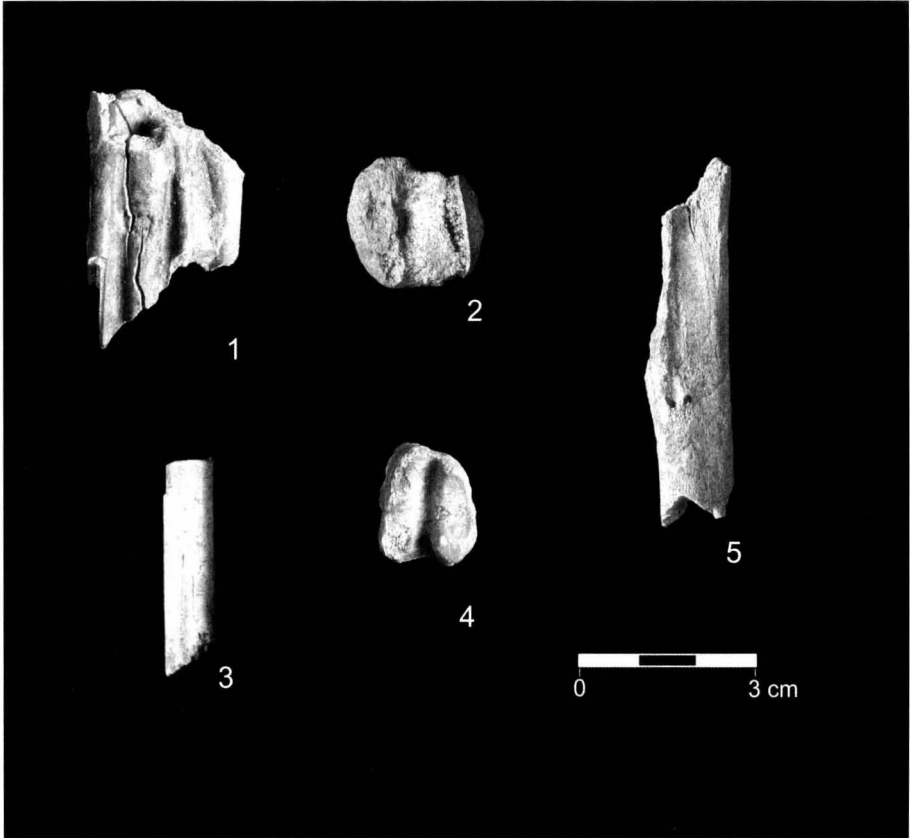
We wish to thank Marta Moreno-García, Simon Davis and Carlos Pimenta from the Zooarchaeology Laboratory of the Portuguese Institute of Archaeology for their assistance in consulting the Reference Collection, and Pedro Fonseca who took the fotos.

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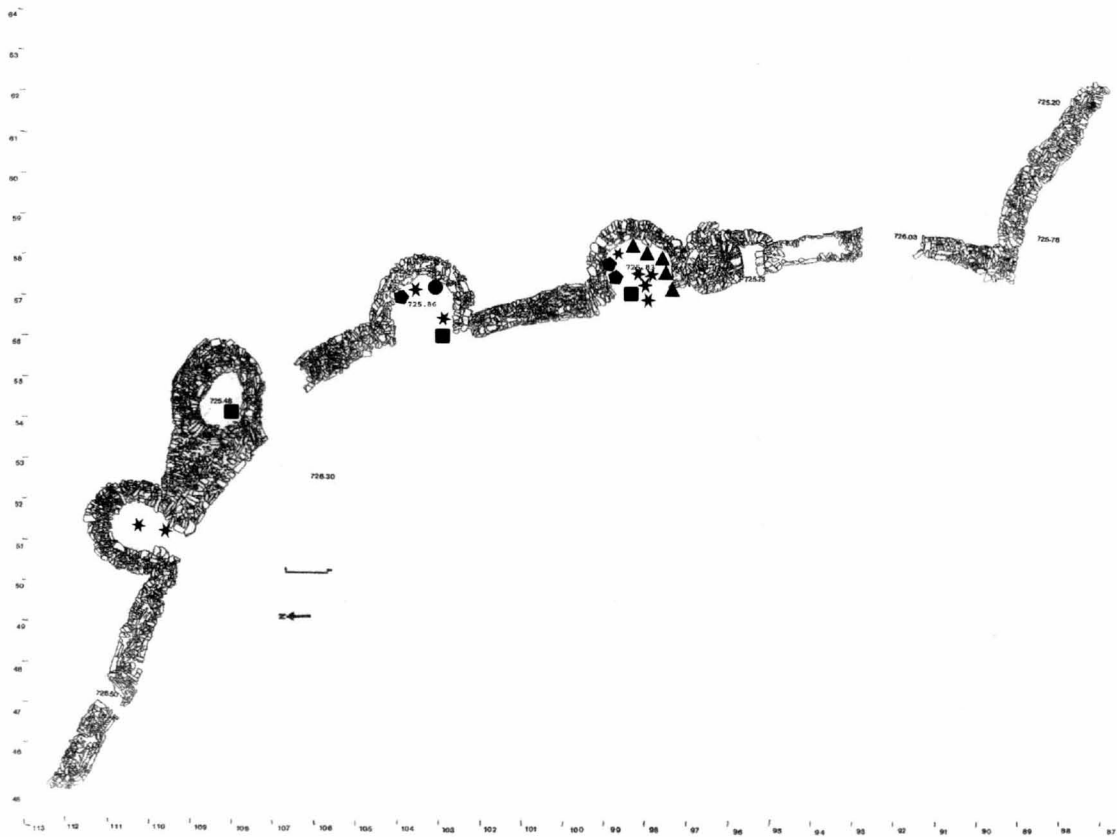
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**Fig. 1** – Material from Layer 2. (Photos by Pedro Fonseca). **1.** *Bos* sp. distal tibia epiphysis of a young individual. **2.** Metatarsal diaphysis from an undetermined side of *Ovis/Capra*. **3.** Metacarpal diaphysis from an undetermined side of *Cervus elaphus*, calcinated.



**Fig. 2** – Material from Layer 3. (Photos by Pedro Fonseca). **1.** Fragment of *Bos sp.* upper molar. **2.** *Bos sp.* left pisiform. **3.** Metatarsal diaphysis from an undetermined side of *Ovis/Capra*, calcinated. **4.** Proximal phalanx epiphysis I from an undetermined side of *Cervus elaphus*, calcinated. **5.** *Sus sp.* left tibia diaphysis, with carnivore tooth-marks.



**Fig. 3** – Plan of the structures detected in the Chalcolithic levels (Layer 3), showing the location of the remains identified. (Adapted from JORGE, CARDOSO, PEREIRA & COIXÃO, 2003).