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THE GRAVETTIAN FOSSIL HOMINIDS OF ITALY

ABSTRACT: This paper gives an outline of the Gravettian Italian population and the results of the statistical analysis of the whole Gravettian European population. It is worth mentioning that there are great similarities in the burial customs (primary burials, ritual customs i.e. covering the head, pelvis and the feet with red ochre, putting ornaments – diadems on the dead's head constructed namely by several hundreds of perforated marine or land shells and sometimes by canines of the common hunted wild animals as reindeer, mammoth etc.) between the two European Gravettian centres (Italy and Moravia). The anthropological analysis showed that there is a homogeneous population with a certain individual variability. This can also be confirmed theoretically by the hypothesis of Bocquet-Appel (1985) about the genetic exchange between small UPL populations in order to avoid extinction. From a phylogenetic point of view we can infer that the Gravettian population definitely belongs to the descendants of the early Homo sapiens sapiens in Europe. This can be stated because there has been a debate about modern human origins in the recent decades. There are several hypotheses for the early UPL population in different areas of Europe, whether these populations are descendants of the Neanderthals or not (Smith 1982, Bräuer, Rimbach 1990, Frayer 1986, Hublin 1987, Thoma 1974, Henke 1989, 1992, Gambier 1989, Stringer 1984).

KEY WORDS: Upper Palaeolithic – Gravettian – Italian fossils –Homo s. sapiens remains

INTRODUCTION

In Italy the most ancient human remains of *Homo s. sapiens* (anatomically modern humans) are dated back to Aurignacian-Gravettian transitional period. These Aurignacian-Gravettian fossils are coming only from the cave-site of Fosselone (Mallegni, Naldini-Segre 1992, Mallegni 1995).

The human remains clearly assigned as Gravettian are represented by 21 skeletons [if the foetus of the pregnant woman who was found in the Santa Maria di Agnano Cave in Ostuni (Vacca *et al.* 1992, Vacca, Coppola 1993) is taken in account].

These fossil hominids have been found and located in the north-west part of Italy except for the three cave-sites of southern Italy *(Figure 1: Map)*, and have been extensively described and published in the recent decades by several authors (Riviere 1873, 1887, Verneau 1906, Graziosi 1942, Parenti 1960, Mallegni, Parenti 1972-73, Formicola 1989a, b, Formicola 1988, Borgognini-Tarli *et al.* 1980, Mallegni 1992, Mallegni, Palma di Cesnola 1994, Mallegni *et al.*, submitted, Mallegni *et al.*, in prep.), but until now none has attempted at a single comparative work of all the European Gravettian human remains. There are several papers included in this material but they are focusing on the solution of the modern human origins problem (Henke 1989, Henke 1987, Frayer 1984, Frayer *et al.* 1993, Kidder *et al.* 1992, van Vark *et al.* 1992, Smith 1982). Only Mussi (1986a, b) has generally referred to the Upper Palaeolithic burials of Italy.

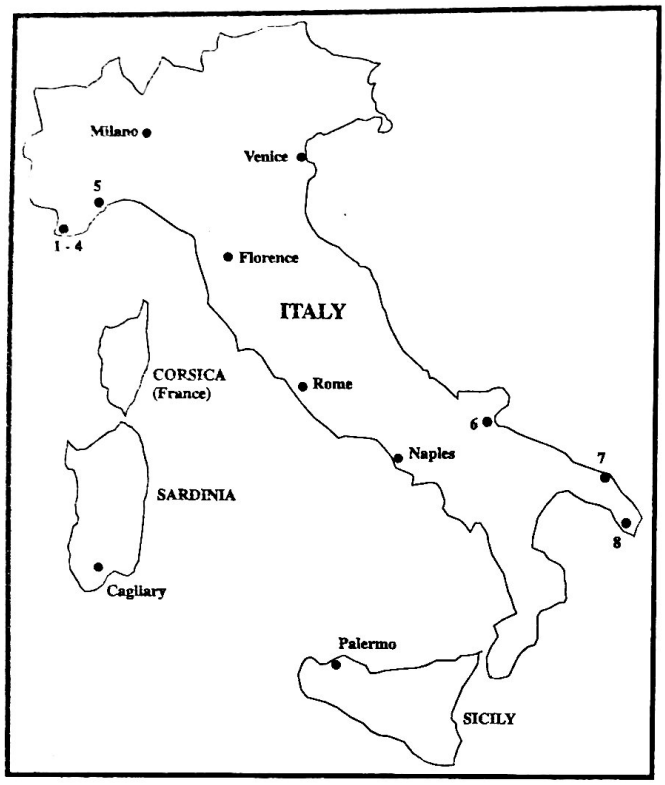

FIGURE 1. Map of the Gravettian cave-sites. 1. Grotta dei Fanciulli, 2. Grotta del Gaviglione, 3. Barma Grande, 4. Baousso da Torre, 5. Arene Candide, 6. Grotta Paglicci, 7. Grotta di Santa Maria di Agnano (Ostuni, Brindisi), 8. Grotta delle Veneri (Parabita).

It is of great interest to give some further information about the Gravettian population of Italy, because it is the one of the two main regional centres in Europe, the other being in Moravia (Matiegka 1934, 1938, Jelínek 1953, 1983, 1989a, b, 1991, Jelínek *et al.* 1958, Smith 1982, Klíma 1988, Svoboda 1988, Vlček 1992).

THE CAVE-SITES

Analytically, the cave-sites which gave more or less secure Gravettian skeletal remains are the following:

(I) The Balzi Rossi (Grimaldi Caves) (Riviere 1873, 1887, Villeneuve 1906)

1. Grotta dei Fabciulli (Riviere 1874-1875; de Villeneuve 1901)
Burial III (de Villeneuve): it contained a skeleton of an adult male, characterized by Verneau as Crô-Magnoid *(GdF 4). Burial IV* (de Villeneuve): this contained two skeletons. One adolescent male *(GdF 5)* and one old female *(GdF 6)*, who were considered by Verneau as "Negroids", but have been later reconsidered (Vlček 1965, Olivier, Mentelin 1974) as Crô-Magnoids. [*The other two burials which gave three skeletons (GdF 1, GdF 2 and GdF 3) have been considered as late Epigravettian, and because of that we did not include them in this work.*]

2. Grotta del Caviglione (Riviere 1872)
One skeleton of an adult male, classified by Verneau as Crô-Magnoid (*Cav 1*). It is stored in the Museum of Natural Sciences in Paris as the the so-called "l'uomo di Mentone" (Verneau 1906, Parenti 1960).

3. Grotta della Barma Grande (Julien 1884, Abbo 1892-1894)
Burial I (Julien 1884): A skull has been found and attributed by Verneau to the Crô-Magnon race. This skull belongs to an adult male and it has been studied extensively by Graziosi (1942) (*BG 1*). It is conserved in Museo di Mentone and referred to as Barma Grande (Menton) (Billy 1972). *Burial II* (Abbo 1892): This burial has yielded three skeletons. They were an adult male, a young female and one adolescent male (*BG 2, BG 3* and *BG 4*). The BG I skeleton of Verneau (1906) is referred as BG 2 in Oakley *et al.* (1971). *Burial III* (Abbo 1894): A skeleton of an adult male has been found and marked as BG II (Verneau 1906), but referred to as Barma Grande II (Morant 1931. Billy 1972) and as Barma Grande 5 in the *CFH* (Oakley *et al.* 1971). *Burial IV* (Abbo 1894): The skeleton belongs to an adult male who is represented by fragmented bones of the lower extremities and the pelvis. They were found over the remains of a hearth and described as burnt (Verneau 1906, Formicola 1989).

4. Bausso da Torre (Riviere 1873)
Burial I: Two fragments of the callote, a mandibular part and an incomplete post-cranium of an adult male have been found, most of them in poor condition, and non-measurable. Verneau (1906) characterised these remains as Crô-Magnoid. *Burial II*: the cranium and incomplete post-cranium of an adult female (Parenti 1960) have been unearthed and described as Baousso da Torre 2 by Verneau (1906), who referred to another Crô-Magnoid adult male also cited in *CFH* (Oakley *et al.* 1971). *Burial III*: A few fragments of the skeleton of a young boy (Parenti 1960, Oakley *et al.* 1971).

The burials of problematic date (Gravettian or Epigravettian) are the following: Barma Grande II burial (BG 2, BG 3 and BG 4), Barma Grande III burial (BG 5), and the Nr. 4 individual of Grotta dei Fanciulli (GdF 4).

(II) Arene Candide Cave (Brea, Cardini 1942)
A burial on a bed of red ochre with large stones on the hands and feet contained a skeleton of a young boy of approximately 18 years of age, referred to as the "young Prince" (Sergi *et al.* 1974).

(III) Grotta Paglicci (Mezzena, Palma di Cesnola 1989-90)
Another two Gravettian skeletons coming from the Paglicci Cave: The adolescent *Paglicci 12* (Mallegni, Palma di Cesnola 1994) and a young female (18-20 years old)

(*Paglicci 25*) (Mallegni *et al.*, submitted). These are dated between 24750 ±370 and 23040 ± 380 B.P. and must be the earliest Gravettian finds in Italy.

(IV) Grotta delle Veneri a Parabita (Piscopo, Radmilli 1966)
In this cave another double burial has been found, similar to the burial IV of Grotta dei Fanciulli. These skeletons were represented by the post-cranial bones (Parabita 1 & 2). *Parabita 1* is an adult (30-35 years old) male and *Parabita 2* is an adult (~ 30 years) female (Mallegni *et al.*, in prep.). They are dated to about 20,000 B.P. by comparing their stromatography with that of Paglicci Cave (Cremonesi *et al.* 1972, Palma di Cesnola 1993) and thus are in the transitional period between the Gravettian and the Early Epigravetian (Straus 1995).

(V) Grotta Santa Maria di Agnano (Brindisi) (Coppola 1991)
Two burials were found there having typical characteristics of the Gravettian phase of the Upper Palaeolithic period (red ochre and ornaments of perforated shells). The *Ostuni 1* skeleton was radiometrically dated to 24410±320 B.P. (Vacca, Coppola 1993). This burial is contemporary to those of Paglicci Cave.

A brief presentation of the above described human skeletal remains is made in *Table 1.*

PALAEODEMOGRAPHIC CONSIDERATIONS

From the palaeodemographic point of view the Italian Gravettian sample consists of 20 individuals (13 males, 5 females and 2 unsexed – *Table 1*). This sample is considered as unbalanced. The age distribution is: 5 adolescents, 3 young adults and 12 adults. The Central European Gravettian sample consisted of 45 individuals with the following sex and age distributions: 12 males, 9 females and 24 unsexed; 15 children, 4 adolescents, 6 young adults and 20 adults (Jelínek 1991).

After the construction of the life tables we compared the basic demographic parameters, i.e. life expectancy and mortality rate. Unfortunately, we cannot present here extensively the palaeodemographic analysis, because it would make the text too long. Nevertheless, the basic observation is that these two populations have similar demographic profiles, though the Moravian sample is better for such an analysis.

MATERIAL AND METHODS

The cranial material analysed consisted of the Gravettian population sample of Italy and Moravia and of the French Aurignacian (Gambier 1989). It accounts 27 male and female skulls. The Moravian sample consisted from the Dolní Věstonice, Pavlov, Brno and Předmostí individuals and the French Aurignacian from the Crô-Magnons, Abri Pataud and Les Cottes specimens. It must be noted that the Moravian Aurignacian sample (Mladeč) is represented by 3 calvae and 1 skull, so the comparison could be done in a restricted set of variables only.

The craniofacial data (16 variables – *Table 2)* were coded after Martin & Saller (1956-1959), and were collected from the related literature and analysed by Factor Analysis (STATGRAPHICS Statistical Package v. 4.0 by STSC, USA) *(Tables 3, 4; Figure 2: Plot).*

A difficult problem to solve for multivariate analyses is that of the missing values. In the cases with one missing value we used the average (mean) of the relevant sample. In the rest of the cases (with more than one missing value) we estimated them by using Multiple Regression Analysis. The results can be considered as sufficient because the mean values and standard deviations did not change after the filling of missing values. The only small changes observed were those of standard deviations.

The Size-Shape Distances (Penrose 1954) have been estimated between the Italian Gravettian, the Moravian Gravettian and the French Aurignacian samples, based on the same 16 craniofacial variables *(Table 2).*

These analyses were performed in order to assign the similarities or dissimilarities of the Italian Gravettian population with the French Aurignacian and Central European (Moravian) Gravettian samples.

RESULTS

In *Table 3* the summary results are presented. A 3-D plot of the weights for the three first Factors is given in *Figure 2.* There is a good discrimination of the loadings of the analysed variables *(Table 4)* and we can say that Factor 1 is the "size factor", and is characterised by the Maximum Cranial Breadth (M8), Bizygomatic Breadth (M45), and the Frontal arc (M26) and chord (M29), describing the "craniofacial flatness and expansion". In this Factor 1, Grotte des Enfants 4 and Dolní Věstonice III are polar (factor scores 1.89281 and –2.49399 respectively) as the classification is made from wide craniofacial dimensions towards the narrow ones.

The second Factor has high loadings of Maximum Cranial Length (M1), Auricular Height (M20), Parietal Arc (M27) and Parietal Chord (M30), and is therefore described as the "shape factor", the lateral expansion of the skull (as viewed from the *norma lateralis).* In this Factor, Barma Grande 5 and Předmostí 10 specimens are polar (the factor scores are 3.039560 and –2.26717 respectively). So the classification begins from a long and relatively high sagittal contour towards a narrow and low one.

The third Factor is characterised by the high loadings of the Upper Facial Height (M48), the Nasal Height (M55) and the Minimum Frontal Breadth (M9). The Varimax Rotated Factor Matrix is presented in *Table 4.* It is also noteworthy that the first three Factors explain the 68.70 %

TABLE 1. The demographic parameters, state of preservation, other general information for the Gravettian specimens of Italy.

Fossil	Sex	Age	State of preservation	Year of discovery	References
Grotta dei Fanciulli 4	male	adult	almost complete skeleton	1901	Verneau 1906; Morant 1928; Oakley *et al.*,1971; Formicola 1989.
Grotta dei Fanciulli 5	female	adult	almost complete skeleton	1901	Verneau 1906; Morant 1928; Oakley *et al.*,1971; Formicola 1989.
Grotta dei Fanciulli 6	male	15-17 yrs	almost complete skeleton	1901	Verneau 1906; Morant 1928; Oakley *et al.*,1971; Formicola 1989.
Barma Grande 1(Menton)	male	adult	restored skull and an incomplete femur	1884	Verneau 1889; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Barma Grande 2	male	adult	skull (f) and almost complete skeleton	1892	Verneau 1892,1894,1899,1906; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Barma Grande 3	female	12-13 yrs	skull and almost complete skeleton	1892	Verneau 1892,1894,1899,1906; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Barma Grande 4	male	14-15 yrs	skull and almost complete skeleton	1892	Verneau 1892,1894,1899,1906; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Barma Grande 5	male	adult	almost complete skeleton	1894	Verneau 1892,1894,1899,1906; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Barma Grande 6	male	adult	fragmented long bones and pelvis (burnt?)	1894	Verneau 1892,1894,1899,1906; Oakley *et al.*,1971; Mussi 1986; Formicola 1989.
Caviglione 1	male	adult	cranium and partially fragmented postcranium	1872	Riviere 1887; Oakley *et al.*,1971.
Bausso da Torre 1	male	adult	cranium (f) and postcranium	1873	Riviere 1873,1874, Verneau 1906; Oakley *et al.*,1971.
Bausso da Torre 2	male	adult	cranium and postcranium	1873	Riviere 1873,1874, Verneau 1906; Oakley *et al.*,1971.
Bausso da Torre 3	unsexed	adolescent	post-cranial skeleton	1873	Riviere 1873,1874, Verneau 1906; Oakley *et al.*,1971.
Paglicci 12	male	12-13 yrs	almost complete skeleton	1971	Mezzena & Palma di Cesnola 1972; Mallegni & Parenti 1972-73.
Paglicci 25	female	18-20 yrs	almost complete skeleton	1988	Mezzena & Palma di Cesnola 1989-90; Mallegni 1992; Mallegni *et al.*, in preparation.
Parabita 1	male	30-35 yrs	only the lower extremities and pelvic girdle	1966	Cremonesi *et al.*,1972; Mallegni *et al.*, in preparation.
Parabita 2	female	~ 30 yrs	only the lower extremities and pelvic girdle	1966	Cremonesi *et al.*,1972; Mallegni *et al.*, in preparation.
Ostuni 1*	female	~ 20 yrs	almost complete skeleton	1991	Vacca & Coppola 1993.
Ostuni 2	unsexed	adult	fragmented	1991	Vacca & Coppola 1993.
Arene Candide 1	male	18 yrs	almost complete skeleton	1942	Cardini 1942; Sergi 1951; Oakley *et al.*,1971.

* The woman was pregnant and skeletal remains of the foetus have been found.

TABLE 2. *Individual measurements of the French Aurignacian, Italian and Moravian Gravettian population samples.*

Fossil	M1	M8	M9	M10	M20	M26	M27	M29	M30	M31	M45	M48	M51	M52	M54	M55
Crô-Magnon 1	202.0	149.5	102.5	126.0	122.5	147.0	130.0	125.0	118.5	99.5	142.0	69.0	46.5	27.0	24.0	51.0
Crô-Magnon 2	192.0	138.0	97.5	120.0	115.0	132.0	133.0	115.0	122.0			70.0	43.0	31.0	26.0	54.0
Crô-Magnon 3	202.0	152.0	96.5	123.0		148.0	132.0	126.0	121.0							
Abri Pataud	183.0	138.0	100.0	117.0				111.0	108.0	98.0	132.0	67.0	40.5	31.5	25.0	51.0
Les Cottes	192.0	138.0	99.0	I 13.0		126.0	126.0	111.7	122.0	117.0						
Paglicci 25	178.0	136.0	101.0	122.0	116.7	130.0	127.0	108.0	112.0	96.0	135.0	68.0	40.0	29.0	24.0	50.0
Paglicci 12	177.0	134.0	93.0	117.0	109.0	130.0	118.0	104.0	106.0		124.0	63.0	42.0	35.0	23.0	50.0
Gr. d. Enfants 4	201.0	151.0	105.0	130.0	114.0	137.0	134.0		120.1	98.5	156.0	67.0	47.0	32.0	29.0	52.0
Gr. d. Enfants 5	192.0	132.0	97.0	119.5	113.0	133.5	134.5	116.1	120.9	98.4	127.0	60.0	39.0	28.0		45.0
Gr. d. Enfants 6	193.0	133.0	96.0	118.0	124.5	132.0	141.0	116.0	127.9	95.7		65.0	40.0	25.0	22.0	49.0
Caviglione 1	140.0	93.0	118.0								43.0	28.0	26.0	52.0		
Barma Grande 1		189.0	140.0	100.0			144.5	125.5	119.3	112.1				44.0	28.0	27.0
Barma Grande 2	211.0	134.0				135.0	149.0						48.2	31.0		
Barma Grande 3	190.0	136.0	101.0	113.0						130.0		42.0	31.0	25.0	54.0	
Barma Grande 5	206.0	142.0	111.1	138.5	132.0	145.0	156.5	122.9	143.0	103.9	143.5	72.3	44.1	29.8	26.0	51.9
Arene Candide 1	185.0	144.0	87.0	116.0	108.0	152.0				152.0	67.0	45.0	29.5	24.0	50.0	
Brno I	190.0	143.0	90.0	110.0			117.0	109.0								
Brno II	202.0	134.0	97.0	125.5		132.0	141.0	118.0	128.0							
Brno III	181.0	127.0	92.0	105.0		116.0	134.0				121.0	65.0	40.5	33.0	26.0	52.0
Dolní Věstonice II	197.0	135.0	95.0	115.0		122.0	151.0									
Dolní Věstonice III	184.0	130.0	91.0	119.0	114.0	120.0	135.0	88.0	132.0	97.0	125.0	64.0	37.0	29.0	24.0	51.0
Pavlov	203.0	137.0	103.0	123.0								44.0	27.0			
Předmostí 1	189.0	139.0	98.0	120.0		125.0	137.0	107.0	125.0	94.0						
Předmostí 3	201.5	145.0	104.0	128.0	123.0	137.0	135.0	120.0	120.0	100.0	142.0	76.0	42.0	29.0	26.0	59.0
Předmostí 4	191.5	144.0	98.0	122.0	I17.0	133.0	133.0	114.0	120.0	101.0	136.0	64.0	38.0	27.0	27.0	43.0
Předmostí 9	196.0	145.0	105.0	128.0	112.0	132.0	132.0	115.0	120.0	95.0	135.0	67.0	39.0	26.0	25.0	54.0
Předmostí 10	185.5	144.0	103.0	123.0	106.5	126.0	117.0	112.0	107.0	96.0	141.0	66.0	41.0	27.0	23.0	51.0

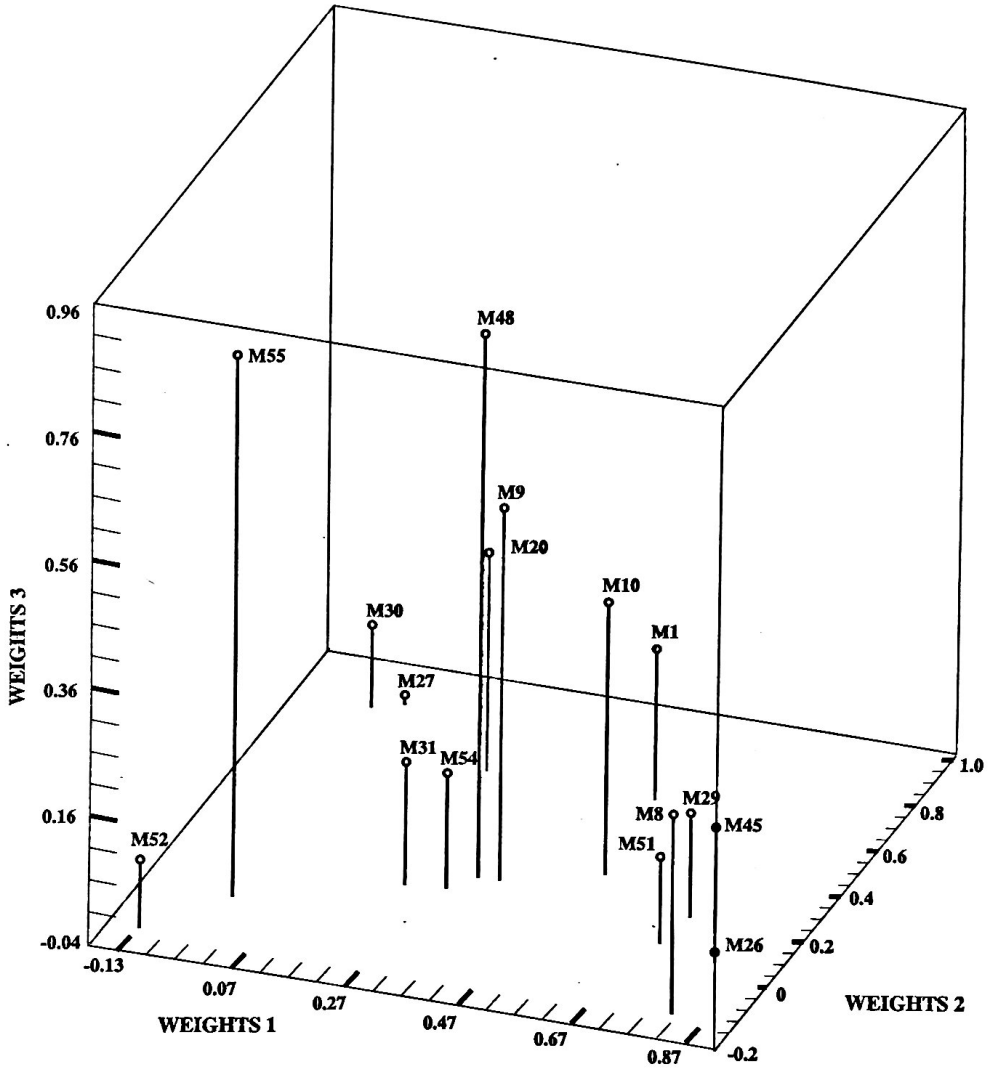

FIGURE 2. 3-D Plot of the weights of the first three Factors.

of the total variance of the 16 variables used in the analysis *(Table 3)*.

In the plot *(Figure 3)* of the first two Factors, we can observe that the samples are overlapping each other. This plot does not permit to clarify if there are close affinities of the Italian Gravettian sample with Western (Aurignacian) or Central European (Gravettian) specimens. Generally it seems that there is a homogeneity in this early Upper Palaeolithic population. It must be noted that the differences in the mean values between the samples are not significant and in general result from the individual variation.

The size-shape analysis (according to Penrose 1954) with the Italian Gravettian population sample as the reference one, based on 16 calvarial variables (M1, M8, M9, M10, M20, M26, M27, M29, M30, M31, M45, M48, M51, M52, M54, M55 – *Table 2*) has been applied.

In this analysis the Mean Square Distances of the French early UPL sample (Crô-Magnon, Les Cottes, Abri Pataud) and the Gravettian of Central Europe (Dolní-Věstonice, Pavlov, Předmostí) from the Italian Gravettian sample have been estimated. The Italian Gravettian sample as the reference one has great similarities in shape with the Moravian Gravettian (0.1524) and similarities in size with the French Aurignacian (0.0361). This can be explained by taking into account several factors, e.g. cultural and genetic exchange (gene flow).

DISCUSSION

The above results of Size-Shape Analysis lead us to the conclusion that the French Aurignacian and the Moravian Gravettian are different in size (0.1791) but both differ less from the Gravettian population of Italy (0.0361 and 0.0544 respectively). Considering the shape, the distance between the Moravian and Italian Gravettian is slightly lesser than that between the French Aurignacian and the Italian one or between the two of them (i.e. French Aurignacian and Moravian Gravettian).

We think that is the similarity in shape that must be

TABLE 3. Summary statistics of the Factor Analysis.

Variable	Communality	Factor	Eigenvalue	Percent of variation	Cumulative percentage
M1	0.91592	1	5.43104	41.3	41.3
M8	0.80737	2	2.11556	16.1	57.4
M9	0.80072	3	1.48767	11.3	68.7
M10	0.91110	4	1.16506	8.9	77.6
M20	0.75685	5	0.78090	5.9	83.5
M26	0.79411	6	0.72544	5.5	89.0
M27	0.88265	7	0.49133	3.7	92.8
M29	0.74864	8	0.45045	3.4	96.2
M30	0.81340	9	0.31145	2.4	98.6
M31	0.72173	10	0.16440	1.3	99.8
M45	0.84758	11	0.02561	0.2	100.0
M48	0.90141	12	–0.02982	0.0	100.0
M51	0.85212	13	–0.07387	0.0	100.0
M52	0.73775	14	–0.09565	0.0	100.0
M54	0.38634	16	–0.12616	0.0	100.0

TABLE 4. Varimax Rotated Factor Matrix (Weights).

Variable	Factor 1		Factor 2		Factor 3		Factor 4	
M1	0.51342		0.65653	*	0.19892		–0.05302	
M8	0.80067	*	–0.16884		0.27277		–0.14711	
M9	0.37520		0.23589		0.54974	*	–0.30135	
M10	0.52947		0.33364		0.38846		–0.44877	*
M20	0.22049		0.65513	*	0.30802		0.00088	
M26	0.80836	*	0.07509		–0.02895		0.04948	
M27	0.00657		0.88518	*	–0.03359		0.02845	
M29	0.70936	*	0.22021		0.12383		0.00742	
M30	–0.03824		0.84262	*	0.08226		–0.06748	
M31	0.23363		0.162.37		0.15396		0.48404	*
M45	0.80723	*	0.06706		0.17019		–0.05063	
M48	0.33815		0.23350		0.81335	*	0.13447	
M51	0.69445		0.09885		0.09859		0.45950	
M52	–0.12442		–0.17334		0.06215		0.72429	*
M54	0.29829		0.18239		0.13783		0.17722	
M55	–0.01217		0.01314		0.80870	*	0.25287	

taken into account because of positive inter-correlations, and because the differences in size are certainly influenced also by environmental factors (climate, dietary habits, etc).

The study of burial customs (use of red ochre, similar decoration pattern of the dead, and/or finally the same way of ornament construction – i.e. diadems consisting of perforated shells and/or canines) in Italy (Mussi 1986b) showed great similarities with these of Central Europe (Předmostí, Dolní Věstonice, Pavlov – Klíma 1988, Jelínek 1989, Vlček 1992). The only difference is in the grave construction because of the different exploited sources. In Moravia the mammoth scapulae and long bones had been extensively used for the purpose of grave construction; in Italy, however, as far as we know the graves were dug in limestone and paved with large stones.

Thus, the two Gravettian populations seem to have close cultural and physical affinities. This permits the hypothesis that these populations belong to the same stock of *Homo s. sapiens*. Generally there are not great differences between the three population samples under study.

On the other hand, the inspection of the Factor Analysis results, in which the Italian Gravettian sample shows a dispersed pattern and overlaps the West and Central European specimens, leads to the conclusion that there is a considerable intra-group variability, with some outliers i.e. Barma Grande 5, Paglicci 12, Předmostí 10 and Dolní Věstonice III, but in a generally homogeneous population. This conclusion is another support to Henke's view (1989, 1992) about the homogeneity in Europe in the Late Pleistocene and Early Holocene.

The attempt of Henke (1989) to evaluate the biological heterogeneity of the Upper Palaeolithic and Mesolithic populations, based on the calculation of biological distances, led to the conclusion that the European Upper

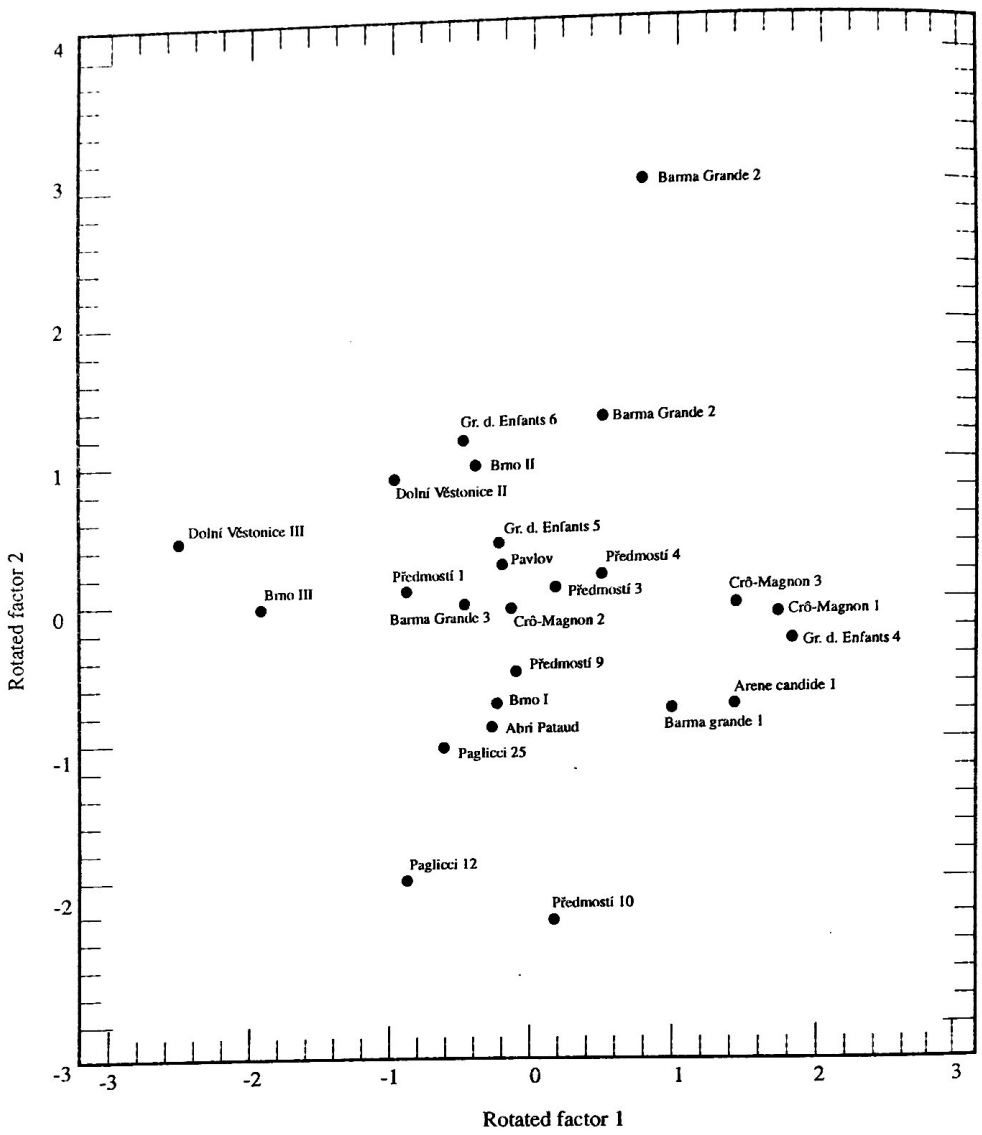

FIGURE 3. Plot of the first and second Factor Scores.

Palaeolithic population generally appears to be homogeneous. This homogeneity can be considered as a result of gene flow among the Upper Palaeolithic groups of hunters-gatherers, when these had reached a sufficient population density. As Wobst (1976) concluded after a theoretical analysis of the relation between the mating networks and the population density, the band societies which have several distinct characters (dialect, burial and ritual customs, etc.) could not have arisen before a threshold of population density had been reached. This means that these populations must have had a communication system (language) and high migratory rates, otherwise it would have been very easy to reduce their populational densities, which were depending on several demographic parameters (e.g. fertility and mortality rates, mating systems, etc). Nevertheless, the mating networks must have been a real situation, giving thus the possibility for the population stability. Here Boquet-Appel's conclusion (1985) must be mentioned: having proceeded to a demographic analysis of small hunter-gatherer populations, she stated that these populations could have avoided extinction only by high migratory rate (gene flow) and cultural exchanges, which both must have occurred over a considerable geographical area including the Italian peninsula and Western and Central Europe.

CONCLUSIONS

Summing up the above facts we can infer that there are several indications (similar morphometric pattern, same burial and ritual customs which show the same mentality and behaviours) which support the view that the Gravettian cultural phase of the Upper Palaeolithic period is a certain result of the same homogeneous population.

Evaluating the available dates could lead to the supposition that the Gravettian population of Italy was coming from the expansion of the Moravian one, taking into account the given high mobility rates of these hunter-gatherer band societies and the existing similarities. It could also be asserted that Italian Gravettian people are descendants of the French Aurignacian-Gravettian, but this is not very easy, in spite of their general characterization as Crô-Magnoids and their simple possibility of communication (cultural and genetic exchange) with the Moravian one. This is a plausible hypothesis, if we accept the expansion of the early *Homo s. sapiens* population from the Near East (Proto-Cromagnoids) (Vandermeersch 1981, Henke 1992) via the Balkans towards Central Europe and then to the Western part of the European continent.

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