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EXCAVATIONS AT THE SPANISH ROMAN SITE OF CERRO DE LA MUELA, CARRASCOSA DEL CAMPO

Spain has been largely ignored by the North American classical archaeologist but it is a country rich in unexplored sites. The author was privileged to be shown several of these sites in the spring of 1971 with a view to selecting one suitable for excavation purposes. The site of Cerro de la Muela, Carrascosa del Campo, was chosen as it had never been tackled previously and surface finds were of some interest. It was also considerably more accessible than some of the other sites of equal promise - an important consideration in terms of financing a dig.[1] The results of the excavation to date have more than fulfilled expectations although many puzzles remain to be solved.

The site is located in the province of Cuenca, about 65 miles southeast of Madrid. It is on a high plateau, approximately 3,500' above sea level and consists of a man-made mound, the top of which measures about 450' by 350'.

Work was begun in the spring of 1972 with the digging of several test pits and the initiation of a diagonal main trench revealing a structure whose exterior walls were conjectured at about 350' by 280' with an average thickness of 5' and a height of 14'. During the second season, in the spring of 1973, mechanical equipment was employed to clear around the exterior walls to a depth of 10'.

Pillars of huge sandstone blocks, characteristic of Celtiberian architecture, were discovered in two test pits during the first season and were later found to number seven in all and to interrupt the east wall at irregular intervals. The second season also uncovered, immediately to the east of these, a modest hypocaust in excellent condition.

In 1972 activity concentrated on the NE corner of the site where a four-sided enclosure was discovered with parallel horizontal grooves in the walls suggestive of water conduits. Last season's work focussed on the NW and SE corners; the latter revealing a similar enclosure with an even more complex system of conduits and gutters. The NW corner contained four basins of varying dimensions, lined with hydraulic cement. Another wall was discovered in the interior on the south side running parallel to the exterior wall at a distance of 38'. Both walls have a large opening about midway, 16' wide, suggesting that the main entrance of the complex was here. A proton precession magnetometer was used to survey the site but the results proved to be not very useful in the location of stone structures of any kind.

The abundant finds uncovered during both seasons included both Roman and Celtiberian potsherds, many showing terra sigillata of various designs and shapes. Intact domestic pots, square-cut sheets of glass, large pieces of fresco with naturalistic floral designs were found as well as a large number of mosaic tesserae of various colours and a vast quantity of roof tiles.

Several coins of the Roman Imperial period were unearthed during both seasons: the earliest dated from the time of the Emperor Caligula, the latest from the period of Constantine. A bronze buckle of the late 5th century A.D. and several bronze fibulae were discovered.

It is still difficult to determine the function of the architectural complex with any degree of certainty. It appears that the walls are too thick and

the size too large for the average Roman villa found in Spain or elsewhere in the Roman world. At the same time, the rich finds of fresco fragments and tesserae suggest too sophisticated a building for a military camp although the corner enclosures possibly indicate that this was a fortified structure at one time.

The idea of an agricultural establishment was hazarded during the first season and the results of the second season certainly do not rule out this possibility. The size of the building with its seemingly complex system of water conduits, basins and gutters, favours this interpretation as do some of the finds such as the large number of loom weights and the sizable collection of domestic ware.

M. M. Sadek,
University of Guelph.

NOTES

1. The University of Guelph financed the author's survey of Spain in 1971 and also the 1972 season of excavation. During both the 1972 and 1973 seasons, Dr. V. Matthews and Professor M. Rogers of the University of Guelph assisted the author. Professor J. Milliken acted as surveyor and architect for the 1972 season and Professor I. MacKenzie carried out a magnetometer survey during the second season. In addition to a further small grant from the University of Guelph for the second season, a Canada Council grant financed the major part of the campaign. Twenty-four students in all participated in the excavation; seventeen of these were assisted by funds from the Government of Ontario to help cover their expenses during the second season.

* *

An Epigram of Asclepiades

Virginitas intacta tibi est. Cur? Ditis in aula
Tartarei numquam te petet acer amans.
Gaudia dat vivis tantum Cytherea. Sub Orco
Nos erimus cineres ossaque cana, Chloe.[1]

(Anth. Pal. 5.85)

1. Cf. Horace, Carm., I.23.I.

Herbert H. Huxley,
University of Victoria.

p.6

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4. For a plan of this complex with location of mosaic pavements, see my report of 1973 season, Echos du Monde Classique 18:1 (1974), 15, fig. 1.

* *

III. EXCAVATIONS AT CERRO DE LA MUELA, SPAIN, 1974

by MAHMOUD M. SADEK (Guelph)

Although actual excavations did not take place in 1974 on this Spanish Roman site located in the province of Cuenca, near the village of Carrascosa del Campo, a season of research was undertaken by the author following the two previous seasons of excavation. The two main purposes of the research were to assess and catalogue the finds and make a study of similarly located sites usually referred to as villae rusticae.

With the aid of three classical archaeology students from the University of Guelph all the significant objects recovered from the site were recorded, including line drawings of each important pottery fragment and metal artifact. The metal pieces included iron agricultural tools, dagger blades, a selection of bronze fibulae and a silver ring. A permanent display of a selection of these artifacts has been mounted in the Museum at Cuenca where all the finds are stored.

The preponderance of potsherds in the extensive terra sigillata series is Hispanic although imports from Gaul and Italy also amount to a sizeable collection. Reference to all the standard published catalogues was made and, as some pieces could not be identified, these may be considered as new types. The terra sigillata dates from the first through the fifth century A.D. but the greater part is from the second and third centuries. The six intact pots, referred to in an earlier report as domestic ware, can now be definitely identified as funerary urns. The numerous Iberian potsherds collected cannot be classified and therefore dated accurately, as no catalogues on the subject have yet been published. The major problem with regard to their identification is the fact that Iberian pots maintain the same motifs from pre-Roman times throughout the Roman period.

Bone and metal samples were collected from the site and submitted to the appropriate departments at the University of Guelph. These samples are still under examination and the results of all the tests are not yet complete. The bone samples, which are all animal, mostly from horses, are being studied by Professor R. D. Whiteford of the Department of Biomedical Sciences. A preliminary report has been prepared by Mr. Bill Ryan, a graduate student in the Department of Geology, which indicates that the metal analysis is proving to be of considerable interest. Five metal samples, gathered from various slag heaps on the site, were submitted to five different methods of examination: x-ray diffraction, atomic absorption, binocular microscope, mass spectrometer and chemical analysis. Results of these tests show that the various samples represent different stages in the smelting process of iron ore and copper. From the large amount of slag discovered on the site we may surmise that fairly extensive smelting

operations took place at Cerro de la Muela possibly in connection with some mining activity or the manufacture of metal implements.

The plan of Cerro de la Muela as it stands revealed thus far (see plan, p. 7) reveals some interesting features. The dimensions of the single enclosed structure are immense, 95m. by 80m., and the walls are exceptionally thick, averaging 1.5m. Enclosures have been discovered in each of the four corners which are highly suggestive of fortified towers. The east wall of the building is distinguished by a series of irregularly spaced sandstone pillars. In the interior clearing has only been done in the vicinity of the corner enclosures revealing a fairly complex system of water conduits and gutters, including a series of basins in the NW corner.

With these features in mind the author set out to make a first hand study of Roman country houses in the Iberian peninsula in an attempt to discover any relationship or similarity of design and plan with the structure at Cerro de la Muela. Some twenty sites were visited and closely examined. With the exception of the building complexes at Altafulla and La Cocosa in Spain and Torre de Palma in Portugal, none of the villas seen equalled our site in size and none at all resembled it in plan.

It seems evident that the function of the building at Cerro de la Muela differs from that of the ordinary country house. There are indications of several activities taking place here which, in conjunction with the size of the structure and its complex water system, suggest that the site could have been some sort of industrial establishment on a large agricultural estate. If the evidence of smelting operations could be further interpreted as a foundry possibly for the manufacture of weapons, this would also help to explain the necessity of fortification, especially as Cerro de la Muela lies in the heart of Celtiberian country with the major Celtiberian centre of Segobriga located just 8 km. away. Square-cut sheets of glass found during the first and second seasons could possibly be the "lapis specularis" mentioned by Pliny as being produced solely in the area of Segobriga.[1] Some loom weights have been discovered and the find of a few coloured pigments in the various basins of the NW corner could be identified as dye stuffs.

Rostovtzeff refers to the fact that most of the rural factories were managed by either slaves or freedmen with the owner paying occasional visits to his estate but normally residing in town. In this connection it is interesting to speculate that the inscription on a tomb stela found on the site might refer to both manager and owner of this particular establishment. The stela, which was discovered prior to the 1972 season and has not yet been published, reads as follows:

Rostovtzeff, The Social and Economic History of the Roman Empire. 2nd. ed. rev. by P. M. Fraser. Oxford, Clarendon, 1957. II, 565

LVCIEER L SEMPRON
NVMIDAE I HSE STTL
CRISPVS SYRVS SATVR
FRATRES

With abbreviations in full an edited version would be as follows: "Lucifer (the double E of the original was probably an error in engraving too costly to correct) libertus Semproni Numidae I (?) hic situs est sit tibi terra levis Crispus Syrus Satur fratres". This could be literally translated as "Lucifer, freedman of Sempronius of Numidia, who lies here, may the earth rest lightly on you. Crispus, Syrus, Satur, brothers." Numidae is the name

THE ROMAN SITE OF CERRO DE LA MUELA, CARRASCOSA DEL CAMPO

Research in Spain: Summer, 1974

My first task was to compile a catalogue of all the significant artifacts collected from the site. I was able to complete this undertaking in a relatively short space of time, with the aid of three classical archaeology students of mine, whose expenses were paid in part by the University of Guelph for a period of one month.

Attached is a copy of the catalogue. (See appendix 1). It may be noted that the preponderance of the terra sigillata series is Hispanic although imports from Gaul and Italy also amount to a sizeable collection. It is possible to conclude that the number of pieces which remain unidentified could be considered new types as reference was made to all the standard published catalogues. (See bibliography at the conclusion of the catalogue). The terra sigillata date from the first through the fifth centuries A.D. but the majority are from the second and third centuries A.D. The six intact pots, which in an earlier report were referred to as domestic ware, can now be definitely identified as funerary urns.

The Iberian potsherds cannot be classified as no catalogues on the subject have yet been published. The major problem with regard to their identification is that Iberian pottery was painted with the same motifs from pre-Roman times throughout the Roman period.

Among the metal pieces in the collection are several iron agricultural tools in a poor state of preservation. There are also some dagger blades, a selection of bronze fibulae and a silver ring.

Eighteen coins have been discovered to date. Nine remain unidentified as they are very much effaced. The remaining eight are all bronze with the exception of one silver denarius of Hadrian in mint condition. The identified coins are: Caligula (2), Hadrian (1), Marcus Aurelius (4), Constantine (1) and Licinius (1). The latter two coins definitely bear the mark of the mint at neighbouring Segobriga.

Bone and metal samples were collected from the site and submitted to the appropriate departments at the University of Guelph. These samples are still under examination and the results of all the tests are not yet complete. The bone samples are being studied by Professor R.D. Whiteford of the University's Department of Biomedical Sciences and a report will not be forthcoming until the end of the present semester. However, a preliminary report has been prepared by a graduate student from the Department of Geology which indicates that the metal analysis is proving to be of considerable interest. (See appendix 3). The five metal samples, gathered from various slag heaps on the site, were submitted to five different methods of examination: x-ray diffraction, atomic absorption, binocular microscope, mass spectrometer and chemical analysis.

Results of these tests indicate that the various samples represent different stages in the smelting process of iron ore and copper. From the large amount of slag discovered on our site we may surmise that Cerro de la Muela was possibly involved in the extensive mining operations that took place in Spain during the Roman period. I have delved into the literary sources, both ancient and modern, that comment upon this aspect of Roman economy. So far I have found no references to link the area of Cerro de la Muela with any major mining centre. Most of the important mines were either in southern Spain or in the northwest Cantabrian mountain region. However, the possibility exists that the site was located on one of the main trade routes; for instance, an artery linking the port of Valencia with the Cantabrian area.

Other ideas are suggested by the evidence of smelting operations at Cerro de la Muela. Was there perhaps a foundry located here, a foundry for the manufacture of weapons? This would help to explain the heavy fortifications -the towers and thick walls - which are not typical of villa architecture and unusual even for more important centres such as agricultural establishments.

The question of why Cerro de la Muela was fortified is just one of the many problems regarding the possible functions of the building located there. Thus, in order to increase my knowledge generally regarding Iberian country residences and,

more particularly, to try and discover any similarity between our building and other rural establishments, I undertook to examine at first hand any significant isolated site in Spain and Portugal.

I based my selection of sites on preliminary researches carried out in the libraries of the Archaeological Institute and National Museum in Madrid. Tracking down all excavation reports and relevant articles I made note of any site which might be useful for purposes of comparison. My chosen itinerary amounted in fact to a fairly complete survey of all the villas rusticas of the Iberian peninsula. (See Appendix 4).

Beginning my trip from Lisbon I visited there the important museum collections in Belem, a suburb of Lison, and I spoke to as many authorites in the field as I could. I learned that there were two large villas rusticas in Portugal which should be visited as the huge dimensions of the structure at Cerro de la Muela were one of its outstanding and curious features. Thus, in Portugal, I travelled to the Villa de Santa Vitoria do Ameixial near Estremoz and Torre de Palma near Monforte. (See plans I and II in Appendix 5). Just over the border in Spain, south of Badajoz, lies another large villa, La Cocosa. Another extensive site, still being excavated, is the Villa Els Munts at Altafulla near Tarragona which has an incredible series of baths and beautiful mosaics and also covers a large area. (See plan III, Appendix 5).

However, all these large sites are composed of building complexes and do not represent a single enclosed structure as at Cerro de la Muela. Nowhere did I find a site to equal it in size or plan.

Some of the sites visited were sadly neglected to the point where it was of little use to examine whatever remained on the surface. The reknowned villa of Cuevas de Soria near Soria in northeastern Spain is unfortunately one such case. However, these trips were almost always worthwhile as local museums and curators provided much information of value not readily obtainable elsewhere.

Other sites visited fell more into the category of the average villa rustica, the country home of a wealthy, retired Roman who would naturally build in such scenic locations as the Villa de Marbella on the Costa del Sol (see plan IV, Appendix 5), the villa at Tossa de Mar on the Costa Brava or the Villa del Puig at Valencia. (See plan V, Appendix 5).

Other sites were examined because of their location and importance. These included Fabrica de Arma near Toledo, Santa Colomba de Somoza near Leon (see plan VI, Appendix 5), Villa Fortunatus de Fraga (see plan VII, Appendix 5) and Villa Albesa (see plan VIII, Appendix 5) both near Lerida, and Villa de Sadaba near Huesca (see plan IX, Appendix 5), Villa de Sarria de Ter, north of Gerona and Villa de los Quintanares in the province of Soria. The plans of all

these villas closely follow the traditional Roman atrium villa with impluvium, bath, triclinium and tablinum.

It remains to be seen whether excavations in the interior of our site will disclose similar floor plans. Indications are that at least one part of the structure was indeed living quarters for an important person or persons as evidenced by the hypocaust, fresco fragments and mosaic tesserae. However, none of the other plans are solidly rectangular as at Cerro de la Muela nor do they possess corner towers.

There remains one other site which I visited that possibly is the most interesting of all in terms of comparison. This is the nearby site of Ercavica, northwest of Cuenca. The difficulty is that excavations have only just begun and are, indeed, at an earlier stage than those at Cerro de la Muela. However, already in evidence are walls whose thickness is comparable and even more significant, are the recent discovery of sandstone piers as at Cerro de la Muela.

At this point I am convinced that our site is not an ordinary villa. In size and plan it differs strikingly from other villas. The earlier hypothesis of an agricultural establishment continues to be feasible and the new possibility of a weapons arsenal has also emerged. Consultation with my colleagues in Spain and my own library researches have not

disclosed the existence of either such a centre in Iberia but this tends rather to strengthen the idea as surely there would be the need of such establishments. What is most needed at this point, of course, is to carry on with the excavations, probably for not more than two seasons, and hope that discoveries in the interior will finally elucidate the mysteries of Cerro de la Muela.

M. Sadek
University of Guelph

October 1974

ANALYSIS OF FIVE (5) SAMPLES FROM ARCHAEOLOGICAL SITE

CERRO DE LA MUELA, SPAIN

METHODS OF EXAMINATION

1. X-ray Diffraction
2. Atomic Absorption
3. Binocular Microscope
4. Mass Spectrometer
5. Chemical Analysis

1. The x-ray diffraction was done on a General Electric model XRD-6. A copper source, $CuK\alpha_1$, with a wavelength of 1.54 A° and a nickel filter was used. The charts were run at a speed of 1°/minute and 2°/minute with two ranges of 500 cps and 1000 cps. This unit used only to determine the main elements present.

2. The trace element analysis was done by atomic absorption using a Techtron AA-3, Atomic Absorption Spectrophotometer, Serial # 298.

3. The binocular microscope was used only to aid in visual description.

4. The mass spectrometer used was a Varian-Mat CH-7.

5. The chemical analysis method was taken from Dana and used only for a few specific elements as a back-up system.

PROCEDURES AND RESULTS

1. The samples were ground to -320 mesh and .01 gms weighed out. 1 ml. of distilled water mixed in test tube with .01 gms powder and stirred for five minutes. Mixture then placed on glass slide by using 1 ml. pipette. Dried overnight and placed on x-ray next day.

   Chart calculations were done using Bragg's Equation $n\lambda = 2d \sin\theta$. This determined the inorganic compound and from the chemical formula the main elements were taken.

Results

SAMPLE 1	MAIN ELEMENT IRON
SAMPLE 2	MAIN ELEMENT IRON WITH TRACE OF LEAD
SAMPLE 3	MAIN ELEMENTS COPPER & LEAD WITH TRACE OF IRON
SAMPLE 4	MAIN ELEMENTS IRON AND COPPER
SAMPLE 5	MAIN ELEMENT IRON

Re: X-Ray Diffraction: There were other minor elements interpreted on the charts however they were not used as a major part of the analysis, as there was some question as to whether they were background or an actual part of the sample.

2. Atomic Absorption

Trace Element Analysis

Preparation and Digestion of Sample for Atomic Absorption

* Grind sample until fine powder (passing approximately -270 mesh sieve)
* Weigh 0.5 gm of the sample into a clean 50 ml. Erlenmyer flask (Erlenmyer previously washed with 5% nitric acid (HNO_3) and 2 distilled water rinses)
* Add 5 ml. 1N nitric acid from a Burette into sample
* Shake samples for 30 minutes on rotational shaker (approximately 50 on the speed control dial)
* Clean Centrifuge tubes with 5% nitric acid and 2 distilled water washes
* Transfer contents of Erlenmyer flasks to the centrifuge tubes. Use 5% nitric acid in a wash bottle to rinse as much of the sample as possible into the centrifuge tube yet not allowing the volume in the centrifuge tube to exceed 25 ml.
* Centrifuge sample at 2000 rpm for 10 minutes
* Transfer clear liquid to a 25 ml. graduated volumetric cylinder and bring volume to exactly 25 ml. with 5% nitric acid
* Wash graduated cylinder with 5% nitric acid and 2 distilled washes between each sample
* Transfer liquid to plastic vials for analysis and prepare 1 nitric acid blank

Chemical Mineralogy

Results

Element in ppm	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Cu	0.95	0.88	52.00	25.00	4.20
Ni	0.84	0.21	0.84	0.03	0.45
Pb	0.15	3.00	105.60	2.37	0.75
Zn	0.35	0.20	13.00	0.63	1.25
Fe	23.50	47.00	15.00	80.50	123.00
Mn	0.30	0.48	1.08	7.50	14.10
Mg	19.00	12.80	47.75	13.00	27.00
Ca	165.20	120.40	122.50	87.50	196.00
Cr	0.28	0.11	0.18	0.14	0.14
Cd	.0037	.0037	.0073	.2555	.0438
Hg in ppb	.600	.500	2.00	.200	1.00

4. The mass spectrometer results were not used as the highest temperature reached on this unit was only 500°C and this was not high enough to give any results. The strips showed only water content.

5. The samples were heated in the reducing flame and according to Dana "Minerals which contain even a small amount of iron yield a magnetic mass when heated in reducing flame". Samples one (1) and three (3) did not yield a magnetic mass while samples two (2), four (4) and five (5) did.

IRON was again checked by placing 1 gm. of sample in 1 ml. concentrated HCl and .1 gm. potassium ferricyanide. This test indicates iron if a blue ppt results. All samples yielded a blue ppt.

COPPER was checked by placing 1 gm. of powered sample and 1 ml. of concentrated nitric acid in a test tube and then an excess of ammonium hydroxide added. If a blue ppt present then copper is present. Samples three (3) and four (4) gave blue ppt. therefore copper present.

The final chemical test used was for carbonates.

5. Carbonate test

* .3 gms. of each of the five samples was weighed out
* .5 mls. of 6 N hydrochloric acid (HCl) added
* Take weight of flask + sample + acid; recorded as weight 1
* Make one bland flask, #6 in table, take weight of flask + acid and use as a control on Atmospheric Conditions in lab.
* Let sit for one hour with shaking of flasks every 15 minutes in the hour period
* Weigh flasks again at the end of the hour and record as weight 2
* The weight difference of the blank flask will either be added or subtracted to the weight difference of the other flasks.

5. Results

Sample #	Weight 1	Weight 2	Difference	Corrected Diff.	Loss % CO_2	Equiv % CO_3	Equiv % $CaCO_3$
1	63.7408	63.7390	.0018	.0020	.6667	.9094	1.52
2	56.3640	56.3607	.0033	.0035	1.167	1.591	2.65
3	52.8477	52.8412	.0065	.0067	2.233	3.046	5.08
4	56.4458	56.4402	.0056	.0058	1.933	2.637	4.40
5	60.1651	60.1623	.0028	.0030	1.000	1.364	2.28
blank 6	59.0937	59.0939	.0002+				

Calculations

$$\text{Loss of } Co_2 \text{ in } \% = \frac{\text{corrected loss in weight}}{.3 \text{ (sample weight)}} \times 100$$

Equivalent % of CO_3 = % CO_2 x 1.364 (calculated constant)

Equivalent % $CaCO_3$ = Equivalent % CO_3 X 1.668 (calculated constant)

Test: Mofified from test used by Canada Department of Agriculture for carbonates at University of Guelph.

CONCULSIONS

Sample 1

The sample is coated with a yellow material which is the weathered product LIMONITE. The sample is non-magnetic. Looking at the x-ray diffraction pattern I conclude that the sample is the mineral GOETHITE.

Sample 2

The top of the sample is a black siliceous material which contains gas bubbles and becomes progressively lighter in colour towards the bottom. The bottom layer of the sample is made up of a charcoal coloured material which is absent of gas bubbles, layered and has a high carbonate level. The sample is non-magnetic. Looking at the atomic absorption results I conclude that this is a froth type slag and is the result of smelting a siliceous type iron ore using a calcium type flux.

Sample 3

The sample contains predominantly metallic copper with minor amounts of iron and lead visible. The iron and copper are intermixed and the lead appears only as small pockets and coatings on the surface. Evidence for copper is also shown by the green weathering product MALACHITE, copper carbonate, coating on the surface. I conclude that this sample is a matte of BLISTER COPPER and represents the final product reached at the smelter.

Sample 4

The sample consists of two layers. There is a thick layer of high iron bearing material with many gas bubbles and, a thin layer of a calcium flux material which is layered and absent of gas bubbles. The sample is highly magnetic and the iron layer is also coated with an ochre coloured material called LIMONITE. I conclude that this sample represents an intermediate step in the smelting of an iron ore.

Sample 5

The sample is siliceous in appearance and contains gas bubbles. The sample is a bluish-black colour possibly due to the manganese content. The sample is non-magnetic. Looking at the atomic absorption results it can be seen that it is of a high iron content. I conlcude that this sample resembles what today is referred to as "CLINKER".

The overall conclusion that can be drawn from the data is that the site was once the site of a smelting operation for copper and iron.

BIBLIOGRAPHY

1. A Textbook of Mineralogy by E.S. Dana revised by W.E. Ford, Fourth Edition 1946, Chapman and Hall Ltd.

2. De Re Metallica by Georgicus Agricola Translated by H. Hoover, Dover Books Inc.

3. Economic Mineral Deposits by Alan M. Bateman, Second Edition, 1956, John Wiley and Sons Inc.

4. The Roads that Led to Rome by Victor W. Von Hagen 1967, the World Publishing Co.

Bill Ryan

Bill Ryan C.E.T.
August 26, 1974