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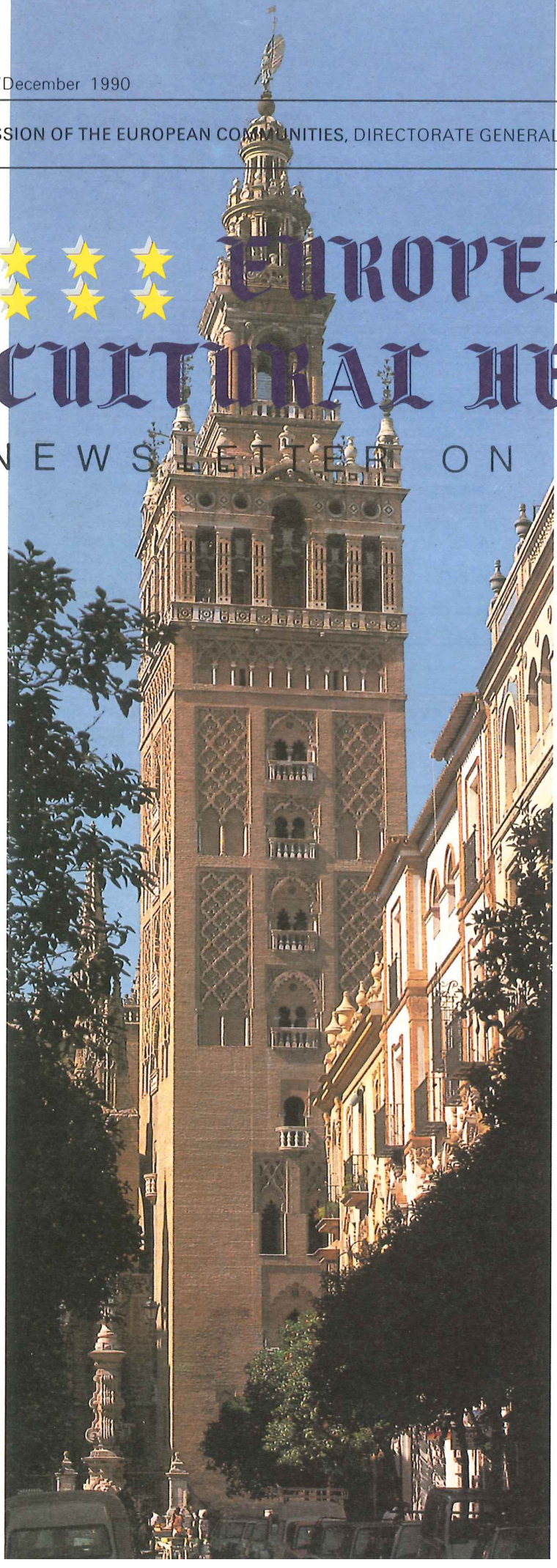
EUROPEAN CULTURAL HERITAGE

NEWSLETTER ON RESEARCH



SPECIAL ISSUE SEVILLA

Montero de Espinosa, J. M. 1817: Antiguedades del Convento Casa Grande de San Augustín, Sevilla.

del Castillo Utrilla, J. M. 1988: El Convento de San Francisco Casa Grande de Sevilla, Sevilla.

Villacampa, C. G. 1935: El Convento de San Antonio de Padua, Sevilla.

Cano Novas M. L. 1984: El Convento de San José del Carmen de Sevilla, Sevilla.

There is also the series of monographic articles published by the journal *Aparejadores* of Seville, which are of a more architectural nature:

Villanueva Sandino, F. 1984: El Carmen, Nº 12, March.

Humanes Bustamante, A. 1984: Santa Inés, Nº 14, September.

Tapial y Leòn J. G. and Cabeza J. M. 1987: El Monasterio de San Jeronimo, Nº 15, December.

Benjumea Pino, J. M. 1985: La Cartuja, Nº 16, March.

The unpublished study of Alberto Humanes, El Monasterio de Sta. Inés de Sevilla en la conjunto de los Conventos de Monjas Franciscanas de vida contemplativa, is also interesting from architectural point of view.

THE CONSERVATION OF SEVILLE CATHEDRAL.

By Alfonso Jiménez, Maestro Mayor, Cathedral of Seville, Sevilla, Spain.

The Cathedral of Seville, constructed between 1400 and 1600 on the site of the Alhama Mosque of which the splendid minaret (now called La Giralda) still subsists, has the largest ground surface of all European Gothic churches, and is the third largest of all Christian shrines. The problems — and the funds — required for its conservation are commensurate with its size, but unfortunately, there is a large gap between current needs and available means. Authorities are often inclined to consider the reports of preservationists as alarmist and exaggerated, and it frequently appears that the race of conservation against time has already been lost at the starting line.

There are two factors which unfortunately divert the interest of the public and the Administration from the urgency of the issue. One is of sheer size: the distance between the deteriorations and observers at ground-level conceals the problem. Second, the stone is decaying more or less evenly. Thus drama and consequence again appear to be remote.

The stone of Seville Cathedral is a yellowish fossil-bearing calcareous sandstone mainly from El Puerto de Santa Maria on Cadiz Bay, as well as from various Andalusian quarries. The structure and the chemical composition of the stone is variable within exceptionally large limits, and almost each slab requires special consideration. The coastal area, site of the old quarries, is today an important and highly urbanized tourist resort, and its is very difficult to extract stone of the same appearance in sufficient quantity.

The low cost of water transportation and the ease of working the soft sandstone were the main reasons for the use of this material so easily eroded by rain and wind. As the calcareous matrix disappears, friable sand is left behind. This process is most visible in the protruding ornamental elements which have since become

Figure 1 The extensive and flat roof of the Seville Cathedral, the main source of the problems.

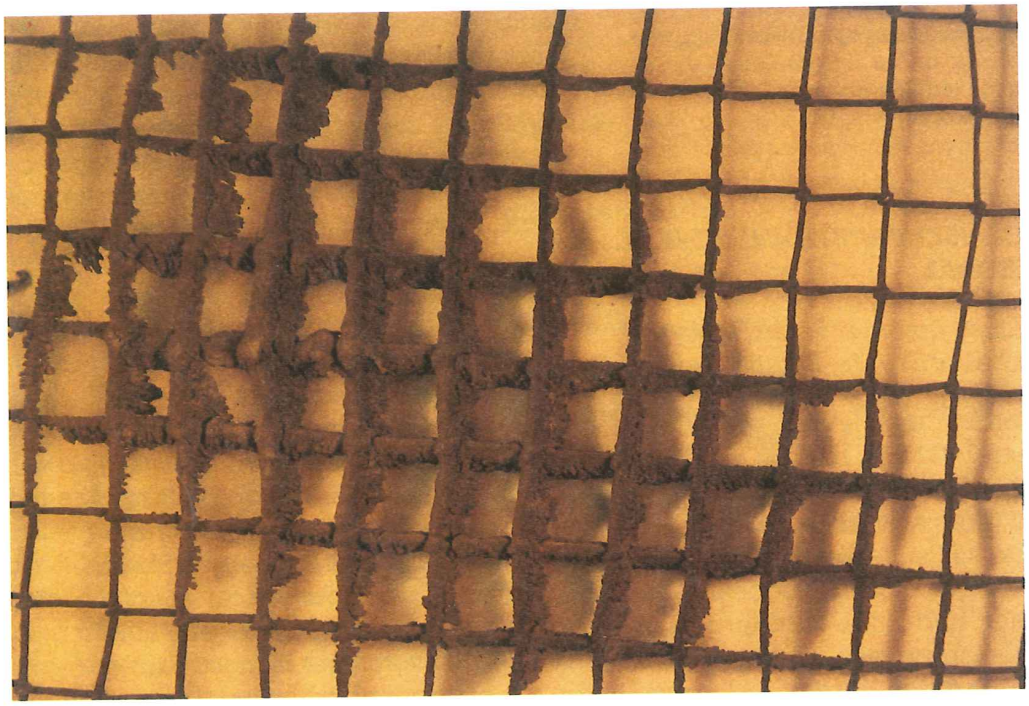


Figure 3 Precipitated deposit on a grille placed in 1948.

Figure 2 The effects of pollution: typical black-and-white sulphatation phenomena.

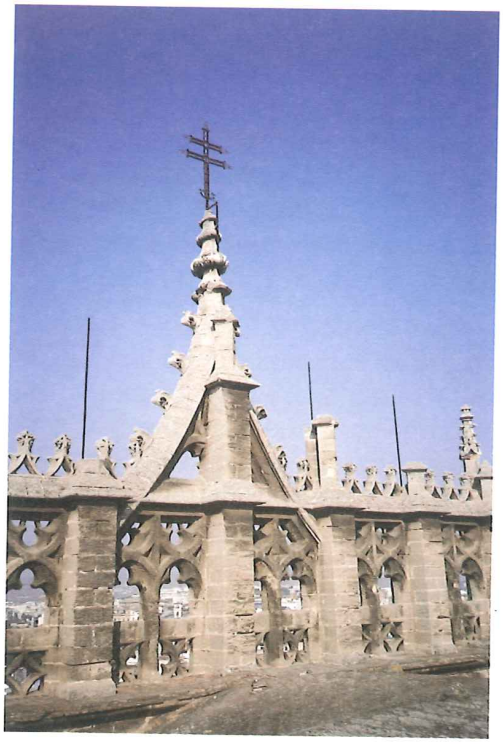


Figure 4 The effect of rusting: almost all the pinnacles higher than 2 m disappeared.

rounded off. Thin pinnacles and crests have also become weakened. Air pollution, mainly caused by the exceptionally congested traffic (becoming worse each day), has added black crusts and sulphatation highly apparent in the bright sunlight of Seville. Nevertheless, air pollution, although bestowing a general impression of dirtiness, is currently considered as being a mere accessory when compared to the structural and natural pathologies.

The key structural problem of the *Magna Hispalense* is penetration of rainwater during the intensive winter rains. Massive stone fragments have shed from several tracts, difficult to identify from 32m below. Subsequently, the Gothic vaults were inspected from the platform of a mobile crane, and at present the disintegration caused by the leaks has been mapped. It appears that fissures emerged mainly at the sites of older restorations, where attempts were made to "reinforce" cracks with iron elements. These cracks are either due to earthquakes of which there are no precise records, or simply structural defects in the foundations or the pillars. The corrosion of the iron clamps split the blocks, thus trans-

forming a former "solution" into a more serious contemporary problem. In conclusion, except in very localised points (defective foundations, material fatigue, faulty buttressing, etc.), the most critical problems are due to anterior "restorations" aggravated by massive saturation by rainwater.

Under these circumstances, the limited available funds are used primarily to improve and accelerate the removal of rainwater and for the prevention of leaks. Second, funding is also used for the most urgent replacement of structurally or artistically important elements. Whenever possible, substitution by new pieces is made with stone of identical appearance, extracted from the original quarries. Since this material is scarce, due to the inaccessibility of the former sites, stones recuperated from the demolition of large 19th century buildings from the area of Jerez de la Frontera are now being used. Third, preservational treatment is being carried out mainly on ornamental elements, using the best up-to-date water repellent and consolidating materials. It would appear that by this means, the crumbling of the sandstone can be stopped without perceptible changes either in the appearance or the properties of the material. The evolution of the treated elements is being carefully monitored, and in this respect, the Andalusian summer may be considered as an accelerated test.

For the filling of gaps, mortars of various composition and origin are being tested, pending final judgement concerning their adequacy.

THE MOSAICS OF ITALICA - A NATURAL LABORATORY OF STONE COLONIZATION.

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Italica, founded by Scipio Africanus after the Battle of Ilipa (Second Punic War) in 206 BC, is a site near present-day Seville. As the birthplace of the Emperors Trajan and Hadrian, donations were lavished upon the city, which boasted many sumptuous public and residential buildings. In the 4th century AD, a gradual decline set in, parallel to the rise of Seville.

Excavations which began in the 18th century and intensified in the 19th and 20th centuries revealed among many other remains a number of remarkable mosaics. A total of 133 pavements have been catalogued. Of these 111 are *opus tesellatum*, 7 *opus sectile*, 8 *opus fliginum*, 2 *opus segmentatum*, 4 *opus signinum*, and 1 *opus spicatum*. The older finds were moved to Sevillian houses (Casa de la Condesa de Lebrija, Casa Salina), while others are preserved in museums and four have since disappeared. At the Archaeological Site of Italica subsist those found between 1919 and the mid-1970s (1).

Since the beginning of this century, exposure of the mosaics after excavation has resulted in their progressive deterioration. In absence of regular cleaning, lichens could develop. Pioneering species of lichens and mosses colonized the tesserae and