PROCEEDINGS OF 1st INTERNATIONAL CONGRESS ON: "SCIENCE AND TECHNOLOGY FOR THE SAFEGUARD OF CULTURAL HERITAGE IN THE MEDITERRANEAN BASIN"

1-1-10

November 27 - December 2, 1995 Catania, Siracusa - ITALY

Archaeobotany of the Cognento hiding well (Modena; northern Italy; 34 m a.s.l.; 44°38'12" N 10°35'2" E; late roman - modern age)

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Abstract

The Cognento well is one of the hiding wells recently discovered in the area which belonged to the Roman Mutina. The inhabitants of that country used the wells to hide goods when they abandoned their houses during wars between the Longobards and Byzantines around the end of 6th - first half of 7th century AD. In the Cognento well a number of goods (mainly pottery, wooden objects and one coin) were recorded. Archaeobotanical analyses were carried out on the Stratigraphic Units undisturbed by ploughing (from 10.1 to 4.4 m depth), studying pollen, seeds/fruits and wood remains. The different records are consistent. Plant remains outlined the botanical history of the well and of the vegetal landscape throughout a thousand years from about AD 600 to 18th century AD, showing some climatic oscillation during this time span. Plant remains at the bottom of the well testified a rural settlement quite rich in crops (vineyards, cereal fields, kitchen gardens, fruit trees, pastures). The well, first used to draw water, dried up. Woody objects were mainly made of local wood but wood was also obtained from the mountains. Later on, people were forced to abandon their houses and hid their goods in the well. Archaeobotanical picture suggest the goods were intentionally hidden and remained hidden because the well was overspread by Nettles, Brambles, and Elders till sediments covered them. The village was no longer inhabited, but the records showed human activity was widespread in the area and the well was occasionally used as a dump, mainly in modern times.

Introduction

Between the Secchia and the Samoggia rivers, in the area which belonged to the Roman Mutina, several hiding wells were discovered by the Soprintendenza Archeologica of the Emilia Romagna region. The wells contained a considerable amount of goods, mainly pottery, and wooden objects, tools and coins. Considering the typology of the archaeological remains in the global context of the well it was inferred the goods were hidden by the inhabitants of that country, when they abandoned their houses during wars between the Longobards and Byzantines at the end of 6th - first half of 7th century AD (1). The Cognento well is probably one of these wells, even if the goods are not abundant and the metal findings rare. It is ca 8 m deep; its coating begins at ca 2 m and ends at ca 10 m depth from ground level; the \emptyset is 0.85 m at the top. The coating was made with pebbles, tiles and brick potsherds down to a depth of ca 4.50 m, while from 4.50 m to the bottom it was lined with 11 series of well bricks. From an archaeological point of view 9 Stratigraphic Units (SU9-SU1, from the bottom up) were identified in the filling. The hidden goods were mainly in SU8, some in SU6. A bed of *dolia*, brick fragments and pebbles <SU7> separated SU8 from SU6. About 40 hand-made objects were found (plate 1): coarse and slipped ware (tableware, pitchers, bottles, jars, mugs), wooden objects (baskets, bowls, buckets) and a *nummus*, which unfortunately was not decipherable.

The filling of the well was also analyzed from a botanical point of view, studying pollen, seeds/fruits and woods. A synthesis on plant remains, elsewhere presented in detail (2-4), is the object of this paper.

Materials and methods

Samples (13 for seeds/fruits, 7 for pollen, 5 for woods) were taken in Stratigraphic Units undisturbed by ploughing (SU9-SU2; from 10.1 to 4.4 m depth). For seed/fruit analysis 10 litres samples were soaked in water and washed through a bank of 3 sieves (4.0, 1.0, 0.2mm meshes). All seeds/fruits recorded were

counted and identified under a Stereo Microscope(8x-80x) and Scanning Electron Microscope when required. For pollen analysis 5 gramme samples were treated with a routine method (cold HCl 37% and HF40%; hot HCl 37%; NaOH 10%; acetolysis), including the residue in glycerol/ water (1/1). Slides were prepared with drops of known volume and fully analyzed. At least 500 pollen grains/sample were identified under a Light Microscope (400x and 1000x). Wood remains longer than 1 cm were collected along the well and identified (SM, 8x-80x) and LM (60x-400x, sections were cut with a razor blade). Identification was based on up to date atlases and keys and on the seed/fruit, pollen, and wood reference collections of our two laboratories. Concentration was calculated in pollen (p)/g, seeds/fruits (sf)/101 and wood remains (w)/5001. The pollen sum includes Tree+Shrub+Liane+Herb pollen; Pteridophyta spores were calculated in percent on the pollen sum plus the Pteridophyta spores themselves. Percentage and concentration diagrams were drawn (figg. 1-7). Pignatti's Italian Flora was used for plant names (5).

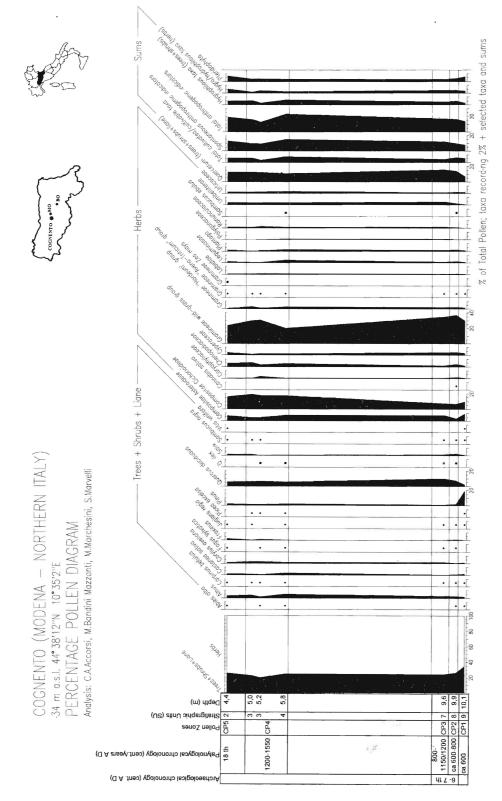


Fig. J - Percentage Pollen diagram of the Cognento well (Pollen Sum =Trees +Shrubs +Liane+Herbs).

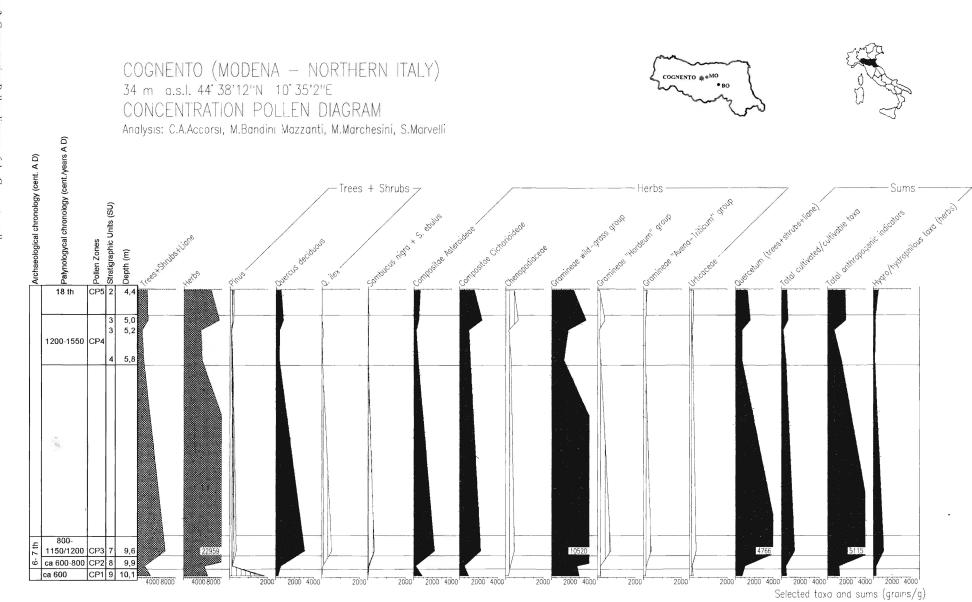


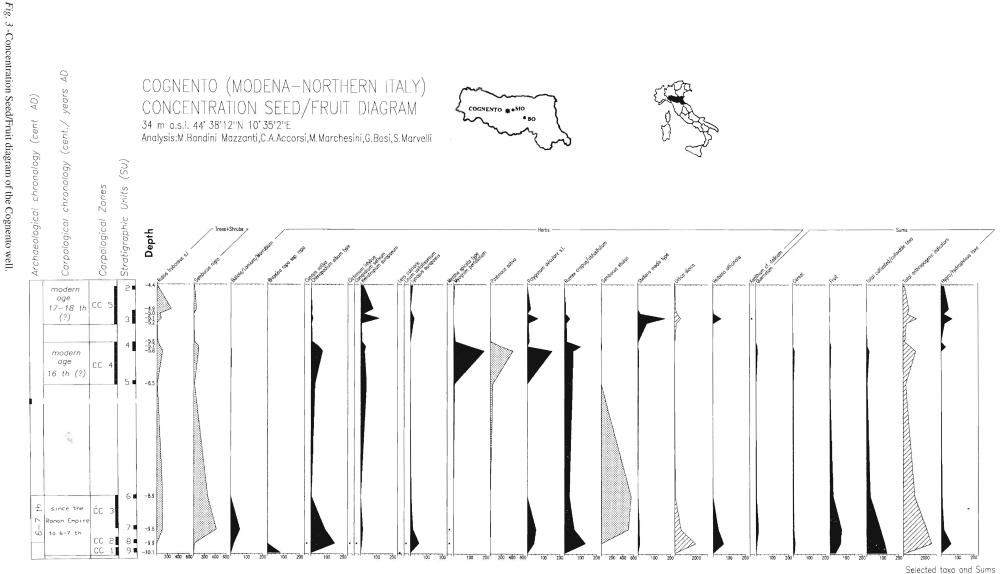
Fig. 2 -Concentration Pollen diagram of the Cognento well.

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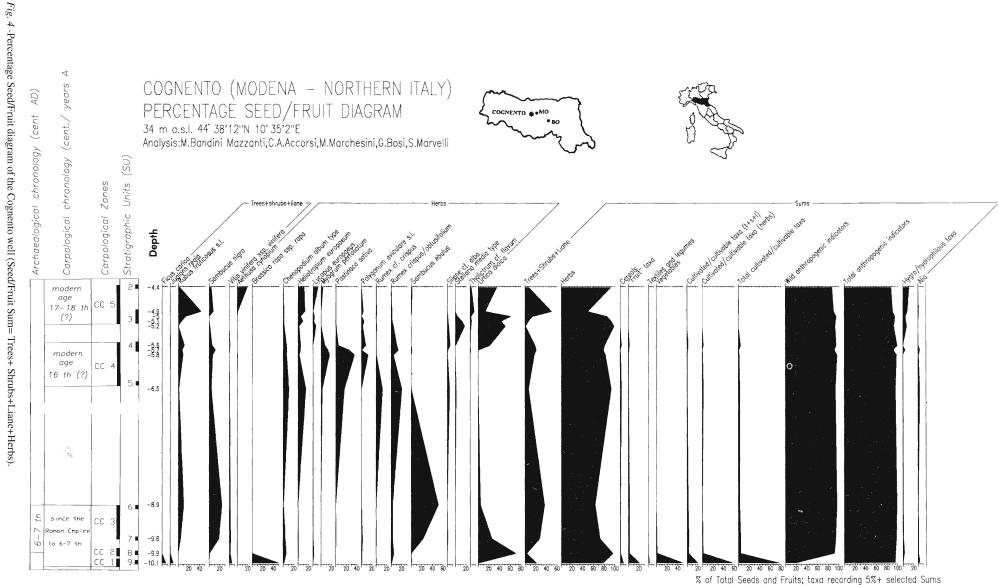


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Results and discussion

Plant remains were well preserved. Concentration ranges from 6,057 to 30,824 p/g; from 151 to 2,703 sf/10 l and from 1 to 223 w/500 l. About 4,000 pollen (138 taxa), 11,000 seeds /fruits (97 taxa) and 500 wood remains (18 taxa) were identified. Seed/fruit and wood remains had a more local pattern than pollen.

Three main archaeobotanical phases can be identified:

Phase 1 (SU 9; Pollen zone CP1, Seed/fruit zone CC1; Woods were absent). The village was inhabited and the well, used to draw water, was cleaned by weeds. The landscape was largely open and wild grasses dominated. Forest remnants were mostly Pines; Oak woods were present too. Several plants were cultivated in the village. as was testified by pollen and/or seed/fruit records (Triticum aestivum s.l. Hordeum vulgare, Secale cereale, Panicum miliaceum, Lens culinaris, Brassica rapa subsp. rapa, Vitis vinifera subsp. vinifera, Ficus carica, Juglans regia, Malus domestica, Pyrus communis). Human activity was also shown by wild anthropogenic indicators (ruderals, footpath plants, field weeds - Agrostemma githago, Anagallis cf. arvensis, Anthemis cotula, Agrimonia eupatoria, Chenopodium album type Polygonum aviculare s.l., Rumex cf. crispus, etc.). As for climate and chronology, pollen and seeds/fruits substantially agree in suggesting cooler and drier conditions than in the following phases. and an age around AD 600, during a period characterized by floods (6,7).

Phase 2 (SU 8,7,6; Pollen zone CP2, Seed/fruit zones CC2 and CC3; Wood zone CX1). At the beginning of the phase, though the well was dried up, life was still active in the village. Cereals (Triticum vulgare s.l. and Panicum miliaceum), Grape-vine, jugata with Elm and Maple, Cannabis sativa, Linum usitatissimum, Coriandrum sativum, Cichorium intybus, Juglans regia, Malus domestica, Pyrus communis, Prunus domestica subsp. insititia, Sorbus domestica were cultivated around the well. The climate was warmer and wetter than in the previous phase and the woodlands, scattered in the landscape which was still largely open, were meso-igrophylous Oak woods as pollen and wood remains indicated (Quercus deciduous, Ulmus, Acer, Tilia, Fraxinus, Rhamnus frangula). Wooden objects were mainly made of local wood (Quercus deciduous, Fraxinus cf. oxycarpa, Populus, Salix, Ulmus, Juglans regia) but wood was also obtained from the mountains (Castanea sativa, Fagus sylvatica). Not much later, people were forced to abandon the village but before running away they hid the goods in the well, which was probably overspread by Urtica dioica, Sambucus nigra, S. ebulus, Rubus fruticosus s.l., and covered them with branches, mainly of Elm. This happened around AD 550-650, as archaeological records indicated, and it was autumn as branches showed. In time the goods were covered by organic and mineral materials which had fallen into the well, including pollen and seeds/fruits. All wood remains are probably the same age as the archaeological findings, while seeds/fruits and pollen, which infiltrated the goods, seem to cover a longer tiCOGNENTO (MODENA-NORTHERN ITALY) 34 m a.s.l. 44°38'12"N 10°35'2" E THE COGNENTO WELL - SOME HIDDEN GOODS



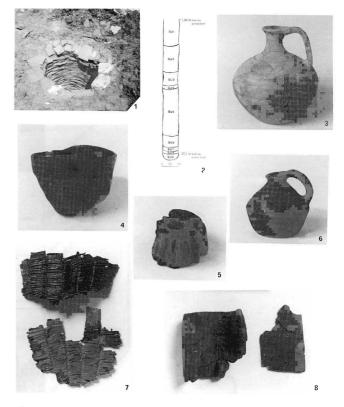


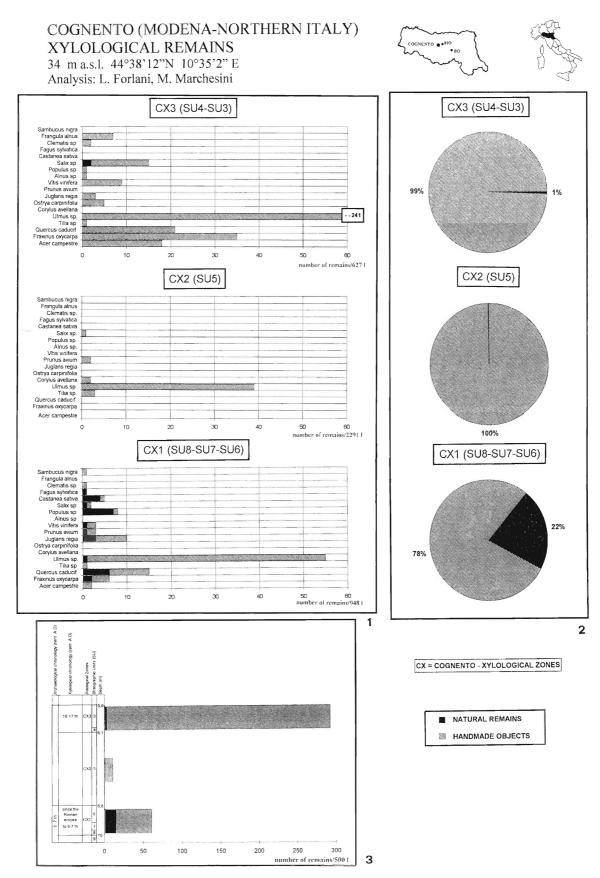
Plate I

me span, from a little before the hiding to some centuries after. In fact pollen and seeds/fruits suggest correlating the pattern of SU 7 with the Medieval Optimum, around AD 750/800-1150/1200 and indicated this phase does not reach modern times.

Phase 3 (SU 5,4,3,2; Pollen zone CP4; Seed/Fruit zones CC4 and CC5; Wood zones CX2 and CX3). The village was still abandoned but signs of human activity continued to be traced in the area, sometimes increasing near the well. This one was occasionally used as a dump; in fact pieces of Elm trunks were recorded in it as well as shoots of Grape-vine, and a number of burnt woods (Quercus, Ulmus, Tilia, Acer campestre, Ostrya carpinifolia). The occasional use of the well seems also testified by cyclic changes in ruderals growing around the well, now overspreading it, now being cut by man. The zone is modern age and might cover 2 centuries, from the end of 16th AD to the 18th century AD. This chronological settling is based mainly on seed/fruit records (Myagrum perfoliatum, a field-weed which probably arrived in Italy in 16-17th AD <5>, was recorded from SU5, and the American Xanthium italicum and Zea mays were found, the first in SU3, the latter in SU2); wood remains confirm this, showing Grape-vine grown jugata with Elm and Maple, a technique which, after roman times, spread again in the 17th century AD (8).

Conclusion

Plant remains outlined the botanical history of the well and the vegetal landscape throughout a thousand





years from about AD 600 to 18th century AD, showing some climatic oscillation during this time span. The records are consistent, seeds/fruits and woods giving more local patterns than pollen. They showed, at the bottom of the well, a rural settlement, quite rich in crops (vineyards, cereal crops, kitchen gardens, fruit trees, pastures). The well was used to draw water. Then it dried up and when the inhabitants ran away they hid their goods in it. The village was no longer inhabited, but anthropogenic records testified a widespread human activity in the area. Archaeobotanical records confirmed the goods were intentionally hidden.

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