

Botanical Research Methods in Archaeology : an Outline of Some Interdisciplinary Projects in Italy

Some botanical research methods in archaeology are concerned with anthracology, wood technology, dendrochronology, palaeopalynology, phytoliths, prehistoric and historic agriculture.

The ecological characteristics of past epochs may be reconstructed through the organic, inorganic, physical or biological manifestations which have left traces of an identifiable nature in the sediments. Many of these traces are faithfully recorded by the plant world, which generally reacts more sensitively than the animal world to changes in the surrounding environment.

Archaeobotany is not limited to reconstructing the climatic variations witnessed by vegetal variations, but also studies the modifications induced by man in the vegetation, and in this way manages to reconstruct aspects of human culture and psychology that otherwise remain unknown.

If for example we consider objects made of wood, we see that every wooden article, apart from being the document of a human activity in its precise stage of technological and artistic progress, contains in the wooden material and structure the possibility of giving an absolute date to the culture to which it bears witness, by means of the radiocarbon and dendrochronological methods. Moreover it makes it possible to establish, through identification of the botanical species, whether materials of local production have been used or whether they derive from trading with far-off lands.

Primary importance attaches, furthermore, to framing all the macroscopic finds, such as wooden objects, seeds and fruits collected by man, in the ecological setting defined by pollen analysis. A comparison of the results of these different analyses facilitates the interpretation of phenomena which in isolation are at times quite inexplicable. For example, the reconstruction by pollen analysis of the assortment of woody species of a forest permits an assessment to be made of the technological competence of the craftsman who selected the wood to manufacture given objects.

In certain cases the lack in the sediment of the pollen of some tree species can be explained by finds of another type which reveal, for example, that said trees were abundantly cut for forage and were therefore unable to flower and spread pollen.

The value of pollen analysis lies above all in its possibility of characterizing sediments in a continuous chronological seriation, while almost all other biological indications connected with the human environment are manifest as episodic phenomena, scattered points of reference discontinuous in time.

However, it must be borne in mind that not all archaeological sediments lend themselves to providing continuous pollen diagrams. There are many known causes for this drawback, even if at times they are difficult to identify. For example, in the settlement sedimentation may be discontinuous or disturbed, and therefore be lacking in chronologically important levels; or advanced oxidation or combustion caused by fire being lit frequently might have burnt the pollen in intensely inhabited layers. Nevertheless, even if no pollen at all were found in a settlement, other plant remains which, burning partially, are preserved — such as charcoal, charred seeds and fruits — would make it possible to reconstruct a partial picture of the plants present in the place. This partial representation could be framed in a pollen series obtained from a deposit with continuous sedimentation, such as a lake basin, situated in the region of the excavation.

Summarizing the lecture

Some practical explications have followed the presentation of a schematic sampling guide with projection of slides.

Some examples of palaeoecological studies concerning palaeopalynology (Follieri, 1979; Follieri, Magri and Sadori, 1986), fossil leaves (Follieri, 1958) and phytolits (Follieri and Magri, 1986) have been given.

Finally three examples of interdisciplinary studies with archaeologists have been illustrated with slides:

1. typology of prehistoric wooden objects (Follieri, 1974);
2. early Neolithic agriculture of Southern Italy (Follieri, 1982);
3. food remains of cultivated plants of the IV century A.D. recovered in the Colosseum (Rome) (Follieri, 1975).

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