

EXAMINATION OF METAL THREADS FROM SOME XV/XVI CENTURY ITALIAN TEXTILES BY SCANNING ELECTRON MICROSCOPY-ENERGY DISPERSIVE X-RAY SPECTROMETRY

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ABSTRACT

Scanning electron microscopy and energy dispersive x-ray spectrometry (SEM-EDS) has been employed along with the light microscope to describe some metal threads taken from some late Medieval and Renaissance textiles attributed to Italy in the collection of the Metropolitan Museum of Art, New York. Comparisons are made within the group studied and to those descriptions of metal threads found in recent literature. The results are discussed in terms of geographic and historic markers of the metal thread technology employed.

INTRODUCTION

Recent attempts to describe the use of metal in textiles[1-15] have suggested the following categories:

TABLE 1. The Five Categories for Inclusion of Metal in Textiles

- I. Metal applied (with adhesive) to already woven fabrics.
- II. Metal wire or flattened strips.
- III. Metal wire or strips wound around fiber core.
- IV. Metallic surface applied (with adhesive) to organic wrapping wound around fiber core.
 - a. Organic = cellulose.
 - b. Organic = proteinaceous.
- V. Metallic surface applied (with adhesive) to organic strips.
 - a. Organic = cellulose.
 - b. Organic = proteinaceous.

Previous studies[1-23] have reported composition and structure of metallic threads found in textiles from France, Italy, Spain, Germany, Switzerland, Egypt/Syria, Morocco, Turkey, Persia, India, Central Asia, Indonesia, Japan, and China.

Recently great strides have been made in the historical study of Italian textile production, especially that of the late Middle Ages and Renaissance. Many typologies of design and weaving techniques and structures can now be securely attributed to specific centers during a specific period. There are still numerous pieces in museum collections that are not identifiable as the product of a particular Italian workshop and there is uncertainty as to whether some 'Italian' textiles were woven in the Near East (especially Anatolia) or Spain. An effort to sort out questions of place and time of the manufacture of some of these textiles by examination of the metal threads used in their manufacture was the purpose of the present study. Difficulties in drawing decisive conclusions from this line of investigation will be underscored by the number of manufacturing techniques encountered, even among a small sampling of examples woven in a time period of about two hundred years.