

- 1 Introduction
- 2 Overview of Book
- 3 Understanding Authenticity, Fake and Other Terms
  - 3.1 Identification
  - 3.2 Authenticity/Authentic
  - 3.3 Common terms
  - 3.4 How Fakes and Reproductions Are Identified
  - 3.5 How Items Are Identified and Authenticated
  - 3.5 Identification and Authentication Are About Making Judgments Not Being Omniscient
  - 3.6 Questions
- 4 General Knowledge and Research in the Area
  - 4.1 Overview
  - 4.2 Homework Assignment: Doing Basic Online Research
- 5 Basic Identification and Understanding of Materials
  - 5.1 Overview
  - 5.2 Questions
- 6 Case Study: Identifying Common plastics in antiques
  - 6.1 Overview
  - 6.2 How to tell plastics from other materials
  - 6.3 Celluloid (Made: 1800s to early/mid 1900s)
  - 6.4 Bakelite and Catalin (Made: 1907 to WWII)
  - 6.5 Casein (1800s to today)
  - 6.6 Lucite
- 7 Materials Identification Case Study: Paper
  - 7.1 Overview
  - 7.2 The standard types of paper.
  - 7.3 Chronology of paper
  - 7.3 Some common fine art paper terms
  - 7.4 Watermarks
- 8 Materials Identification Case Study: Precious Metals
  - 8.1 Overview

- 8.2 Informal quick tips for identifying gold, silver and platinum
- 8.3 Precious metals acid testing kit
- 8.4 Hallmarks
- 9: Materials Identification Assignment
- 10: Identifying and Understanding Processes
  - 10.1 Overview
  - 10.2 Links to examples
  - 10.3 Questions
- 11 Process Identification Case Study: Intaglio Prints
  - 11.1 Overview
  - 11.2 Keys to identifying Intaglio Prints
  - 11.3 Engraving
  - 11.4 Etching
  - 11.5 Stipple, Chalk and Crayon Engraving
  - 11.6 Drypoint
  - 11.7 Mezzotint
  - 11.8 Aquatint
  - 11.9 Summary
- 12 Process Identification Study: Halftone Printing
  - 12.1 Overview
  - 12.2 Dating color halftone printing by the primary colors of the dots
  - 12.3 Modern digital prints
- 13 Case Study: Judging the Authenticity of Prints by Famous Artists
- 14 Signs of Aging
  - 14.1 Overview
  - 14.2 Forged Signs of Aging
  - 14.3 Questions
- 15 Focus: Dating and Identifying Photographs
- 16 Scientific Methods: Introduction
- 17 Basic Scientific Examination
- 18 Basic Science Case Study: Identifying counterfeits and reprints of trading cards by comparison
- 19 Basic Science Homework

## 20 Electromagnetic Radiation - Using Light

### 20.1 Overview

### 20.2 Ultraviolet (UV) fluorescence

### 20.3 Infrared (Ir) reflectology

### 20.4 X-Radiography and the 'See through' effect of X-rays

### 20.5 Questions

## 21 Fous: Identifying United States Currency

## 22 Microscopy

### 22.1 Overview

### 22.2 The basic, inexpensive microscope

### 22.3 Stereomicroscope

### 22.4 Polarized light, or petrographic, microscopy

### 22.5 Scanning Electron Microscopy (SEM)

### 22.6 Other microscopy links

### 22.7 Questions

## 23 Spectroscopy

### 23.1 Overview

### 23.2 Colorimetry

### 23.3 Infrared, Raman, Mass and X-Ray Spectroscopy

### 23.4 Why being able to identify the chemicals and compounds is important to authentication and forgery detection

### 23.5 Further reading and videos

### 23.6 Questions

## 24 Radiometric dating

### 24.1 Overview

### 24.2 The Science

### 24.3 Issues and margins of error

### 24.4 Carbon dating

### 24.5 Lead 210 Dating

### 24.6 Further reading and videos

### 24.7 Questions:

## 25 Case Study: The Old Masters Forger Hans Van Meegeren

## 26 Case Study: Authenticating the most valuable trading card in the world

## 27 Thermoluminescence Testing

- 27.1 Overview
- 27.2 The science
- 27.3 Other problems and issues in thermoluminescence dating
- 27.4 Getting an object thermoluminescence tested
- 27.5 Questions
- 28 Other Scientific Methods
  - 28.1 Overview
  - 28.2 Chromatography
  - 28.3 Solvent testing ink dryness
  - 28.4 Dendrochronology
  - 28.5 Morellian Analysis
  - 28.6 Computer software for analyzing paintings and sketches
  - 28.7 Mohs Scale of Hardness
  - 28.8 Fingerprint and DNA analysis
  - 28.9 Some tools
  - 28.10 Questions
- 29 Focus: Handwritten Documents
- 30 Altered forgeries
  - 30.1 Overview
  - 30.2 Faked signs of usage
  - 30.3 Questions:
- 31 Provenance
  - 31.1 Overview
  - 31.2 Provenance can help establish age, identity and support authenticity
  - 31.3 Good provenance enhances value
  - 31.4 Provenance can identify fakes, forgeries and alterations
  - 31.5 Stolen items
  - 31.6 Questions
- 32 Final Notes
  - 32.1 Authentication as Making Judgments
  - 32.2 The Limits of Science
  - 32.3 Cataloging physical qualities and inventing new identification tests should be a neverending process

## 32.4 The Human Element

## 32.5 Forces that can corrupt the authentication

## 33 Final Book Encompassing Questions

# I INTRODUCTION

This book is an introduction to standard methods and issues in the identification, authentication, fake and forgery detection of art, artifacts and collectibles. This includes everything from ancient artifacts and famous paintings to antique toys and trading cards. Authentication involves many aspects and perspectives, from science to common sense, and this book is written for all those involved or interested in the topic, including scientists, museum workers, historians, appraisers, lawyers and collectors.

Each specific area—1800s impressionist paintings, 1900s trading cards, Ming vases, antique diamond rings, etc.—requires a specialized knowledge and hands-on experience with the objects. Thus, this book cannot and does not intend to cover it all. Rather, it is a general survey, though with many specific examples and case studies.

There are other books on the science of forgery detection. While they are good in their way, they are too narrow or work as introductory or general books. They focus strictly on advanced, cutting-edge scientific methods in the examination of highly prized works (Vermeer paintings, priceless relics, etc.). This book covers the advanced methods such as carbon dating, spectroscopy and chronology and looks at high-end objects. However, not only are common sense, elementary scientific examination and basic research essential parts of authentication and forgery detection, experts are asked to investigate objects ranging from postcards to military medals to trading cards to kids' toys. The New York Metropolitan Museum of Art owns a collection of baseball trading cards, the Louvre has exhibited advertising posters, and historical and cultural museums hold objects of every