

# ANCIENT GEMS AND FINGER RINGS



CATALOGUE OF THE COLLECTIONS

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THE J. PAUL GETTY MUSEUM

# ANCIENT GEMS AND FINGER RINGS

*Jeffrey Spier*

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THE J. PAUL GETTY MUSEUM

MALIBU • CALIFORNIA

1992

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LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA:

Spier, Jeffrey.

Ancient gems and finger rings : catalogue of the collections /  
Jeffrey Spier.

p. cm.

Includes bibliographical references and index.

ISBN 0-89236-215-4 :

1. Gems, Classical—Catalogs. 2. Gems—California—Malibu—  
Catalogs. 3. J. Paul Getty Museum Catalogs. I. J. Paul Getty  
Museum. II. Title.

NK5565.S68 1992

736'.2'093807479493—dc20

91-44150  
CIP

Project staff:

Benedicte Gilman, Manuscript Editor  
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Ellen Rosenbery, Photographs  
Martha Breen and Tim Seymour, Drawings

Typography by Wilsted & Taylor, Oakland, California  
Printed by Nissha Printing Co., Ltd., Kyoto

Cover: Dark green chalcedony in large  
gold ring showing the head of the Doryphoros of  
Polykleitos. Catalogue number 221 (75.AM.61).

## FOREWORD

The preparation of this catalogue of ancient gems and finger rings in the collection of the J. Paul Getty Museum was begun by Jeffrey Spier when he was a visiting scholar in the Department of Antiquities in 1984. Working with Arthur Houghton, then Associate Curator, and Carol Elkins, a departmental intern, Spier studied and classified all the gems and finger rings in the collection. Under the auspices of Curator Marion True, he has returned often to the Museum to continue his work and to examine the recent acquisitions in order to incorporate them into his text. The exacting process of making precise latex impressions of each piece was begun in 1984 by Ms. Elkins and has continued under Douglas Doughty, who provided most of the casts illustrated here.

Two well-documented groups of gems and rings in the Museum's collection are not included in this catalogue. The first, 215 gems purchased in 1981 (81.AN.76) from a private collection, was published by John Boardman in *Intaglios and Rings, Greek, Etruscan and Eastern, from a Private Collection* (London, 1975). The second, seven finger rings, is part of an important complex of Late Roman jewelry. The entire complex, which is said to have been found together as a hoard, will be published by Barbara Deppert-Lippitz in her article "A Group of Late Antique Jewelry in the Getty Museum," *Occasional Papers on Antiquities* 8 (forthcoming).

Our collection of ancient gems and finger rings has grown significantly since the first example entered the Museum in 1973. Following the acquisition in 1981 of the major private collection mentioned above, 98 gems were acquired in 1984 (84.AN.1) and 91 more in 1985 (85.AN.370). The generosity of donors has been especially important in this area of the collection. Stanley Ungar presented the Museum with a collection of 102 gems and cameos in 1982 (82.AN.162). Jonathan Kagan and Damon Mezzakappa gave a group of sixty gems and four seal impressions in 1983 (83.AN.437). Mr. Kagan also offered as his own donation nine gems in 1984 (84.AN.987-995) and thirty-three gems in 1985 (85.AN.444). Others who have our thanks for their gifts are Lenore Barozzi, Jane Cody, David Collins, Eli Djeddah, William Eagleton, Ira Goldberg, Sylvia Hurter, Dennis Kapp, Monique Lanel, Harvey Sarner, Michael Shubin, Dr. L. S. Shulka, Herbert Solow, Jerome Spier, Seymour Weintraub, and George Zographos.

The accurate identification of the stones included here would not have been possible without the assistance of Jerry Podany and Lisbet Thoresen of the Museum's Department of Antiquities Conservation, David Scott of the Museum Services Department of the Getty Conservation Institute, and Chuck Fryer of the Gemological Institute of America in Los Angeles. Though most of the gems could be identified visually by the author, the problematic pieces required analysis, usually noninvasive; in a few exceptionally difficult cases, minute samples were taken and analyzed by means of X-ray fluorescence and X-ray diffraction. Identifications confirmed by these examinations and analyses are incorporated into the individual entries. The testing processes are not discussed, however, since these will form part of a future publication on the identification and taxonomy of gems.

Since the images on the gemstone and engraved rings are an essential part of the interest of the material, particular thanks go to Charles Passella, head of the Museum's Photographic Services, and Ellen

Rosenbery, the photographer in that department who provided all the black-and-white and color photographs. Karol Wight, Assistant Curator of Antiquities, coordinated the object photography and the preparation of the gem impressions. Kenneth Hamma, Associate Curator of Antiquities, has overseen all aspects of the production of this volume.

John Walsh  
*Director*

## ACKNOWLEDGMENTS

The author is grateful to many past and present members of the Department of Antiquities of the J. Paul Getty Museum. Jiří Frel, Arthur Houghton, Marion True, and Kenneth Hama all took a special interest in this catalogue. Special thanks are owed to Carol Elkins, who contributed greatly to the study and organization of the gem collection, and to Martha Breen and Timothy Seymour for the fine drawings.

Sir John Boardman and Martin Henig read the manuscript and provided many corrections and further references. William Veres, Derek Content, and Christine Insley Green provided helpful information.

# ABBREVIATIONS

AA	Archäologischer Anzeiger	Boardman, <i>Escarabeos</i>	J. Boardman, <i>Escarabeos de piedra procedentes de Ibiza</i> (Madrid, 1984)
AK	Antike Kunst	Boardman, GGFR	J. Boardman, <i>Greek Gems and Finger Rings: Early Bronze Age to Late Classical</i> (London, 1970)
Aquileia	G. Sena Chiesa, <i>Gemme del Museo Nazionale di Aquileia</i> (Associazione Nazionale per Aquileia, Padua, 1966)	Boardman, <i>Intaglios and Rings</i>	J. Boardman, <i>Intaglios and Rings, Greek, Etruscan and Eastern, from a Private Collection</i> (London, 1975)
Babelon, <i>Traité</i>	E. Babelon, <i>Traité des monnaies grecques et romaines</i> , vol. 2, part 2 (Paris, 1910)	Boardman, <i>Island Gems</i>	J. Boardman, <i>Island Gems: A Study of Greek Seals in the Geometric and Early Archaic Periods</i> (London, 1963)
Beazley, <i>Lewes House</i>	J. D. Beazley, <i>The Lewes House Collection of Ancient Gems</i> (Oxford, 1920)	Bologna	A. R. Mandrioli Bizzarri, <i>La collezione di gemme del Museo Civico Archeologico di Bologna</i> (Bologna, 1987)
Belgrade	I. Popović, <i>Les Camées romains au Musée National de Beograd</i> (Belgrade, 1989)	Braunschweig	V. Scherf, <i>Antike Gemmen in deutschen Sammlungen</i> , vol. 3, pp. 1–61, <i>Herzog-Anton-Ulrich-Museum</i> (Braunschweig) (Wiesbaden, 1970)
Berlin	E. Zwierlein-Diehl, <i>Antike Gemmen in deutschen Sammlungen</i> , vol. 2, <i>Staatliche Museen Preussischer Kulturbesitz, Antikenabteilung</i> (Munich, 1969)	Caesarea	A. Hamburger, "Gems from Caesarea Maritima," <i>'Atiqot</i> 9 (1968)
Berry coll.	B. Y. Berry, <i>Ancient Gems from the Collection of Burton Y. Berry</i> (Bloomington, Indiana, 1968)	CMS	<i>Corpus der minoischen und mykenischen Siegel</i>
Bibliothèque Nationale	E. Babelon, <i>Catalogue des camées antiques et modernes de la Bibliothèque Nationale</i> (Paris, 1897)	Cologne	A. Krug, "Antike Gemmen im Römisch-Germanischen Museum Köln," <i>Bericht der Römisch-Germanischen Kommission</i> 61 (1980), pp. 151–260
BMC Gems	H. B. Walters, <i>Catalogue of the Engraved Gems and Cameos, Greek, Etruscan and Roman, in the British Museum</i> (London, 1926)	Content coll.	M. Henig, <i>The Content Family Collection of Ancient Cameos</i> (Oxford and Houlton, Maine, 1990)
BMC Rings	F. H. Marshall, <i>Catalogue of the Finger Rings, Greek, Etruscan and Roman, in the British Museum</i> (London, 1907)	Cook coll.	C. H. Smith and C. A. Hutton, <i>Catalogue of the Antiquities in the Collection of the Late W. F. Cook</i> (London, 1908)
BMC Stamp Seals	A. D. H. Bivar, <i>Catalogue of the Western Asiatic Seals in the British Museum: Stamp Seals</i> , vol. 2, <i>The Sassanian Dynasty</i> (London, 1969)	Crawford, RRC	M. Crawford, <i>Roman Republican Coinage</i> (Cambridge, 1974)
BMC Tharros	R. D. Barnett and C. Mendleson, eds., <i>Tharros: A Catalogue of Material in the British Museum from Phoenician and other Tombs at Tharros, Sardinia</i> (London, 1987)	CVA	<i>Corpus Vasorum Antiquorum</i>
Boardman, AGG	J. Boardman, <i>Archaic Greek Gems</i> (London, 1968)	De Clercq coll.	A. de Ridder, <i>Collection de Clercq</i> , vol. 7, pt. 2, <i>Les pierres gravées</i> (Paris, 1911)
Boardman, AK	"Archaic Finger Rings," AK 10 (1967), pp. 3–31	Frye, <i>Qasr-i Abu Nasr</i>	R. N. Frye, ed., <i>Sasanian Remains from Qasr-i Abu Nasr</i> (Cambridge, Massachusetts, 1973)

- Furtwängler, AG A. Furtwängler, *Die antiken Gemmen*, vols. 1–3 (Leipzig, 1900)
- Furtwängler, Beschreibung A. Furtwängler, *Beschreibung der geschnittenen Steine im Antiquarium, Königliche Museen zu Berlin* (Berlin, 1896)
- Furtwängler, Kleine Schriften J. Sieveking and L. Curtius, eds., *Kleine Schriften von Adolf Furtwängler*, vol. 2 (Munich, 1913)
- Geneva M.-L. Vollenweider, *Catalogue raisonné des sceaux, cylindres, intailles et camées, Musée d'Art et d'Histoire de Genève*, vol. 1 (Geneva, 1967), vol. 2 (Mainz, 1979), vol. 3 (Mainz, 1983)
- GettyMusJ J. Paul Getty Museum Journal
- Göbl, Siegelkanon R. Göbl, *Der sassanidische Siegelkanon* (Braunschweig, 1973)
- Göttingen P. Gercke, *Antike Gemmen in deutschen Sammlungen*, vol. 3, pp. 63–176, *Sammlung im Archäologischen Institut der Universität Göttingen* (Wiesbaden, 1970)
- Greifenhagen, Schmuckarbeiten A. Greifenhagen, *Schmuckarbeiten in Edelmetall, Staatliche Museen Preußischer Kulturbesitz, Antikenabteilung*, vol. 2 (Berlin, 1975)
- Guilhou coll. S. De Ricci, *Catalogue of a Collection of Ancient Rings Formed by the Late E. Guilhou* (Paris, 1912)
- Guiraud, Gaule H. Guiraud, *Intailles et camées de l'époque romaine en Gaule* (Paris, 1988)
- The Hague M. Maaskant-Kleibrink, *Catalogue of the Engraved Gems in the Royal Coin Cabinet, the Hague: The Greek, Etruscan and Roman Collections* (The Hague, 1978)
- Hannover M. Schlüter, G. Platz-Horster, and P. Zazoff, *Antike Gemmen in deutschen Sammlungen*, vol. 4, *Kestner-Museum, Hannover, und Museum für Kunst und Gewerbe, Hamburg* (Wiesbaden, 1975)
- Harari coll. J. Boardman and D. Scarisbrick, *The Ralph Harari Collection of Finger Rings* (London, 1977)
- Henig, Roman Engraved Gemstones M. Henig, *A Corpus of Roman Engraved Gemstones from British Sites*, 2nd ed., *British Archaeological Reports, British Series* 8 (Oxford, 1978)
- Henkel, Römische Fingerringe F. Henkel, *Die römischen Fingerringe des Rheinlandes und der benachbarten Gebiete* (Berlin, 1913)
- Hoffmann and Davidson, Greek Gold H. Hoffmann and P. F. Davidson, *Greek Gold: Jewelry from the Age of Alexander*, exh. cat., *Museum of Fine Arts, Boston, and other institutions*, November 1965–May 1966 (Mainz, 1965)
- Horn and Steindorff, Sassanidische Siegelsteine P. Horn and G. Steindorff, *Sassanidische Siegelsteine. Königliche Museen zu Berlin: Mitteilungen aus den orientalischen Sammlungen*, vol. 4 (Berlin, 1891)
- JHS *Journal of Hellenic Studies*
- Jucker and Willers, Gesichter H. Jucker and D. Willers, eds., *Gesichter: Griechische und römische Bildnisse aus Schweizer Besitz*, exh. cat., *Bernisches Historisches Museum* (Bern, 1982)
- JWalt *Journal of the Walters Art Gallery*
- Karapanos coll. J. N. Svoronos, *Journal international d'archéologie numismatique* 15 (1913), pp. 147–184
- Kassel P. Zazoff, *Antike Gemmen in deutschen Sammlungen*, vol. 3, pp. 177–261, *Staatliche Kunstsammlungen Kassel* (Wiesbaden, 1970)
- Leningrad Cameos O. Y. Neverov, *Antichnye kamei v sovranii Ermitazha* (Leningrad, 1988)
- Lewis coll. M. Henig, *The Lewis Collection of Engraved Gemstones in Corpus Christi College, Cambridge* (Oxford, 1975)
- LIMC *Lexicon Iconographicum Mythologiae Classicae*
- Maaskant-Kleibrink, Doliché M. Maaskant-Kleibrink, "Cachets de terre de Doliché(?)" *Bulletin antieke beschaving* 46 (1971), pp. 23–63



Maddoli, <i>Cirene</i>	G. Maddoli, "Le cretule del Nomophylakion di Cirene," <i>Annuario della Scuola archeologica di Atene e della Missioni italiane in Oriente</i> 41-42 (1963-1964), pp. 39-145	Sa'd Collection	M. Henig and M. Whiting, <i>Engraved Gems from Gadara in Jordan: The Sa'd Collection of Intaglios and Cameos</i> (Oxford, 1987)
Martini, <i>Etruskische Ringsteinglyptik</i>	W. Martini, <i>Die etruskische Ringsteinglyptik</i> (Heidelberg, 1971)	Sena Chiesa, <i>Luni</i>	G. Sena Chiesa, <i>Gemme di Luni</i> (Rome, 1978)
Megow, <i>Kameen</i>	W.-R. Megow, <i>Kameen von Augustus bis Alexander Severus</i> (Berlin, 1987)	Sofia	A. Dimitrova-Milcheva, <i>Antique Engraved Gems and Cameos in the National Archaeological Museum in Sofia</i> (Sofia, 1981)
Munich	E. Brandt, E. Schmidt, A. Krug, and W. Gercke, <i>Antike Gemmen in deutschen Sammlungen</i> , vol. 1, <i>Staatliche Münzsammlung München</i> , pt. 1 (Munich, 1968), pt. 2 (Munich, 1970), pt. 3 (Munich, 1972)	Southesk coll.	Lady Helena Carnegie, <i>Catalogue of the Collection of Antique Gems, formed by James, Ninth Earl of Southesk</i> (London, 1908)
Naples	U. Pannuti, <i>Museo Archeologico Nazionale di Napoli: Catalogo della collezione Glittica</i> , vol. 1 (Rome, 1983)	Thorvaldsen	P. M. A. Fossing, <i>The Thorvaldsen Museum: Catalogue of the Antique Engraved Gems and Cameos</i> (Copenhagen, 1929)
New York	G. M. A. Richter, <i>Catalogue of Engraved Gems, Greek, Etruscan and Roman, in the Metropolitan Museum of Art</i> (Rome, 1956)	Vienna Cameos	F. Eichler and E. Kris, <i>Die Kameen im Kunsthistorischen Museum</i> (Vienna) (Vienna, 1927)
Oxford Gems	J. Boardman and M.-L. Vollenweider, <i>Catalogue of the Engraved Gems and Finger Rings in the Ashmolean Museum</i> , vol. 1, <i>Greek and Etruscan</i> (Oxford, 1978)	Vienna Gems	E. Zwierlein-Diehl, <i>Die antiken Gemmen des Kunsthistorischen Museums in Wien</i> , vol. 1 (Munich, 1973), vol. 2 (Munich, 1979)
Oxford Stamp Seals	B. Buchanan and P. R. S. Moorey, <i>Catalogue of Ancient Near Eastern Seals in the Ashmolean Museum</i> , vol. 3, <i>The Iron Age Stamp Seals</i> (Oxford, 1988)	Vollenweider, <i>Deliciae Leonis</i>	M.-L. Vollenweider, <i>Deliciae Leonis: Antike geschnittene Steine und Ringe aus einer Privatsammlung</i> (Mainz, 1984)
Philipp, <i>Mira et Magica</i>	H. Philipp, <i>Mira et Magica: Gemmen im Ägyptischen Museum der Staatlichen Museen Preussischer Kulturbesitz, Berlin-Charlottenburg</i> (Mainz, 1986)	Vollenweider, <i>Porträtgemmen</i>	M.-L. Vollenweider, <i>Die Porträtgemmen der römischen Republik</i> (Mainz, 1974)
Richter, <i>Engraved Gems of the Romans</i>	G. M. A. Richter, <i>The Engraved Gems of the Romans</i> (London, 1971)	Vollenweider, <i>Steinschneidekunst</i>	M.-L. Vollenweider, <i>Die Steinschneidekunst und ihre Künstler in spätrepublikanischer und augusteischer Zeit</i> (Baden-Baden, 1966)
Romania	M. Gramatopol, <i>Les Pierres gravées du Cabinet Numismatique de l'Académie Roumaine. Latomus</i> 138 (1974)	Zazoff, AG	P. Zazoff, <i>Die antiken Gemmen</i> (Munich, 1983)
		Zazoff, ES	P. Zazoff, <i>Etruskische Skarabäen</i> (Mainz, 1968)

# CONTENTS

FOREWORD	<i>John Walsh</i>	vii
ACKNOWLEDGMENTS		ix
ABBREVIATIONS		xi
CATALOGUE		I
GUIDE TO THE CATALOGUE DESCRIPTIONS		I
SHAPES		I
MATERIALS		5
PLATES		6
GREEK GEMS		11
Minoan and Mycenaean Gems		12
Geometric and Archaic Gems		14
Classical and Hellenistic Gems: Fifth–Second Century B.C.		20
Glass Scaraboids		22
GREEK RINGS		24
Archaic Rings		24
Classical and Hellenistic Rings		34
Western Rings		38
Decorative Rings		41
Bronze and Iron Rings		42
Ptolemaic Rings		48
NEAR EASTERN AND PHOENICIAN SEALS		50
The Lyre-Player Group Seals		50
Syro-Phoenician Seals		51
GRAECO-PHOENICIAN SCARABS		52

GRAECO-PERSIAN GEMS	56
ACHAEMENID GLASS CONOIDS, SCARABOIDS, AND TABLOIDS	64
ACHAEMENID RINGS	67
ETRUSCAN SCARABS	68
ITALIC, LATE HELLENISTIC, AND ROMAN GEMS	75
Italic Gems: Third–First Century B.C.	77
Italic Pellet–Style Gems: First Century B.C.	80
Italic Gems Without Pellets	86
Late Hellenistic, Eastern Gems	90
Early Imperial Classicizing Gems	93
Second–Third–Century–A.D. Gems	124
ROMAN RINGS	144
GLASS GEMS	145
ROMAN CAMEOS	153
SASANIAN GEMS	164
GREEK AND ROMAN SEALINGS	167
SUBJECT INDEX	173
MATERIALS INDEX	176
INSCRIPTIONS INDEX	177
PROVENANCE INDEX	178
PREVIOUS COLLECTIONS INDEX	178
OTHER ANCIENT GEMS AND RINGS IN THE GETTY MUSEUM	179
CONCORDANCE of accession numbers and catalogue numbers	180

# CATALOGUE

## GUIDE TO THE CATALOGUE DESCRIPTIONS

Drawings of the shapes are actual size, while the drawings of the inscriptions may be enlarged to show details. The photographs and impressions are enlarged 2:1 unless otherwise indicated. The find sites, when given in the provenance, are merely alleged and cannot be confirmed. In most cases only a general geographical area has been suggested. Where no provenance is given for an object, none is known.

When nothing else is stated, length is followed by width, which is followed by height in the measurements.

## SHAPES

In the Minoan and Mycenaean periods, gems were usually of lentoid (lens) or amygdaloid (almond) shape (fig. 1); the amygdaloid shape often had two long grooves on the back. The seventh-century-B.C. Island Gems also took these shapes, probably copied from stray finds of the much earlier Minoan examples.

Most Archaic gems were cut as scarab beetles with various degrees of modeling and detail on the backs; they are derived from Egyptian and Phoenician prototypes (see fig. 2, for the varieties, and Boardman, *AGG*, pp. 13–17, for a discussion). Graeco-Phoenician scarabs in green jasper are usually simple, without carination, and plump. The Etruscan scarabs are more elaborate, with careful detailing of the back and head and often decorated plinths.

The scaraboid (see fig. 3 for the varieties) was a common shape for Near Eastern seals and was occasionally copied for Early Archaic gems. In the Late Archaic and Early Classical periods a variety with high, straight sides was used. By the end of the fifth century B.C. the Archaic shape was replaced by three varieties with slanting sides and low, medium, or high dome (Types A, B, and C).

These last three varieties of scaraboids were the most common shapes in the Graeco-Persian series, although the octagonal pyramid, the tabloid, and the pendant were also employed (fig. 4). The devices were usually engraved on the flat side of the scaraboids, but during the Late Classical and Hellenistic periods there was a preference for engraving the convex side. This fashion led to a change in the scaraboid shape to thinner but larger and more elongated ringstones engraved on the convex side (see Boardman, *Intaglios and Rings*, nos. 54–57). Garnet was a favorite stone in the Late Hellenistic period and was usually cut in a distinctive shape with a convex top and concave back (see fig. 5, curved shape 8).

The preference for ringstones in the Hellenistic period led to a large variety of shapes, dictated partly by the conventional shapes assigned to each type of stone (a remarkable variety of unengraved stones, which were cut in the same shapes as are found on contemporary intaglios, decorated the walls of a first-century Roman villa, see M. Cima and E. La Rocca, *Le tranquille dimore degli dei* [Venice, 1986], pp. 105–150) and partly by the current fashion of ring shapes. Figure 5 shows a numbering system for the shapes of Roman ringstones, which was devised by Boardman and Zwiwerlein-Diehl and used by Henig (there is, however, a discrepancy between the numbers here and those in *The Hague*, p. 60, fig. 2).

Archaic and Classical Greek rings, whether in gold, silver, or bronze, usually fall into clearly distinguishable types. These shapes have been categorized by Boardman, whose terminology is followed here (fig. 6, for Archaic rings; fig. 7, for Classical rings).

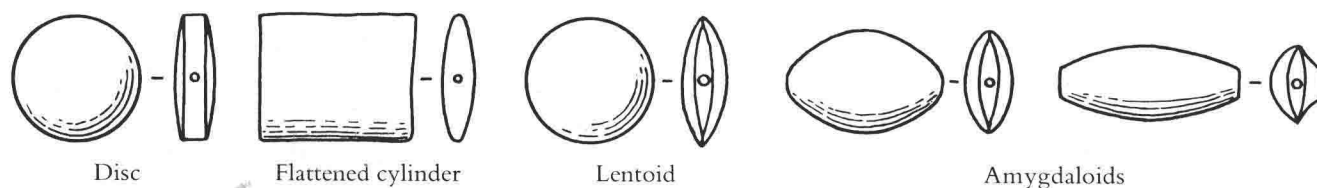


Figure 1. Lentoid and amygdaloid gem shapes (from Boardman, *GGFR*, p. 37, fig. 59).

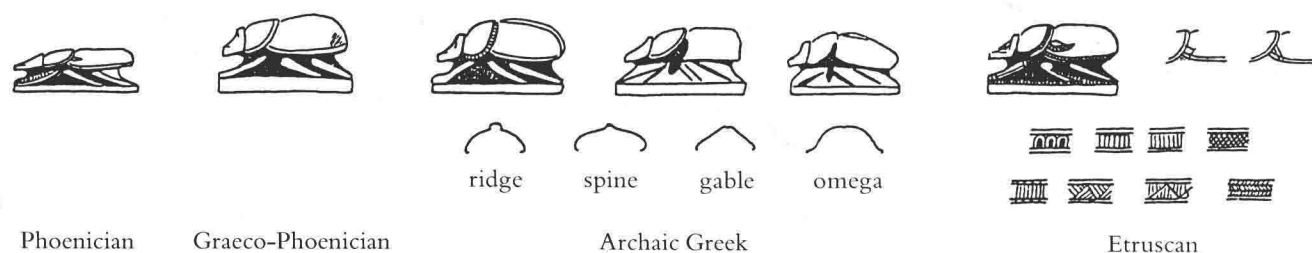


Figure 2. Scarab shapes (from Boardman, *AGG*, p. 15, fig. 1).

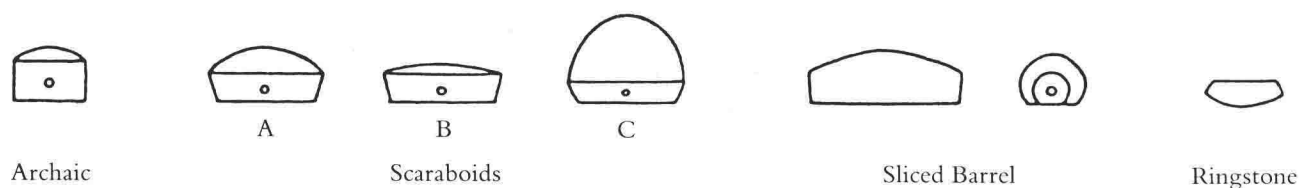


Figure 3. Scaraboid gem shapes (from Boardman, *GGFR*, p. 191, fig. 200).

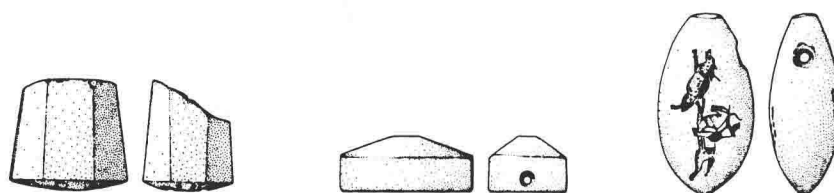


Figure 4. Octagonal pyramid, tabloid, and pendant gem shapes (= cat. nos. 109, 122, and 114).

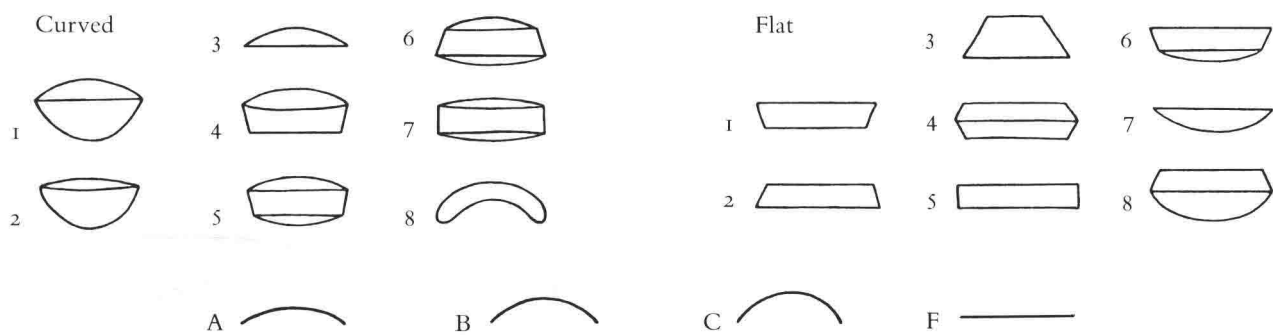


Figure 5. Curved and flat gem shapes (from Henig, *Roman Engraved Gemstones*, p. 35).

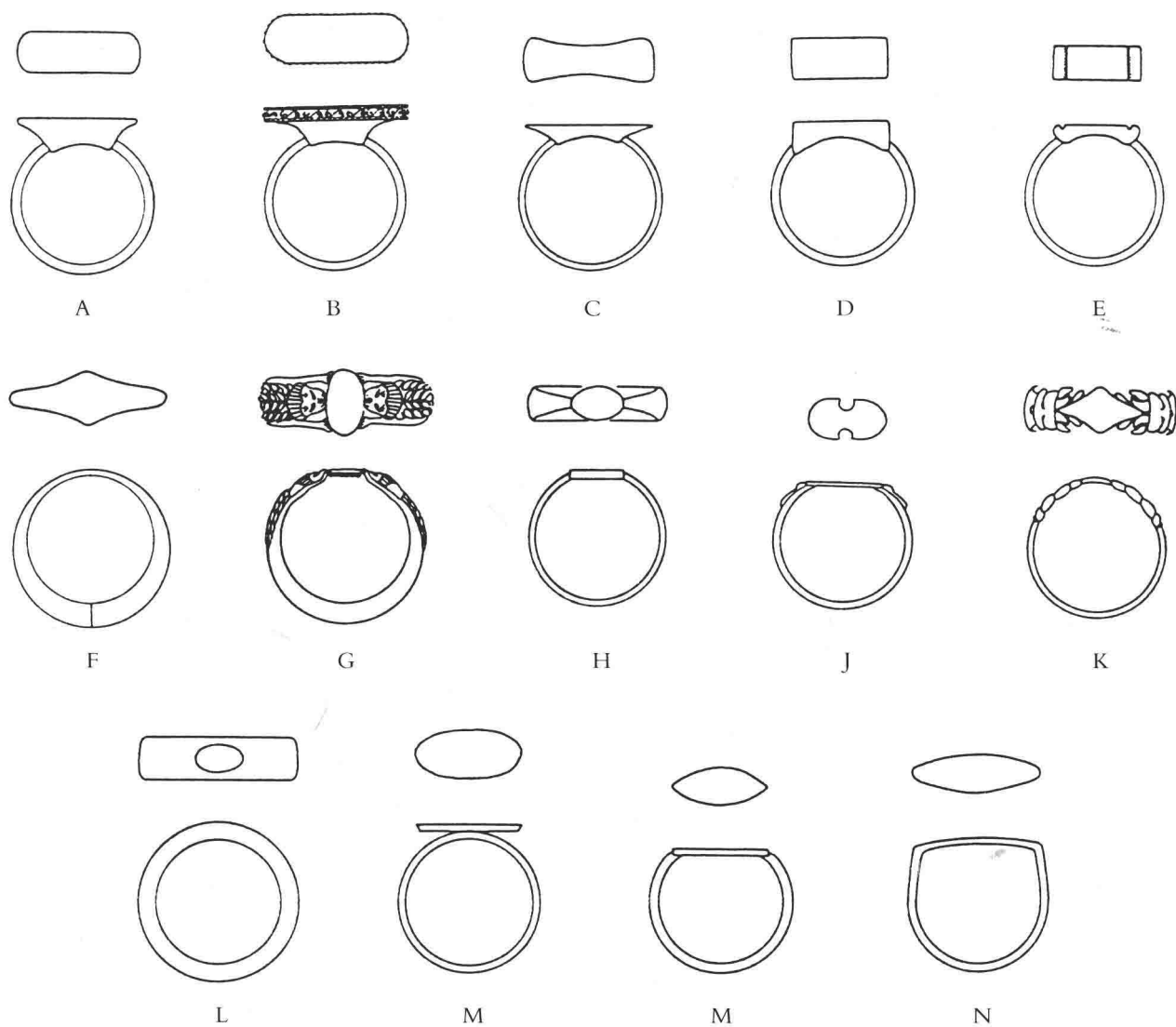


Figure 6. Archaic ring shapes (from Boardman, *GGFR*, p. 156, fig. 198).

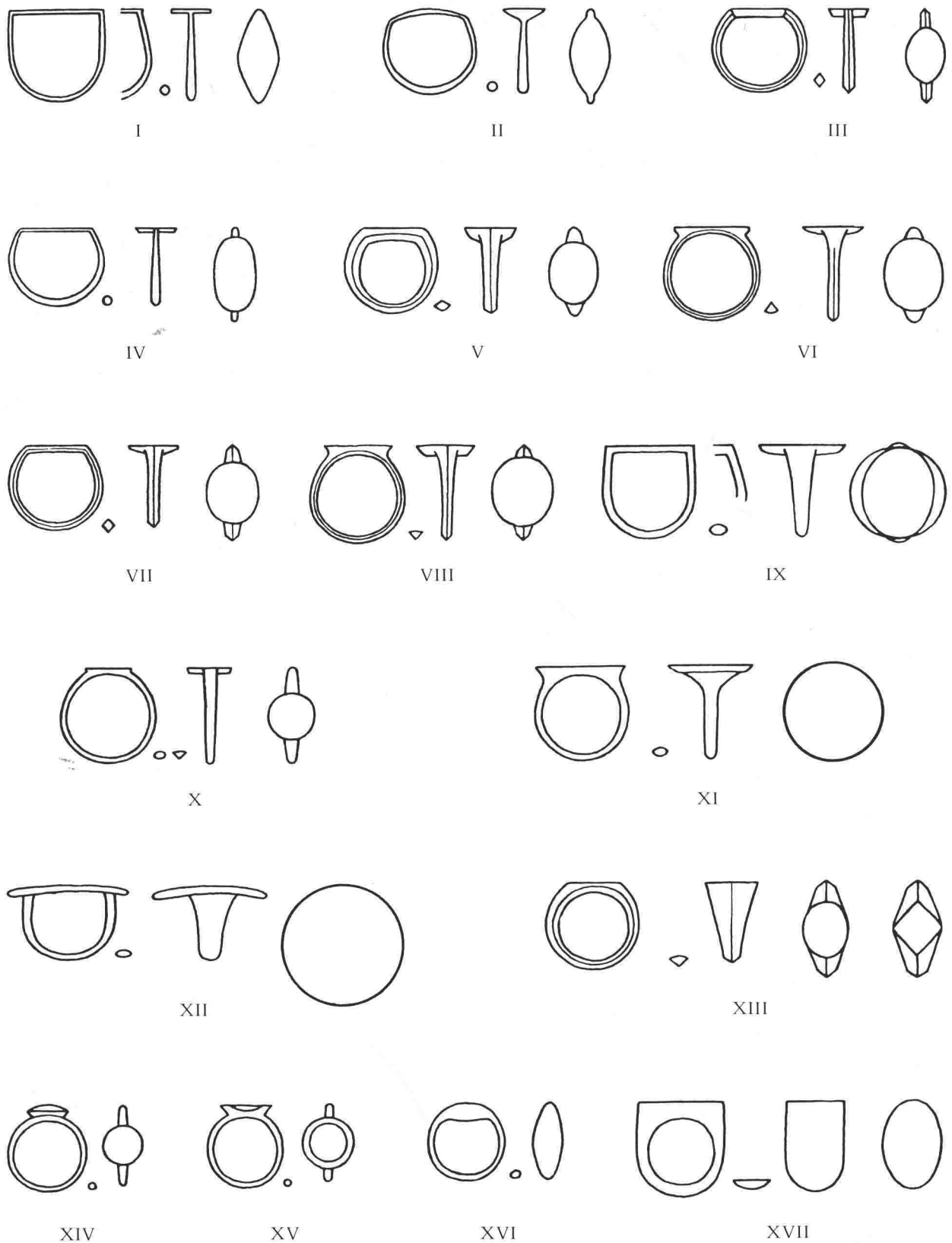


Figure 7. Classical ring shapes (from Boardman, *GGFR*, p. 213, fig. 217).

## MATERIALS

The best surviving ancient studies of gemstones are by the fourth-century-B.C. philosopher Theophrastos (*On Stones*) and by Pliny the Elder, who wrote in the first century A.D. (*Naturalis Historia*, Book 37). It is not always possible to match the ancient terms with known gemstones, but further study would be productive (for ancient sources, see O. Rossbach, in *Real-Encyclopädie der klassischen Altertumswissenschaft*, vol. 7, pt. 1, s.v. Gemmen, cols. 1052–1115; and for reviews of the variety of stones, see Furtwängler, *AG*, vol. 3, pp. 383–397; *BMC Gems*, pp. xii–xvii; G. M. A. Richter, *The Engraved Gems of the Greeks and the Etruscans* [London, 1968], pp. 8–13; Boardman, *GGFR*, pp. 374–379, 447–448; and *Oxford Gems*, pp. 70–71, for the variety of Hellenistic gemstones). The wide variety of stones used for ancient intaglios has seldom been studied scientifically (the best study is of the magic gems in the Ägyptisches Museum in Berlin, Philipp, *Mira et Magica*, pp. 127–146), and many of the conventional names for gemstones are not technically correct, although for the sake of clarity, the common names are usually followed here.

Most ancient gems are of some variety of quartz, the most common being *carnelian* (yellow, orange, or red in color; when brown, it is termed *sard*). Carnelian is used in all periods, from Minoan to Roman, and perhaps half of all known gems are in this material. Of the same mineralogical group is *chalcedony* (milky blue, gray, green, or white), *agate* (with different-colored wavy bands, which may be black, brown, white, and gray), and *sardonyx*, which here is used to describe stones with straight bands, usually of blue, brown, and white, which were especially preferred for Roman cameos. The term *nicolo* is used to describe a Roman banded agate intaglio with a blue top layer and a dark brown bottom layer; it is almost always of shape F 4. Green stones, often with dark inclusions, are called *plasma* (an incorrect term) in the catalogue, but several different types of stones, including *prase*, *chrysoprase*, and *aventurine*, are included in this term; all examples in the Getty Museum are varieties of chalcedony.

Very close mineralogically but different in appearance is the *jasper* group. These stones are opaque and usually red, green (called *plasma* in Philipp, *Mira et Magica*, p. 128, but not in this catalogue, see below), yellow, brown, or black, but sometimes several blotches of color are found in the same stone. The mottled jaspers were often used for Minoan and Classical Greek gems. Phoenician scarabs usually appear to be of green jasper, but analysis has shown that a variety of materials similar in appearance were used (see *BMC Tharros*, pp. 106–107). Red, green, and yellow jaspers became especially fashionable for Roman gems in the second and third centuries A.D. Also found in that period is green jasper with small red spots, usually highly polished, termed *heliotrope* and also known as *bloodstone*.

Two frequently used types of fine crystalline quartz are *rock crystal*, a colorless stone that appears to have been highly valued and used in all periods, from Minoan through Roman times, and *amethyst*, of violet color, which was occasionally used in the Minoan period, but rarely in the Archaic and Classical periods and most commonly in the Hellenistic and early Roman imperial age. *Citrine*, yellow in color and resembling topaz, was sometimes used in the early Roman imperial period, and the engravings on these gems are usually of fine quality, suggesting the stone was valuable.

Some rarer and presumably more precious stones were not of the quartz family. *Garnet* (either deep red or purple in hue) was not used until the Hellenistic period, when it became especially fashionable; it fell out of fashion, at least for intaglios, during the Roman period, but in the fifth century A.D. it became the favorite gemstone for jewelry of the Migration period. Other precious gems of the Hellenistic and early Roman imperial periods include *peridot*, *emerald*, *aquamarine*, *sapphire*, and *tourmaline*, but they are



found only rarely. *Lapis lazuli*, deep blue and sometimes with gold pyrite inclusions, was found in Afghanistan and evidently highly prized in Greece; it was used only rarely for Greek and Roman intaglios. From the same region but even less commonly used was *turquoise*.

*Obsidian*, a black volcanic glass, was occasionally used for gems since Archaic Greek times, and Pliny mentions statues made of the material (see D. B. Harden et al., *Glass of the Caesars*, exh. cat. [London, 1987], no. 6, for a fragmentary statue of a horse in obsidian). Glass and glass paste gems were used in all periods and usually imitate the color and shape of gemstones (see Philipp, *Mira et Magica*, pp. 141–142, for the chemical analysis of some glass gems). Seals of glazed quartz frit, termed “Egyptian Blue,” were made at the Greek colony Naukratis in Egypt (see *BMC Tharros*, pp. 106–107, for chemical analysis).

*Haematite*, an iron oxide, was frequently used for Near Eastern and Minoan seals, but rarely thereafter until the Roman imperial period. In Roman times it was regarded as having magical properties, and its use for intaglios was almost entirely confined to magic gems.

Some early seals, including Near Eastern, Minoan, Mycenaean, and Island Gems, are in stones conventionally called *steatite*. The term is incorrect, however, and most gems are rather of *chalcedony* or *serpentine*, which is usually opaque black, brown, green, or mottled. *Serpentine* is much softer than quartz and rarely used after the Early Archaic period. *Ivory*, also very soft and easy to cut, was most popular in the Peloponnesos in the Early Archaic period.



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Plate 1