

SASANIAN SEALS
 FROM THE COLLECTION OF THE LATE EDWARD GANS,
 AT THE UNIVERSITY OF CALIFORNIA, BERKELEY

By Guitty Azarpay

*With Contributions by Catherine Demos, Edward Gans, Lydia Gans, Wolfgang Heimpel, Anne
 Draffkorn Kilmer, Sanjyot Mehendale and Jeanette Zerneke*

I

PREFACE

*Anne Draffkorn Kilmer
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 1970-1972, 1990-1992, 1997-2000*

It is a great pleasure to write a preface to this volume on Sasanian Seals in the Edward Gans Seal Collection. I first met Dr. Gans in the early 1970's when I chaired the Department of Near Eastern Studies, at Berkeley. Dr. Gans, a lifelong collector of many fine things, was at that time completely engaged with his world-wide collection of seals from all periods of history. He had invited the illustrious Mesopotamian seal expert, Professor Edith Porada, of Columbia University, to visit his Berkeley home to assist him with the cataloging of his Mesopotamian cylinder seals. The three of us met together, on which occasion I was given my first viewing of what was and is a remarkable seal collection that ranges from the new world to China. It was also the first of many enthusiastic discussions about the future of his collection and about his hopes that it would one day be published.

Our early discussions imagined many forms of publication ranging from a simple catalog to something grander, as indicated by one of the titles we envisioned at the time: *A Prolegomena to the Study of Seals and Sigillography from the Fourth Millennium BCE to the Present*. Shortly after I became involved with Dr. Gans' plans and visions, I introduced him to my colleague, the Sumerologist Wolfgang Heimpel. As I recall, the two of them hit it off immediately, in part because they conversed in their native German, and in part because Heimpel understood from the outset what Gans' goals and hopes were about.

Together with Professor Guitty Azarpay, our ancient Near Eastern Art Historian in the department, Heimpel undertook to plan the future publications that would involve our graduate students from start to finish. Heimpel himself became so interested in the South and Central American seals in the collection that he devoted much of his time to their study and completed his catalog of those seals, to appear in a future volume of this series.

The study and cataloging was a slow and sometime tedious process for students and faculty mentors alike, and thus the publication has been many years in coming. After the transfer of the

seal collection to the Department of Near Eastern Studies in 1986, followed by Dr. Gans' death in 1991, the two daughters of Dr Gans, Lydia Gans and Lucy Kaplan, continued to urge us to bring to fruition the dream of their father. I take this opportunity to thank them for their enduring patience with us.

Here, at last, is the publication that Edward Gans imagined. Our only regret is that it could not be accomplished during his life time. But I am certain that he would be very pleased with the results that we have managed. And I know that all of us remember him with great admiration and fondness.

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FOREWORD

Guitty Azarpay
Wolfgang Heimpel

Acknowledgements

For the past decade, the Department of Near Eastern Studies at the University of California at Berkeley has housed a unique collection of some thousand ancient sealstones; they were donated to the University of California in 1986 by the late Edward Gans (1887-1991) whose expressed wish was to have the collection cataloged within a reasonable timeframe (see below, Edward Gans, "How It Came About"). We are grateful to the late Edward Gans for his generous gift to this institution, and to his daughters, Lydia Gans and Lucy Kaplan, for their solicitous interest in our cataloging effort and for their patience with its seemingly spasmodic pace of progress. The gift of Edward Gans has brought to our academic programs on the civilizations of the ancient world, precious material evidence, in the form of the glyptic arts, that has served as a valuable pedagogic tool in the training of a series of graduate students for more than a decade.

This project has benefited from the assistance and ministrations of numerous individuals, both within and outside the academic community. Foremost among these are the numerous graduate students who have contributed to the collection's study and organization. We wish to recognize in particular the efforts of those who prepared valuable technical information on the measurements, weights, and colors of the seal-stones. They also added bibliographical data and other relevant information to the entries on the Sasanian seals. We wish to thank Parivash Jamzadeh, who as Research Assistant to Professor Wolfgang Heimpel, cataloged the seals in 1984-85. We wish to express our appreciation also for the expertise in glyptics and the effort expended on the organization and maintenance of the Gans collection by Mr. Alfred Brown who was employed as "Senior Museum Preparator" to the collection in 1989-90. Subsequently, in

1996-97, Mr. Brown again served briefly in the training of a graduate student Research Assistant in the preparation of improved seal impressions.

In 1990-91, Jeffrey R. Zorn, then a graduate student in Near Eastern archaeology, set up a computer database in the Macintosh format and incorporated therein the available data on all the seals in the Gans collection. He also devised new storage cabinets for the seals, and reorganized the small archive of books on glyptics, donated by Edward Gans, that accompanies the collection of seal-stones. In 1991-92, Jennifer Ross, then a graduate student in Near Eastern archaeology, continued work on the database. She also refined and completed the entries on the stamp and cylinder seals from the ancient Near East. This work was conducted under the supervision of Professor Edith Porada who had initiated the study of the ancient Near Eastern seals in the collection, at the behest of Edward Gans, prior to the donation of seals to the University of California (see below, Edward Gans, "How it All Came About"). Dr. Porada's appointment, in the Spring of 1990, as Una's Lecturer in the Humanities, an endowment in memory of Una Smith Ross, at the University of California at Berkeley, offered our graduate students a valuable opportunity for discussion and consultation with this eminent authority on ancient Near Eastern glyptics (see, *Center for Middle Eastern Studies News Letter* XII:1, Fall 1990, University of California, Berkeley, p. 12). During the academic year 1992-93 Cathlyn Braunig, a graduate student in Near Eastern archaeology, explored the possibilities of computer generated images from scanned seal impressions. In 1995-97, Sanjyot Mehendale, then a graduate student in Near Eastern art and archaeology, reclassified the Sasanian seals in the collection according to a format devised by Dr. Rika Gyselen for the classification of Sasanian seal collections in Paris (see below, Mehendale, "Note on the Classification of the Seals"). Since 1997-98, Catherine Demos, a graduate student in Near Eastern art and archaeology, and a recipient of a Garrett W. McEnerney award, has served as Graduate Student Curator charged with the preparation of digital images of all the seal impression in the Sasanian corpus of the collection (see below, Demos, "Creation of the Archive"). In December 1999, April and December 2000, and February 2001, Koorosh Angali, a graduate student in Near Eastern Studies, prepared and corrected color slides of a large number of seals illustrated in the present catalog. We wish to thank John Carnahan for editorial assistance in the final revision of the text and its graphics.

The preparation of this catalogue has benefited from the moral and financial support of a number of University of California functionaries and research and teaching committees and agencies. We are grateful to Deans Joseph Cerny and Ian Carmichael of the Graduate Division, for a Graduate Division grant, awarded in 1989-90, that provided us with a Macintosh computer and the salary of the project's Senior Museum Preparator. On numerous occasions Dean Carmichael also offered his expertise in the determination of the composition of stones used for the manufacture of the seals in the Gans collection. Most recently, a Garrett W. McEnerney grant, awarded for 1997-98 and 2000-2001, funded the salary of Catherine Demos, a graduate student Graduate Student Curator to the project. In the past, this project has relied on computer resources and equipment made available to us by the Archaeological Research Facility of the Department of Anthropology, at the University of California at Berkeley. We wish to express our deep gratitude to the administration of ARF for their cooperation and for their support of this project. We are also grateful to the Center for Middle Eastern Studies for funds awarded toward the salary of our Technical Assistant during the Spring semester, 1999-2000.

We wish to acknowledge the encouragement and support of the project offered by many colleagues, in particular by Professors David Stronach and Anne Kilmer, during the terms of their chairmanships of the Department of Near Eastern Studies. We are indebted to Professor Philippe Gignoux, of the French National Center for Scientific Research, in Paris, for his reading of the Pahlavi inscriptions on the inscribed Sasanian seals in the Gans collection. We wish to thank Daniel M. Friedenberg, formerly Curator of Coins and Medals at the Jewish Museum, New York, for his report on a Sasanian seal in the Gans collection which he understood to bear a Hebrew inscription (Gans no. 109.3, which, however, has been identified as Parthian by Philippe Gignoux, see "Note on the Inscriptions"). Since its donation to the University of California in 1986, the Gans collection has been enriched by the gift of two Sasanian bullae, or sealings, one with at least five impressions and the other with two impressions, donated by Dr. William Ehrenfeld in 1988. A Sasanian banded agate seal, with images of a bull and a she-wolf suckling a human infant was donated by Manuchehr Mokri also in 1988, and two Ashanti gold weights and a book on the same weights, were donated by Mrs. Charlotte Bernt in 1990. We wish to thank Mr. Frank Kovaks, of San Francisco, for his help, on various occasions, in assessing the value of the seals in the Gans collection.

Finally, we are especially grateful to Professor Lewis Lancaster, Director of the Electronic Cultural Atlas Initiative, and to his team at Berkeley, and to Jeanette Zerneke, Director of Information Systems and Services, for their interest, collaboration and contribution toward our publication project. The realization of the electronic publication of our catalog would not have been possible without their collaboration.

Composition of the Collection

Edward Gans (1887-1991), originally a banker, settled in the USA, after fleeing from Nazi Germany, and made his living here as a dealer of ancient coins and fine arts of various kinds. Among the coins, medallions, and specimens of the decorative arts, he occasionally encountered sealstones and similarly engraved small objects. The numerous, often seemingly unanswerable, questions connected with these objects intrigued him and he started to build a collection. Yet he did not, like many before him, concentrate on specimens from a particular period or culture; on the contrary, he became increasingly fascinated by the fact that seal-like objects existed in so many areas and times, including even the pre-Colombian New World. Seeking out and keeping contact with leading scholars in various fields who could help him clear up questions regarding his growing collection, he became aware of the diffused nature of scholarly expertise and the need of a field of "sigillography," or "comparative sigillography." The story of the collection is told in his own words below under the heading "How It All Came About." He found receptive ears in the Department of Near Eastern Studies of the University of California at Berkeley, and in 1976 placed his collection on loan to the university so that it could be studied and eventually published. Ten years later he donated this collection to the university, together with an archive containing book publications on seals and similar objects, sets of archaeological magazines, and his correspondence with experts in various fields.

By that time, the seal collection had grown to almost a thousand specimens from across the globe. They come from all continents, except Australia, and date from the Neolithic to the present. Of course some areas and periods are better represented than others. The largest number of seals in this collection originate in the ancient Near East, Sasanian culture included; medium-sized collections come from China and Mexico, small collections from Japan, India, and

Crete, and a few specimens from Ecuador, Europe, Tibet, and Thailand. Not all the objects are seals. There are a number of sealings, including a sealed clay tablet inscribed with a cuneiform inscription, weights, miniature animal figurines, amulets, archer's rings, a lock made of copper and bone, spherical iron-ore concretions called worry-beads by Gans' informant, and other such sundry objects. Yet most are seals or at least stamping devices. Gans was quite concerned about terminology. He perceived that many of the objects may not have been seals in the strict sense of the word, that is stamping devices used to convey the authority of its owner. Were the pre-Colombian "sellos" from Mexico or Indian bronze stamps not "just" devices to apply a design on skin? If so, could they still be seals because they conveyed a divine authority upon the person stamped with these devices? How did the clay "rollers" found in a prehistoric site in Thailand function? Were prehistoric perforated "stamp seals" from southeastern Anatolia just buttons? Would, then, "sigillography" or "sphragistics" aptly identify the field of research for which his collection provided source material?

Such questions, he thought, should be investigated by experts, and his loan and then his donation was meant to bring that about. A stipulation of the donation was that the collection be catalogued and published "in a reasonable time." With the present volume, we begin paying our debt to Edward Gans and to his daughters Lydia Gans and Lucy Kaplan, who assumed the stewardship of the collection after the death of their father in 1991.

It is our intention to publish the remainder of the seals in the Gans collection in separate fascicles that are to be devoted to each of the broad regional categories noted above. The fascicles will be prepared by specialists who will utilize, where possible, information on the seals solicited from earlier scholars by Edward Gans (see below, Edward Gans, "How It All Came About"). The catalogue of the ancient Near Eastern seals, for which entries were originally prepared by Edith Porada, will be edited by Jennifer Ross; the Egyptian seals for which entries had been prepared by Dr. Fred Stross will be edited by Cathleen Keller. The volume on the seals from Europe and the Mediterranean world will be prepared by Barbara Forbes; that on the seals from South and Southeast Asia will be prepared by Wolfgang Heimpel, with a contribution by Geoffrey Cook. The catalogue of the seals from China and Japan, for which entries had been solicited earlier from Na-chi-liang, Curator of the National Palace Museum in Taiwan, Taipei, has been revised and expanded in 1992 by Derek Herforth, who was then a graduate student in the Department of Oriental Languages, at the University of California, Berkeley. The seals from Mexico and the New World, which had been studied and described by José Luis Franco, of Mexico City, will be catalogued by Professor Wolfgang Heimpel. Although it is our intention to publish these fascicles according to the format adopted in the present volume, departures from the format may be necessitated by the requirements of particular glyptic categories.

IV

EDWARD GANS, COLLECTOR

Lydia Gans

My father was a collector, a true collector. A true collector has a vision, an overall plan or *Gestalt* into which each piece must fit. The true collector has an aesthetic sense. Each piece must be beautiful, must have an intrinsic value in addition to its place as part of the collection.

And the true collector does not just buy things, put them on a shelf and talk about them. He or she knows each piece in its minutest detail while simultaneously having in mind a picture of the entire field. Building the collection, refining it, cataloguing it is his passion and his purpose.

A true collector always has to be collecting something, and can never understand that there are people who are not similarly inclined. Unlike my father, I am one of those not so inclined. All my life that was something of a bone of contention between us. In Germany before the Nazis came to power, he was a wealthy man and he and my mother lived in a spacious, ten room apartment in Berlin. My mother told of his consternation at her news that she was pregnant. "We have no room for a baby." It would not be a problem, she declared, "the African collection will have to go." That room would become a baby nursery. I know that he never minded that I took the place of the African collection, but he did keep one piece from it which I have to this day.

I remember his collection of ancient Jewelry. He had acquired some of the pieces back around the time of World War I and was forced to sell them in the thirties in order to survive and ultimately emigrate to the US. Later it became a goal for him to reconstitute that collection. Forty years later he bought back some of the same objects. He had collected the jewelry because it was of historical interest and because it was beautiful. "Jewelry was made to be worn by a beautiful woman." He cataloged each piece, established its provenance, described it and determined its origins. And my mother had a unique piece of jewelry to wear for all occasions. After my mother died and he was in his nineties, he decided to put the entire collection up for sale. "Art objects have to wander," was another of his principles. A posh Beverly Hills dealer included it in an elaborately staged auction, but the asking prices were too high for the market and almost none of the pieces sold. I recall him walking away from that auction with a big smile on his face, and each of his grandchildren now has a piece of ancient jewelry to enjoy.

We came to America with a collection of musical instruments. (Apparently the Nazis did not consider them valuable or important enough to confiscate them). There were early Italian string instruments by famous makers, each with unique qualities but all complementing each other so they could be used for ensemble playing. Both in Europe and America my parents regularly had people come to the house to play music and they were always welcome to use Dad's instruments.

Early days in the United States were difficult. At the age of fifty, with a small child and a glamorous wife who had been accustomed to living in luxury, he had to start all over again, from scratch, to build a career. Through a series of fortunate connections, he got into the coin business and became a numismatist. He had collected coins on a small scale earlier but now he could turn his passion for collecting into a business. It was a successful business and he gained world wide recognition for his contribution to the field of numismatics. There would be occasions when he would put a high price on a coin that he loved and really wanted to keep. A customer would come along who was as avid a collector as he was, and pay his exorbitant asking price. Dad would agonize over that for days.

When he was in his eighties he decided to "retire" and liquidate his stock of coins. But as always, he could not part with anything. He had a special box made to hold the very finest

examples from his collection which he meant to keep. Nor could he stay away from collecting very long (pl. 1)¹.

Forming his collection of seals was the most unique, far reaching and challenging project of his life. Indeed, he had to found a whole new field of study around the seals because no-one had ever organized it before. After conversations with his friends in the U.C. Near Eastern Studies Department he came up with the new discipline. Comparative sigillography. Having created the field, he proceeded with undiminished energy and enthusiasm to collect the materials for its study.

What makes this study so special is the broad scope and diversity of the objects. There are stamp seals and cylinder seals, they are crafted from metal, clay and various kinds of stones. They come from many parts of the world and cover a time span of several thousand years. And there is even a category of "seal related objects." As always, Dad did not just acquire these things and put them on a shelf. He set out to study them, to make impressions of them in clay, describe their origins and functions with the aim of making a catalogue which could encompass this vast collection and inspire others to continue and further the field of comparative sigillography.

Dad realized that he would not be able to finish the task which he had defined, so he turned the collection over to the University. Here, under the direction of the Department of Near Eastern Studies, the catalogue would be completed and published and there would be material for students to research for years to come. At last, his dream is beginning to be fulfilled.

¹ *Plate 1* shows Edward Gans at the age of 99 in the garden of his Berkeley home. Photo by Lucy Kaplan. Photo courtesy Lucy Kaplan and Lydia Gans.

V

"HOW IT ALL CAME ABOUT"²

Edward Gans (1989)

The first World War was already a year old. I was a soldier in the German army.

I requested a furlough, and I could spend three days, including the 27th of August, my twenty eighth birthday, at home in Berlin together with my beloved wife. Paula gave me a memorable birthday present: a golden seal-ring into which was mounted a lapis lazuli engraved with a goose, done by *Professor Lowenthal*, a Prague sculptor who in later years was a famous artist in London. I wore the ring for many years, and my grandson wears it today.

I resumed my banking activity after the war. The ring must have made an impression upon the personnel at my bank, because I was known among them as "Bluebird".

My heart was not involved in banking. It served me to build up a collection of classical antiquities, with the unique help of my wife Paula. After her passing I limited myself to collecting Classical coins. The twenties was a wild decade. Inflation, boom, bust, leading evidently to Hitler. I am a Jew. I had to leave my country, and I chose the United States as my new home, country and nationality. What should I do? I was already in my fifties, and had been only a banker. I could not be a banker in this country, because a banker needs money and I had none. And never in my life have I been a salesman. I chose to make a profession out of my hobby, and I became a coin and art dealer, specializing in the Classical period.

In these years of my retirement, looking back, I would like to give an account of my attitude toward my business relations and the strange way my instinct guided me toward the unusual field of collecting. There were some notable exceptions, but in general I felt closer to my suppliers than to my customers, and a "thank you" was expressed more heartily to a friend who sold me a fine coin or art object than to a customer who bought it. One supplier was the late *Dr. Jacob Hirsch*, the Dean of Numismatics as I called him, who frequently passed on to me beautiful objects and added valuable advice and interesting stories. Once he showed me the finest Greek gems from the collection of *Arthur Evans* mentioning that gem collecting nowadays is neglected. Another mentor was *Edward Newell*, the late president of the American Numismatic Society in New York. He was generous in advising collectors and dealers, and he showed me

² This account of the history of the collection was submitted to us with a second version entitled, "The History of a Collection of Ancient Seals," by the late Edward Gans, in 1989, for our future use in the preparation of the catalogue of his seal collection. The account given here, a composite of the two manuscripts, is presented with only minor editorial changes so as to preserve the purity of the narrator's personal style of expression. For further references to the same events, see Edward Gans' oral history, *Edward Gans, "Berlin Banker to California Numismatist, 1887-1987," an Oral History Conducted 1983-1987 by Ora Huth, Regional Oral History Office, Bancroft Library, University of California, Berkeley 1987.* The names of individuals involved in the history of the collection are italicized for easy reference. Footnotes are provided by G. Azarpay.

unusual items not otherwise accessible. I remember I once saw his Mesopotamian cylinder seals, a kind of seal very different from those *Dr. Hirsch* had shown me. In this connection I have to mention one other person, *Professor Ernst Herzfeld*, whom I met around 1944, and with whom I could establish a close friendship which unfortunately lasted only a few years, ended by his untimely death in 1948. He was a distinguished German Orientalist who had led the excavations at Persepolis, Samarra and Pasargadae. In this country he lectured at the Institute for Advanced Studies in Princeton. He and his sister visited us frequently in New York, and vice versa, and it was highly interesting and instructive to listen to his stories from the Orient and his philosophical thoughts about Zarathustra. I learned much from him. He had a fine collection of Classical coins, predominantly Parthian, which I sold for him at mail auction, publishing in the catalog a number of valuable comments by him. He also entrusted me with the sale of numerous antiquities in various fields especially "*Kleinkunst*." These objects were mostly of Near Eastern origin which at that time had a limited market. So it was a challenge to find interested buyers. I remember a charming collection of bone spindle whorls from early Persia which went to the Cleveland Museum. Another collection consisted of about a hundred stamp seals made of stone, oddly engraved. We frequently discussed them, and said that they were *very* early; probably made at a period when the conception of personal property was yet unknown. And hence the word "seal" was not appropriate. He preferred, perhaps half joking, to call them "buttons." Now I had to find a party who would be interested in acquiring a collection of "seals called buttons." I learned of the existence of a magazine published for American button collectors, called *Just Buttons*, and asked *Dr. Gerd Muehsam*, curator of the Cooper's Union in New York, to write an article about *Herzfeld's* "Buttons" based on *Herzfeld's* notes³. After its publication the president of the American Button Club approached me and bought the collection, being aware of the problematical character of the items. She still has the collection and would never part with it. For me it was an interesting episode at that time.

In 1958 and 1961 I visited Paris and Vienna, Rome and Athens, where I had family and friends, and where the art treasures were close to me through Greek and Roman coins. In addition to these places I visited mysterious Istanbul, a terra incognita which I was eager to know. Besides, I wanted to meet three friends; one whom I had known for many years, and the other two with whom I had only corresponded.

The first, *Burton Y. Berry*, American ambassador to various countries of the Middle east, I had met during the Second World War. I first visited him at the University Club in Washington where he occupied a modest room. I remember how he sat on an iron bedstead, where he showed me the most beautiful hoards of Philip gold staters. Later he came to see me in New York, sometimes late in the evening staying until the small hours of the day and then catching a plane to somewhere in the East.

When he retired he made an arrangement with Roberts College in Istanbul to build a fine house on the Campus that would become college property after his death. My wife and I saw him in his charming house, built with all conveniences and the plumbing imported from the United States. He collected coins, seals, and textiles, and he showed us photographs of his many donations to the American Numismatic Society in New York and to the Indiana University Art Museum in Bloomington. After lunch at his place he drove us around the country for several

³ See *Just Buttons, For Pleasure, Pastime and Profit* V:8, Somerville, MA, May 1947. A copy of this volume exists in the Gans Seal Library at Berkeley.

hours; we saw the Black Sea in the distance. As a collector he had a keen eye for quality and drove hard bargains for low prices. We got along very well but he dropped a deal when he thought the price was too high.

Next was *Hans von Aulock*. I knew him by correspondence for a number of years. He represented the Dresdner Bank of Germany in Istanbul, hence in a way we were colleagues, and when we met we spoke the same language, literally and figuratively. A friendship developed that has lasted to the present day. He is a passionate hunter and owns a hunting lodge somewhere in Anatolia, but also used to hunt for lions and crocodiles in South Africa. And he was also hunting for coins and antiquities. Numismatics was more than a hobby for him; he published several books and articles in his chosen field, which are as fundamental and accurate as any written by professional scholars. When we visited his house, or I should rather say his mansion, the first thing we saw was a large study, well over 40 feet long, one wall lined with coin cabinets filled exclusively with coins from Anatolia. Another wall was covered with books. After we had looked at some coin series he led us to other rooms. One was filled with bronze figures and animals and another with ceramics recently discovered. Beautiful carpets were in all rooms. When we sat down *Aulock* showed us a seal collection, stamp seals and cylinder seals, which awakened old recollections. I would not have asked *Aulock* whether he would eventually dispose of some of his coins, he was obviously too avid a coin collector. But now we were talking about seals, and I asked him whether he would ever sell his collection. He replied that he might and that he would give me the first refusal. At my next visit, three years later, I asked him again, and that was a shock to him. He had forgotten his promise and had sold the collection a couple of months before my visit. He repeatedly apologized, shook his head, and walked around his study aimlessly. Suddenly he cried out: "I had sold to *Mr. Szaccos* only the cylinder seals, and I forgot the stamp seals. Here they are, and they are yours!" He brought a cabinet, 25 inches high, filled with about 150 seals. He asked a very reasonable price and the deal was closed in a minute. I had not even looked closely at the seals at that moment, but when I did at the hotel old memories came back. Most were exactly the same kind of seals the *Herzfeld* collection had consisted of. And with it the old problems and questions came to the fore. While 16 years earlier it had been strictly a business affair, for the benefit of a friend and customer, it now became something different. My instinct told me: keep it. Try to find some answers to the problems discussed by *Herzfeld*, and, maybe, this portion of the *Aulock* collection will become the nucleus of a new collection. And it did. I carried the seals home in an old towel, but back in Berkeley I looked for a dignified place and found a cabinet with a dozen drawers which once served for a collector of bird's eggs. The cabinet was standing next to my steel coin cabinet with eighty drawers, and I hopefully was seeing the coins vanishing and the seals growing⁴.

About a year later, in 1962, our friend *Dr. Edith Porada*, professor at Columbia University, New York, visited us. I showed her the *Aulock* seals, and she said that a number of them were the earliest seals ever known, going perhaps back to the fifth millennium, and that they deserve closest study. She expressed her willingness to catalog them and said she intended to use the material for the second volume of her *Corpus of Near Eastern Seals in North American Collections* which is to describe stamp seals. (The first volume describes the cylinder seals of the *J. P. Morgan* collection.) The collection was packed up and shipped to New York.

⁴ Today, the wooden cabinet, with a dozen drawers, still houses the bulk of the seals in the Gans collection, originally numbered according to cell numbers in each drawer..

A third friend in Istanbul was *Wladimir Elagin*, a Russian émigré who had lived in Turkey for several decades and never could get rid of his fear of the police and the KGB. One of my finest Gnostic seals comes from him. He and his wife invited us at our first visit for a cup of tea to his apartment; it consisted of two small, dark rooms. During my last visit he showed me Prinkipo Island in the Bosphorus, and pointed out the location where a famous hoard of more than 200 gold and electrum staters from Cyzicus had been unearthed in 1930. Of this hoard he obtained some especially fine pieces, which I eventually could add to my collection.

In 1962, at 75, I felt I could still continue my numismatic activities. They kept me busy, and I practically forgot about seals, picking up only some Greek or Roman or Byzantine seals as they came with coins.

The next push came in 1965. I had an order from *Mr. Arthur J. Frank* in Milwaukee for a complete set of Aes Grave (cast Roman bronze coins). The set consists of six denominations, and I succeeded in finding them all. *Mr. Frank*, who is a trustee of the Milwaukee Public Museum, gave the coins to the museum. He wrote an article concerning these Roman coins, which was published in *Lore*, the periodical of the museum.

Next to his article I found an article by *Dr. Stephen F. Borhegyi*, the director of the museum, entitled, "The First Printers of the New World," and through the illustrations I got acquainted with Mexican seals not knowing that such things existed. I wrote to *Mr. Frank* who in turn brought me in contact with *Dr. Borhegyi*, and a pleasant correspondence was established, in the course of which *Dr. Borhegyi* offered to procure me some pieces during his next visit to New York. Indeed, several months later a New York dealer sent me eighteen such pieces with a rather summary description. In addition, *Dr. Borhegyi* wrote me several times that he could acquire a number of Ecuadorian seals, which he intended to split in two lots if I would pay the price for the full lot. I agreed, since I would assist a museum and at the same time acquire something new.

I was nearing 80, and my thoughts revolved around retirement, the disposition of my numismatic library, the liquidation of my stock, and, since I had a horror of leisure, the development of my hobby of seal collecting into something more serious. Retirement came easy. The boom in the coin market transformed collectors into speculators, and in my heart I was still an old-fashioned collector. The sale of my library to the University of California in Los Angeles was equally easy. I gladly parted with the books (on numismatics) since a library has to grow, and I had no more space. I also liquidated my stock.

As for seals, stimulated by *Dr. Borhegyi* I looked for Mexican connections. Again good luck was on my side. An old acquaintance of mine from Germany had become a collector of Latin American art, and I could re-establish this acquaintance through a local friend of mine. He collected practically everything Mexican except seals, so I was no competition for him. Having taken an interest in my aims he was kind enough to pass on to me such seals which were really worthwhile, since his judgment was outstanding. In the course of several years, I could assemble some hundred fine Mexican seals from the Olmec to the conquest period, including two specimens which are probably the largest known to exist.

At about that time I met an Egyptian dealer who had moved from Cairo to the Bay Area. I have a profound respect for the skill of Egyptian fakers, so every time I met the dealer I was accompanied by my friend *Dr. Fred Stross*, a chemist and an expert Egyptologist, born in Egypt, who reads hieroglyphs as we read newspapers. On two occasions we bought some fine seals. Once Fred had to fly to Egypt professionally, and also to see a lady whose husband, a collector, had died. Sure enough, Fred obtained some rare pieces for me and my Egyptian section is now quite representative.

While writing this I am trying to explain to myself my own actions at that time. I have lived with coins for more than fifty years. Now it was equally so with seals. I was striving beyond the beautiful; to be sure, the finest commanded high prices, but so many other beautiful ones were still neglected. Maybe, I was out for discovery. What did I *not* have? The Mesopotamian stamp seals had to be complemented by cylinder seals of the same provenience. Besides, I was keen to learn more about "the beginning." Finally, my tendency always was not to specialize in a few fields, but to spread my interests.

I subscribed to auction catalogs listing "seals" from the various London and Paris firms and from the auction house of *Parke Bernet* in New York; others came my way by themselves. I studied them and sent bids to my agents in several places requesting them to examine the lots and my prices, and to buy, using their best judgment. All in all, it worked well. I could add a rare group of early Cretan seals, and a number of Near and Middle Eastern pieces to my collection.

By 1968 my library (on numismatics) had gone to UCLA, all commercial liquidation arrangements were settled or at least prepared, the ancient Near Eastern seals were returned from Columbia University (*Professor Porada* sent the first draft of her catalog a year later), and I was a collector again.

At this point I would like to introduce *Felix Tikotin* whom I have known since the early 1920's. He was a dealer of Japanese art in Berlin, whereas I had collected only Chinese art. So we never competed, but helped each other when an opportunity arose. Besides, we had common interests in many other fields. He was the leading Japanese art dealer in Germany and arranged important exhibitions at his gallery at Kurfürstendamm in Berlin. The most successful and best publicized one was around 1928 when he showed the famous paintings and screens from the collection of *Professor Ernst Grosse*, Freiburg, who had died a year or two earlier. Immediately after the advent of the Nazis he left Berlin and moved first to Holland, later to the United States, then back again to Holland (two years in the underground), then to Israel and Switzerland. He was always a generous benefactor and in 1960 founded the museum of Japanese art in Haifa, endowing it with virtually his entire stock and his valuable library. Since then his goal has been to enrich this museum. For this purpose he travels repeatedly to Japan and Europe. Frequently he flies from Japan via the United States to his home in Switzerland, making a stopover in San Francisco to visit us. One of these visits occurred in 1968, on Christmas Day, when we had a party at our home. When he saw my seals, he mentioned that the old *Mrs. Grosse* had died years ago, and that *Professor Grosse's* only daughter, who had retained some porcelain and the seals for sentimental reasons, was now ready to dispose of them. Did I want them? At any price you say, I answered. A few months later I was the happy owner of probably the finest collection of Oriental seals in existence. A local friend of mine could add some more pieces, stemming from a Japanese dealer in San Francisco who had died at that time.

Throughout my life I maintained a desire to know as much as possible about everything I had in my collection. This was true during my activities as professional numismatist in the United States. When a student bought a coin for five dollars I told him that he had paid for the coin only one dollar, but that the label cost him four.

Scientific and less scientific works on catalogs on Greek and Roman intaglios have been published for centuries. Serious studies on Egyptian seals started around the turn of this century, followed by similar studies on Mesopotamian material in connection with the discovery of clay tablets from ancient libraries. Studies of seals occurred simultaneously.

But serious studies on Latin American seals do not exist, although occasional discussions of this and that aspect can be found. The same is true for Far Eastern seals, at least as far as Western languages are concerned.

I looked around for help on Latin American seals. I had met *Professor Robert Heizer* at the University of California's Mesoamerican archaeological program. He suggested *Mr. José Luis Franco* in Mexico City as the only authority and was kind enough to serve as mediator between him and me by sending *Mr. Franco* the impression of the seals and then returning the impressions with *Mr. Franco's* descriptions to me. I learned in this context what "mañana" means.

Now the New World was "cleared," but the mysterious East remained. Reluctantly I approached an old friend, *Professor Otto Maenchen-Helfen* here in Berkeley. Before I had acquired the *Grosse* collection I had bought a single bronze seal of the Han period, showing four Chinese characters, from *Oscar Gerson*, Berkeley, who owned a distinguished collection of Chinese art. I gave the seal to *Maenchen*, who returned it after six weeks with a translation and the remark that it was difficult to read, and that he was not quite sure whether his interpretation was right. (Another American sinologist to whom I showed *Maenchen's* translation some time later said it was not correct, but a Chinese authority decided eventually that *Maenchen* was essentially right.) Before I could show him other seals, he passed away⁵.

Who could help now? I asked *Arthur Frank* from Milwaukee whom I mentioned earlier and who had established my contact with *Dr. Borhegyi*. He told me that *Borhegyi* had died in an automobile accident, and that his successor, *Dr. Kenneth Starr*, had been for seventeen years at the Field Museum in Chicago and, hence, would probably be able to help. I sent half of my Oriental seals to Milwaukee, and waited. About a year later I had some business in Chicago, so I visited Starr in Milwaukee at this opportunity. He showed me all my seals standing on a little table in his office, and explained that colleagues are visiting him from time to time, and he always shows them these seals gathering information. I realized that this method would take a lifetime, but of a younger man than I was.

The only source material on Chinese seals I had been able to find was a privately printed catalog of a collection of some forty seals belonging to *Ralph C. Lee*, printed in 1966, and written by *Na Chih-liang*, curator at the National Palace Museum in Taichung, Taiwan, since 1925. It so

⁵ Otto Maenchen-Helfen, whose last work, *The World of the Huns, Studies in Their History and Culture*, was published by the University of California Press in 1973, died at Berkeley in 1969.

happened that on the occasion of my visiting a cousin in San Francisco, she mentioned that her nephew was the representative of a leading German pharmaceutical firm in Taiwan. I asked her to forward a letter to him inquiring whether this *Mr. Na Ching-liang* was still around, and if so, whether he would be willing to write a catalog for me. Shortly after, the reply came: he was indeed still around, the pillar of the museum, and willing to help. Next month he was going for a year to Minneapolis to work there at a famous Chinese collection. I got in touch with him there: he was willing to undertake the job, and the problem now was, how to handle it. I first had to contact *Dr. Starr* in Milwaukee, a somewhat diplomatic mission, but it turned out that he was glad that I found a way, and especially this one. *Na* was a world-renowned authority whom *Starr* had visited only a year earlier. So he was glad to meet *Na* again. I sent the balance of my Oriental seals to Milwaukee, and *Dr. Starr* arranged a meeting with *Na* in Milwaukee. During the next days *Na* made the necessary notes for preparing the catalog. Two weeks later I received from him a complete catalog of some twenty pages with full descriptions of every seal together with their Chinese inscriptions and their transcriptions. A Western scholar had needed six weeks for one seal; this Oriental scholar could handle a hundred seals in 18 days. But one problem remained. *Na*, in order to write the catalog in English, had to use a Chinese-English dictionary, and many of his expressions were unclear or unintelligible. This problem was solved when *Na*, during a stop-over in Berkeley on his way back from Minneapolis, stayed a day at my house, and I arranged a meeting with my friend *Max Knight*, of the University of California Press. Both fought it out in the course of some twelve hours, and finally everything was cleared up. I was the owner of a scientifically described Chinese collection of finest pedigree, and I had gained a new friend in *Mr. Na*.

The seventies flew by. I handed over my whole collection of seals to the University of California at Berkeley. It was a source of satisfaction to me when I was invited to a seminar and watched the students' faces as they handled the individual seals. In the summer of 1983 I had a call from *Wolfgang Heimpel*⁶. "There will be a sale at Christie's of some 350 Sasanian seals. I do not think that such a quantity will ever again be sold at auction. It is a chance of a lifetime for our university." I could not say no. I contacted the London firm of Baldwin to act as my agent at the auction. The seals were offered in five lots. I got the news from Baldwin that they had bought the whole collection, except for fifteen pieces which were portrait seals and which reached too high a price. Then six months later, in 1984, *Guitty Azarpay* notified me of the availability for purchase of another group of Sasanian seals, from which I selected thirty specimens, nine of which were portraits⁷.

With the exception of a few minor pieces, my collection has now been described by leading authorities, and it could and should be published. But, while starting to study the seals and the catalog, I began to ask questions. I put them down in the form of notes, realizing I would never be able to find answers at my age. To give just one example: we speak, in several languages, of seal/sceau/siegel/sello, and the meaning is the same. But in fact we may be looking at a button, an amulet, a talisman, a token of identity, a medical tool, or something to serve entirely different purposes.

⁶ Wolfgang Heimpel, Professor of Assyriology, at the Department of Near Eastern Studies, the University of California, at Berkeley.

⁷ This paragraph is a summary of various accounts given about these purchases in the *Oral History* of Edward Gans and in his manuscript, "How It Came About."

The almost miraculous way in which so many items have come into my possession created in my mind a feeling of obligation to let science share in this strange accumulation. There are many collections of seals covering one country or civilization, each many times richer than mine, but most of them in public hands. But to my knowledge no collection exists which combines specimens, and carefully selected ones at that, from some fifty different countries and civilizations. I compared my new hobby of seal collecting with my old one, collecting coins. Coins had been collected since the time of Augustus, but numismatics became a science only 200 years ago, serving as an auxiliary for many other disciplines. Should not *comparative sigillography* also become a new discipline comparable with numismatics? I found an echo of my thoughts at the Department of Near Eastern Studies of the University of California in Berkeley. An agreement between the university and myself is in the making to the effect that the whole collection together with my library and the accumulated scientific material will become a loan for five or more years. I fervently hope that the University will continue to work on our project and reach the goal we have set. Then our estate may transfer our loan into a gift.

Both my wife and my daughter, Lydia Gans, share my desire to let science profit from my activities. I feel that if it works out as we visualize it now my life will have been useful in a modest way.

VI

INTRODUCTION TO THE CATALOGUE

Guitty Azarpay

- 1 *History and Composition of the Sasanian Seals in the Gans Collection*
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1

History and Composition of the Sasanian Seals in the Gans Collection

Sasanian glyptics in the Edward Gans collection are represented by 377 seals and two bullae, the majority of which were added to the collection after 1984. Prior to that date, only 15 specimens of Sasanian seals had been acquired by Edward Gans from various dealers and friends. In 1984 two separate groups of Sasanian seals were added to the collection, represented by 321 specimens from the collection of Sir Harold MacMichael, purchased at a London auction, and a second group of 29 seals purchased under the rubric of the "Guravanchi" collection, from Mr. Manuchehr Mokri of San Francisco (see Edward Gans, "How It All Came About"). In his accounts of these acquisitions, Gans explains that his purchase of the Mokri seals was motivated by the desire to acquire Sasanian "portrait" seals. The Mokri "portrait" seals were thus intended to fill a gap in the McMichael collection which had lost this thematic category of seals to another collector. In 1988 the Gans collection received the gift of a Sasanian banded agate, decorated with the image of a she-wolf suckling a human infant, from Mr. Manuchehr Mokri, of Walnut Creek, California, and two Sasanian bullae from Dr. William Ehrenfeld, of San Francisco.

The present writer's role in the preparation of this catalog has been as project director, teacher, and specialist on Sasanian art and culture. The catalogue is ultimately the result of the combined efforts of the author and of a number of graduate students enrolled in the department's courses, seminars and Independent Study projects. The present project was initiated in 1988, with the preparation of notes on the stones, shapes, measurements, and decoration of individual seals, by

Parivash Jamzadeh who subsequently received a doctorate in Near Eastern Studies at Berkeley. The project was continued in 1990 with the assistance of Jeffrey Zorn, a graduate student in Near Eastern Studies, who created the initial database for the project. Zorn, too, has since completed a doctorate in Near Eastern Studies at Berkeley. The classification of the Sasanian seals was completed with the assistance of Sanjyot Mehendale and Catherine Demos. Mehendale, who has since completed the doctorate in Near Eastern Studies at Berkeley, has classified the Sasanian seals according to the model that was devised by Dr. Rika Gyselen in her catalogues of Sasanian seal in several collections in Paris. A commentary on the classification of the Gans seals is offered below by Dr. Mehendale in "Note on the Classification of the Seals." Catherine Demos, is to be credited with the preparation of digital images of all seal impressions in the Sasanian corpus of the collection. This project has relied on computer resources and equipment made available, in 1998-1999, by the Archaeological Research Facility of the Department of Anthropology, at the University of California at Berkeley, as discussed above in "Creation of the Archive."

2

Organization of the Catalog

The present work provides a comprehensive analysis of all seal stones in the Gans collection that are attributable to the Sasanian state. It also includes several later Persian seals that date to the Islamic period. Each seal is given an *Acquisition*, an inventory or *Berkeley Catalog Number*, and a *Serial Number*. Catalog entries provide information on the physical characteristics of each seal with reference to its dimensions, stone or material of its manufacture, color, shape, the subject matter of its decoration, and, when present, its inscription. Artistic style is noted only when it is remarkable.

Acquisition Numbers, coded to indicate the source of each seal, show three different groups of seals. Those that begin with the Roman numeral *II* refer to seals that originated in the collection of Sir Harold A. McMichael, and *Acquisition Numbers* that begin with Arabic numerals *137* come from the Manuchehr Mokri collection (also referred to as "Guravanchi"). All other *Acquisition Numbers* refer to seals purchased or obtained individually from other sources.

The *Berkeley Catalog Number* is determined by the subject matter of the carved decoration on the seal. The subject matter of the composition on the seal face is analyzed in terms of *iconographic theme* which, according to the definition given by Rika Gyselen, refers to the relationship between two principal motifs, represented by the subject and the object of an action⁸. However, the majority of Sasanian seals bear only single motifs; they may occur in isolation, with secondary motifs, or with inscriptions. The sequence of motifs on Sasanian seals is presented in this catalog according to the format adopted by Gyselen which begins with aniconic, or non-figurative compositions, followed by the human figure, the human bust,

⁸ Cf., Philippe Gignoux, Rika Gyselen, *Catalogue des sceaux, cameés et bulles sasanides de la Bibliothèque Nationale et du Musée du Louvre* II, Paris 1978.

animals, fantastic beings, plants, and inanimate objects; it is concluded with devices or monograms⁹.

The *Berkeley Catalog Number* has three components that encode information about the seal's decoration. The three components are an Arabic numeral, a letter of the alphabet, followed by another Arabic numeral. The first numeral identifies large categories or series of motifs or pictorial themes. For example, series 10, 13-16 describe images of humans, series 30, 33-34 treats animals, and series 50 refers to plants. The second component of the *Berkeley Catalog Number*, the letter of the alphabet, identifies a specific motif within a given series. The third and last component of the *Berkeley Catalog Number* is a sequence number. Thus *Berkeley Catalog Number* 10.A.1 identifies a human figure, female, shown in a standing posture. A complete list of the seals in the collection by their Berkeley Number is shown in the "Conspectus of the Catalogue of Sasanian Seals" by Sanjyot Mehendale.

An early model for this glyptic coding system was first devised by Françoise Digard et al., in France, in 1975¹⁰. The complexity and awkward graphics of Digard's pioneering study were criticized, but may be excused by the study's broad coverage and by the inadequacies of computer technology at the time of its preparation¹¹. Although Digard's computerized study of ancient Near Eastern seals was discontinued, a simplified version of its glyptic coding system was adopted by Rika Gyselen in her hard-cover publications of several collections of Sasanian seals¹². The present catalog, which is indebted to Gyselen's glyptic coding system, is the first electronic publication of Sasanian seals. This is made possible through advances in computer technology and the use of digital imaging of seal impressions.

The database for the present study contains information not only about the seal's pictorial theme and motifs, but also about its shape, material of manufacture, iconography and inscription. This database has the potential for much creative manipulation of information, as for example, in searching for answers to questions about a given seal's commercial use, its socio-religious significance, its date, and its specific provenance.

The Serial Number refers to the numerical order of the seals in the Gans collection.

⁹ Ibid.

¹⁰ F. Digard, et al., *Répertoire analytique des cylindres orientaux* I-III, Centre National de la Recherche Scientifique, Paris 1975. Some 4,600 cylinder seals from the ancient Near East are used here for the creation of a glyptic coding system and a database, accompanied with over 4,700 index cards with hand-drawn illustrations of seal impressions. For a critical review of this work, see E. Porada, "Problems of Method in the Archaeology and Art History of the Ancient Near East," *JAOS* 102.3, pp. 501-506.

¹¹ The *Répertoire* has three volumes of text, a reel of computer magnetic tape and over 4,700 index cards bearing photographs or drawings of seals.

¹² Gignoux, Gyselen, *Catalogue des sceaux, cameés et bulles sasanides* II; Philippe Gignoux, Rika Gyselen, *Sceaux sasanides de diverses collections privée*, Leuven 1982; Rika Gyselen, *Catalogue des sceaux, cameés et bulles sassanides* I, Paris 1993.

Particulars of the Sasanian Seals in the Gans Collection:

Gans' Interest in Seals
Function and Patronage
Note on the Inscriptions, by Philippe Gignoux
Stones and Materials
Shapes
Artistic Style
Iconographic Theme
Chronology

Gans' Interest in Seals

In "How It All Came About," and in his oral history, Edward Gans attributes his interest in glyptics to reasons that have attracted others to the field; namely a fascination with small scale art, and the similarity between glyptics and numismatics, the collection of which remained that collector's principal hobby¹³. Indeed, like coins, seals are the most ubiquitous artifacts found at Sasanian sites in Iran and Mesopotamia. But unlike Sasanian coinage which is highly standardized in form and content, Sasanian seals vary in shape and decoration.

Function and Patronage

As in the earlier civilizations of the ancient Near East, the seal in Sasanian Iran functioned as a guarantee of a sealed document in commercial transactions and in administrative records. Archaeological evidence of the use of the Sasanian seal is preserved in ancient seal impressions found on bullae. The bulla, a wet lump of clay impressed with a seal as voucher, was originally attached to strings that once wrapped a document or letter. The bulla was broken and discarded only at the time of the use of the sealed article. Collections of bullae, found in deposits, are known from a number of Sasanian sites where they were stored in archives. The impressions of Sasanian seals, preserved on clay bullae, suggest that seals functioned as validations of documents, and as guarantees of exchanged goods and services in both an administrative context and in the private sector of Sasanian society¹⁴. Sasanian bullae, represented by two specimens in the Gans collection, have a convex face and a flat back, with traces of perforations left by strings that once attached the bullae to the sealed objects. The total absence of impressions on bullae which bear certain iconographic themes, such as the so-called "Gayomard" motif, has led to the identification of this class of seals with talismanic and prophylactic functions¹⁵.

The owners and patrons of Sasanian seals are sometimes identified through the study of a seals' inscriptions, through evidence of the seal's function or use and, occasionally, by means of

¹³ For a fuller discussion of similarities between numismatics and glyptics, see Göbl 1973, IX, *passim*.

¹⁴ Gyselen 1993, pp. 57-59.

¹⁵ Gyselen 1993, p. 58.

information obtained from literary sources. Sasanian seals were generally produced either for administrative or private purposes. Administrative seals, which are absent from the Gans collection, are generally aniconic and exclusively epigraphic, giving the names of administrative provinces and titles of offices such as those of finance and justice, both of which offices were held by the Zoroastrian clergy¹⁶. Such seals were evidently introduced at the time of the administrative reforms initiated by Kavad I (488-497) and implemented under his son, Khosro I (531-576). Also absent from the Gans collection are seals of royalty and of important functionaries which usually bear the owner's bust, accompanied with an inscription giving the latter's name and title. The Gans seals, like the majority of Sasanian seals known from other collections, are private seals that are distinguished by an iconographic motif, sometimes accompanied with an inscription. The rich and varied iconographic motifs found in this class of seals, a reflection of the cultural and religious traditions of Iran and Mesopotamia in Sasanian times are only indirectly explained by the inscriptions that sometimes accompany them¹⁷.

Note on the Inscriptions, by Philippe Gignoux

Unlike Greek and Roman seals which are generally uninscribed, Sasanian seals of high quality or of functional importance usually bear inscriptions. Such inscriptions usually give a proper name, often followed with a patronymic, and occasionally with a pious or auspicious phrase, such as "be generous!" or "trust in god!"¹⁸. The glyptic scripts used for Pahlavi, the Middle Persian language of the Sasanians, are based on the lapidary script, found on Sasanian reliefs of the third century, and the cursive script used in the chancery and for commercial activities¹⁹. Scripts other than Pahlavi, found on seals identified with the Sasanian tradition in other collections, are Parthian, Sogdian, Aramaic, Syriac and Arabic.

Forty five seals in the collection under study bear inscriptions of which the largest number is in Pahlavi, one in Parthian, and three in Arabic; several seals bear pseudo-inscriptions that are either forgeries or unintelligible. Their transcriptions and translations are offered below; they are also repeated in the catalog entry for each of the inscribed seals. The inscribed seals include a small number of specimens that are unfortunately badly damaged, with inscriptions that are incomplete. Many of these are limited to the simple familiar formula of *rast*, "just, right;" others are private seals inscribed with the names of their owners which are often difficult to identify. Nevertheless, several new names are noted on these seals and may now be added to the repertory of personal names published in 1986 (see Philippe Gignoux, *Noms propres sassanides en Moyen-Perse épigraphique*, *Iranisches Personennamenbuch*, Fasz. 1986).

¹⁶ Gyselen, 1993, p. 55.

¹⁷ Ibid.

¹⁸ Brunner 1978, cf., pp. 141, 143.

¹⁹ Brunner 1978, p. 139.

List of Inscriptions:

- 002 (10.A.02): at 11 o'clock, cšmky *Cašmag*, personal name, female, cf., Gignoux, *Noms propres sassanides, op. cit.*, no. 266, p. 67.
- 031 (11.01): from 5 to 7 o'clock, four or five signs, that may be read with reservation, ldybg *rad bay*, if not a personal name, then the two titles "judge" and "lord" may explain the scene represented just above, showing a seated personage who receives homage or an oath from a man standing before him. This remains, however, a hypothetical interpretation.
- 037 (14.01): at 2 o'clock (?), [yz]dc[tr ?] . . . *Yazd-čih*r, personal name, male. This reconstruction remains doubtful since the inscription is very damaged.
- 043 (20.B.01): at left of 10 o'clock, 'y, several letters apparently without meaning; to the right, in negative: t'y ?
- 045 (20.B.03): letters without meaning, the seal appears to be a forgery.
- 046 (20.C.01): Parthian inscription, that may be read as: hwtwy't hy'rky = *Xwataw-yāt* "having a portion from the Lord", cf., *Dām-yāt* "having a portion from the Creator", apud D.N. MacKenzie, "Some Names from Nisa," *Peredneaziatskii Sbornik IV*, Moskva 1986, p. 109. The second word could be read as *hayyārak* "friend", an epithet or patronymic name?
- 079 (30.E.01): at 4 o'clock, mtr'twr[pl]nbg *Mihr-Ādur-Farrbay*, personal name, male.
- 099 (30.I.01): at 4 o'clock, mh(w)wyn . . . ?
- 102 (30.J.02): at 5 o'clock, l'st *rāst* "just, right".
- 124 (30.K.01): at 10 o'clock, an inscription without meaning.
- 126 (30.K.03): at 3 o'clock, y'st (for l'st) *rāst* "just, right".
- 127 (30.K.04): at 12 o'clock, b'p(y) *Bāb*, personal name, male.
- 128 (30.K.05): at 6 o'clock, whd't *Weh-dād*, personal name, male, cf., Gignoux, *Noms propres sassanides, op. cit.*, no. 977.
- 131 (30.K.08): much deteriorated inscription, illegible.
- 145 (30.K.22): at 11 o'clock, l'st *rāst* "just, right".
- 149 (30.L.01): at 11 o'clock, mym' (QDM' ?) Y mgw Y wlhl'n, "Mēmā, mage, son of Wahrām". The first name is difficult to identify as an Iranian name, perhaps of Syriac origin?
- 150 (30.L.02): at 5 o'clock, wlh[l'n] *Wahrām*, personal name, male (followed by several letters?).
- 151 (30.L.03): at 5 o'clock, b'k [gw]šns(p?) *Bāg-Gušnasp*, personal name, male.

- 153 (30.L.05): at 5 o'clock, l'sty *rāst* "just, right".
- 158 (30.L.10): at 3 o'clock, l'sty *rāst* "just, right" (the "l" is apparently written as "y").
- 165 (30.M.03): at 5 o'clock, 'psy' (?), perhaps an abbreviation for *abestān ō yazdān* ?
- 180 (30.S.01): at 12 o'clock, dynšwy *Den-šōy* "husband of religion"?
- 183 (30.S.04): at 11 o'clock, mtrb *Mihr-(āb)*, personal name, male.
- 202 (30.S.22): several illegible letters.
- 236 (30.X.04): several letters, perhaps [ŠP]YR *weh* "good".
- 238 (30.Y.01): at 4 o'clock, [y]zdt *Yazd*, personal name, male.
- 279 (40.A.09): at 5 o'clock, 'ph(n)sm'n: undoubtedly a personal name, but its beginning may be read as *Āb-* . . .
- 282 (40.A.12): at 1 o'clock, w(lhl)'n *Wahrām*, personal name, male.
- 285 (40.A.15): much deteriorated inscription, perhaps . . . (')c[špw]hry ?
- 289 (40.B.01): at 1 o'clock, in lapidary script, [yz?]dk(lt)ZY mt[ry?] *Yazdgird ī Mihr* "Yazdgird, son of Mihr".
- 310 (40.B.22): at 4 o'clock, 'y . . . ?
- 315 (40.B.27): at 5 o'clock, l'[s]ty *rāst* "just, right".
- 337 (50.A.11): at 2 o'clock, l'st *rāst* "just, right".
- 347 (70.03): at 3 o'clock, in lapidary script, . . . ('y)lnln(m)h ?
- 362 (70.18): at 3 o'clock, 'pst'n yy "Confidence [in the gods]".
- 370 (100.02): Arabic inscription in Kufic script, *tawhid*, perhaps a personal name, a word for "unity", or the fifth degree of Sufi perfection.
- 371 (100.03): Arabic inscription, recto: several words, ending with Ali, second line several words. Verso: Ali . . . ašr "Ali . . . ten".
- 372 (100.04): ²¹ in center, in Arabic, *Yā Muhammad*, around it, an illegible Pahlavi inscription.

²⁰ This inscription was read by Dr. Muhammad Siddiq

²¹ This inscription was read by Dr. Muhammad Siddiq

Stones and Materials

The Stones and materials of manufacture of Sasanian seals, discussed in detail by Bivar, Göbl, Brunner and Gyselen²², include varieties of quartzes, mostly chalcedonic, identified in this catalog, as elsewhere, by short references using popular names. Other materials used for the manufacture of Sasanian seals are various silicates, carbonates, iron compounds, and artificial materials. By far the largest group are quartzes, the macro crystalline form of which is attested by a few specimens of rock crystal, and the micro crystalline form of which is represented by carnelian, jasper, onyx, and agate. A smaller number of seals are manufactured from other silicates, such as garnet, lapis lazuli and jadeite, or carbonates, represented by calcite and marble, Iron compounds (hematite, and meoric iron), and artificial compounds, such as bronze and glass.

Shapes

The physical shape of the Sasanian seal, the criterion used for the classification of Sasanian seals in the Metropolitan Museum of Art, in New York²³, is represented by a small group of ring-bezels and stamps. These shapes are comparable to the shapes of Roman seals of the third and fourth centuries; they differ, however, from the more ancient Near Eastern cylinder seals²⁴. Stones shaped for setting in a ring may be ring-bezels with a flat or convex face, or cabochons with a pronounced curvature of the face, sometimes cut concave on the reverse. Sasanian stamp seals, according to Bivar's classification, are represented by stone rings, ellipsoids, domes and conoids. The determination of the chronological sequence of Sasanian seals according to shapes, which had been suggested by Bivar, is now questioned by Gyselen on the grounds of paleography and on the basis of seal shapes found impressed on datable bullae²⁵.

Artistic Style

The style of carving of motifs in Sasanian glyptics varies from deeply cut contours, with delicate modeling of details that produce a "naturalistic" positive image on impressions, to schematic carvings that produce linear and flat impressions. The style of carving in Sasanian glyptics, as noted by Gyselen, may be explained by financial factors and by circumstances that may have little bearing on the chronological sequence of the seals²⁶. The motifs that constitute the composition on the Sasanian seals in the Gans collection generally fill the round or oval shape of the sealstone without borders. Some compositions are provided with borders consisting of pearl, bead and reel, herringbone, and diagonal hatching or rope.

Iconographic Theme

²² Bivar 1969, pp. 35-36; Göbl 1973, pp. 23-24; Brunner 1978, pp. 19, 45-48; Gyselen 1993, pp. 31-32.

²³ Brunner 1978, p. 8.

²⁴ Bivar 1969, pp. 20-24.

²⁵ Bivar 1969, pp. 23-24; Gyselen 1993, pp. 32-33.

²⁶ Gyselen 1993, pp. 59-60.

Iconographic theme, a central concept in Gyselen's catalogue²⁷, is defined as the relationship between two principal motifs represented by the subject and the object of an action. Gyselen's classification according to iconographic theme begins with aniconic seals followed by seals decorated with the human figure. Of special importance in Gyselen's typological study is the human bust which is classified according to headdress, hairstyle and depiction of the bust. This series is logically and consistently organized according to a format adopted by Gyselen in her earlier catalogues. High ranking individuals are here identified by attributes, monograms and inscriptions. Seals with the human bust, in Gyselen's classification, start with the female bust of which there are no examples in the Gans collection. The male bust is invariably and stereotypically frontal, with the head almost always in right profile. The first typological series are males with a headdress, the *kolah*, and hair worn in a bun on the neck. Other typological series are male heads without headdress, with hair arranged in long locks, or with short hair. The bust itself may be decorated with geometric, floral, animal or fantastic motifs²⁸.

The majority of Sasanian seals show single animal motifs, predominantly felines, cervids, bovids and birds, followed by fantastic creatures, plants, celestial motifs, symbols or monograms, and inanimate motifs. Although the notion of theme in Sasanian glyptics may be devoid of functional and chronological significance, it nevertheless provides for a comprehensive classification of all the iconographic series in Sasanian glyptics. The classification of Sasanian seals according to iconographic theme, adopted for the present catalog, is further discussed by Sanjyot Mehendale in "Note on the Classification of the Seals".

Chronology

The chronological sequence of Sasanian seals has long been sought through analyses of shapes, materials of manufacture, paleographic evidence, and iconographic sequence²⁹. It is hoped that an appraisal of all the evidence provided by these approaches, facilitated by future electronic studies of Sasanian seals and bullae, will provide a valid basis for the determination of the sequence and temporal duration of shapes, materials of manufacture and iconographic themes in Sasanian glyptics.

²⁷ Gyselen 1993, pp. 34-55, 67-69.

²⁸ The male bust on seals and on sealings from datable bullae in the Paris collections is classified in seven typological series for which Gyselen offers a chronological sequence (1993, pp. 62-64). Gyselen persuasively argues that the male bust offers the key to the attribution of her typological series 4-7 to the beginning of the Sasanian period, and series 1-3 to the latter part of that age.

²⁹ For a review and comments on these approaches, see Gyselen 1993, pp. 62-64.

The Sasanians and Their Sealstones: An Overview

As the last great Iranian monarchy before the Arab conquest of Western Asia, the Sasanian dynasty (AD 224-642) is best remembered for its distinctive cultural expressions and the longevity of its more than four centuries of rule. The Sasanian age was a dynamic time of cultural and economic revival, a time when a new Persian dynasty in southwestern Iran, like the Achaemenid Persian rulers of a thousand years before, extended its dominion over much of Western and Central Asia in territories that stretched from Transcaucasia to the Indus. The Sasanian age was also a time of intensified trade and exchange in which the Persian empire served as a major gateway to the transcontinental Silk Road that linked the West with China and the Far East.

A widespread and ubiquitous cultural relic of the Sasanian age, the sealstone, functioned as a guarantee of a sealed object or document in commercial and administrative transactions. Archaeological evidence of the use of the Sasanian seal is preserved in ancient clay impressions found on documents and traded goods. Documents and goods which were intended as contracts or for the purposes of trade and exchange, were tagged with a wet lump of clay impressed with a seal as voucher. This seal was originally attached to strings that once wrapped the letter or covered goods. The clay seal impression was to be broken and discarded only at the time of the use of the sealed article.

Sasanian seals are represented by stamp seals shaped as stone rings, ellipsoids, domes and conoids. A small group of ring-bezels are comparable to the shapes of Roman seals of the third and fourth centuries but differ from the more ancient Near Eastern cylinder seals. By far the largest group of Sasanian seals is manufactured from quartzes such as rock crystal, carnelian, jasper, onyx, and agate. A smaller number are made from other silicates such as garnet, lapis lazuli and jadeite, and from bronze and glass. The Sasanian seal is carved in intaglio (depressed below the surface of the stone so as to leave an impression in relief) with compositions that fill the round or oval face of the sealstone, sometimes surrounded with a decorative border or an inscription.

The majority of Sasanian seals show figures of humans, animals, and plants. Human figures are shown singly, or in compositions, or as busts represented frontally or in profile. The relatively limited pictorial range of Sasanian seals and their ubiquity at Sasanian sites are important considerations in the present effort toward the electronic publication of our catalog. Thus while their finite pictorial range allows for their quantification, their ubiquity offers the potential for the creation of a large databank for future analysis and interpretation.

The Meaning of the Imagery on Sasanian Seals

Apart from a small group of compositions with multiple figures and a seemingly narrative content, the images on Sasanian seals are composed of individual motifs that are rarely self-explanatory, nor are they explained by the inscriptions that occasionally accompany them.

The Human Figure (series 10, 11, 13, 14, 16, 20)³⁰. The most complex compositions on Sasanian seals in the Gans collection are those in which the principal theme is the human figure that interacts with animate beings or is engaged in an action that involves inanimate objects. The typical figure, when *female*, is generally depicted with the face and torso in profile turned to the right (10.A). The figure may be shown in a standing posture, in a long robe and short mantle, holding a trilobate floral motif. It may also be shown under an arcade. The identification of the figure's gender exclusively on the basis of the figure's long plaited hair is now questioned by Gyselen who notes the use of this hairstyle on images of males on seals of certain members of the Zoroastrian clergy³¹. *The male figure* (10.B), which is typologically more varied than the female, is generally rendered more schematically than the latter.

The Gayomard motif (10.D). Identified in popular literature with Gayomard, the archetypal man of Persian mythology, the motif refers to a frontal male image, with parted legs and extended arms that plant long spears in the ground on each side of the figure. The figure is sometimes accompanied with a dog at his feet. Occasionally ithyphallic, he may be shown with upper legs hatched and rendered schematically, and with the head in right profile. When shown frontally, the figure is hirsute and has long, pointed ears. The motif is occasionally repeated in a mirror image linked to it by a shared spear (10.E). As Gayomard, the motif has been identified with the constellation Orion, and the dog with Orion's dog, Canis Major³². However, in the absence of evidence of the use of this prevalent motif for sealing purposes in Sasanian times, and because of its association with magical images on seal-amulets associated with the ancient Near East, the Gayomard motif may have served as a talisman. Thus like the image on the inscribed Sasanian seal-amulet in the Metropolitan Museum of Art, New York, the Gayomard motif may be seen as a protective device "in a pestilent and frightening world," rather than as an image of narrative interest³³.

³⁰ For the explanation for the numerical order of iconographic themes, see, Sanjyot Mehendale, "Note on the Classification of the Seals."

³¹ R. Gyselen, "Quelque éléments d'iconographie religieuse dans la glyptique sassanide," *Mélanges J. Perrot* I, Paris 1990, pp. 253-267.

³² Brunner 1978, pp. 69-70.

³³ P. O. Harper, P. O. Skjaervo. et. al., "A Seal-Amulet of the Sasanian Era: Imagery and Typology, the Inscription, and Technical Comments," *Bulletin of the Asia Institute* 6, 1992, pp. 44-58, n. 25; Shaul Shaked, "Notes on the Pahlavi Amulet and Sasanian Courts of Law," *Bulletin of the Asia Institute* 7, 1993, pp. 165-172. Now see Martin Schwartz, "*Sasm, Sesen, St. Sisinnion, Sesengen Barpharanges, and ... 'Semanglof'," *Bulletin of the Asia Institute* 10, 1996, pp. 253-257.

Schematic human images shown with animals (10.E). This category includes double images of the Gayomard motif and rudimentary renderings of other human figures with animals.

Human body part (10.F). Examples of this series in the Gans collection is limited to one specimen showing a depiction of the human hand. The extended hand, often shown with thumb and forefinger together and occasionally embellished with ribbons, wings, flowers, or flying birds perched on the finger tips, is a familiar motif on Sasanian seals where it is generally explained as an auspicious gesture, expressive of greeting or invocation³⁴.

Human involved in action with another human (11). This includes confronted, standing and equestrian figures.

Human involved in action against an animal (13). This motif is limited in the Gans collection to two representations of a man fighting a lion.

Human involved in action against a fantastic being (14). A single horseman, wearing a crested helmet, carries a spear as he battles a human bust with plaited hair. The latter is placed above a three-headed reptilian monster in this skillfully carved and exceptionally detailed inscribed seal. The unusual attributes and specificity of the fantastic opponents of the equestrian figure suggest reference in this composition to an unknown myth³⁵.

Human involved in action with an inanimate object (16). The human figure depicted before an altar would appear to refer to the attendance of the Zoroastrian ritual fire by a priest bearing the *barsom*, or kindling wood³⁶.

The human bust (20.B - 20.L). The human bust, limited to the male image in the Gans collection, generally shows the right profile on a frontal chest sometimes placed above a pair of wings, and on rare occasions surrounded with a pearl or rope border. Most specimens show a bearded head; one specimen shows a beardless head frontally. The majority of busts in the collection are of relatively modest dimensions with schematically rendered features and hair, and hatched garment folds. In one specimen the hair is treated as a cap of tight curls, drawn on the neck in the shape of a bun (no. 43)³⁷. Most of these busts show the hair in "two zones," consisting of a strip of hair around the face and neck, and a cap of hair on the crown³⁸. That the bust was intended as a portrait of a specific individual is suggested by portrait seals inscribed

³⁴ Cf., Brunner 1978, p. 122, Gyselen, 1993, p. 4. For a different interpretation of the hand, see Bivar, 1969, p. 25.

³⁵ Cf., Gyselen 1993, series 14, pl. VIII: 14.1-2..

³⁶ Gyselen 1993, pp. 42-43.

³⁷ For a reading of the inscription on this seal, see above, Philippe Gignoux, "Note on the Inscriptions."

³⁸ Cf., Gyselen, "Les sceaux de mages de l'Iran sassanide," p. 138.

with the name of the owner³⁹. Roman models are recalled not only in this class of imagery, but also in the use of double portraits, sometimes showing a male and a female bust, seen as a reference to the marriage contract⁴⁰.

Two specimens, one with an inscription and one without, show the head with a diadem, a rounded headdress, or *kolah*, and the hair arranged in three long locks on the neck (20.B.01, 20.B.02). Other attributes include a schematically rendered necklace and pearl earring. These busts find parallels on seals inscribed with the names of *magas*, or priests in the Zoroastrian clergy. Inscribed seals of *magas* also depict other themes, evidenced in the Gans collection, by that of "Mema, *mage*, son of Wahr^am," decorated with the image of a ram (30.L.01)⁴¹. Seals that bear the name of a *mogbed*, the higher level of the Zoroastrian clergy charged with provincial administration, however, are characterized by a more restricted thematic motif, limited to the male bust, and specific iconographic particulars. Inscribed seals of *mogbeds* are generally of superior workmanship, and are distinguished by their materials of manufacture, shapes and iconography⁴². One of the finest Sasanian seals that bears the inscription of a *mogbed* is that of "Baffarag, *mogbed* of Meshun," who was charged with the administration of the province of Mesene, Aramaic Maishan, situated in the lowlands of Mesopotamia, at the mouth of the Tigris and Euphrates Rivers (*plate 2*)⁴³. The image on this large carnelian bezel (40X33 mm), which is in the Museum für Islamische Kunst in Berlin, displays the right profile on a frontal bust edged with a floral wreath. The garment folds on the shoulders are gathered on the chest; on the head are placed a diadem and a round pearl-edged headdress, or *kolah*, bearing an emblem. Other attributes that distinguish this class of seals are the compartmented necklace, a double-pearl earring, and hair arranged on the neck in five long locks. A master carver's hand is detected here in the fluid contours, the skillfully modulated relief, and elegant facial features. The artistic style and the distinctive facial features notable on the seal in Berlin are also found on another seal,

³⁹ For inscribed seals of Sasanian royalty and high officials, see E. Herzfeld, *Paikulki, Monument and Inscription of the Early History of the Sasanian Empire*, Berlin 1924, pp. 74-82; P. Gignoux, R. Gyselen, "Sceaux de femmes à l'époque sassanide," *Archaeologia Iranica et Orientalis, Miscellanea in Honorem Louis Vanden Berghe*, Gent 1989, pp. 877-896; Gyselen 1993, p. 43; Gyselen, "Les sceaux de mages de l'Iran sassanide," pp. 121-126.

⁴⁰ Bivar 1969, p. 24; Gyselen 1993, p. 46.

⁴¹ R. Gyselen, *La géographie administrative de l'empire sassanide, Les témoignages sigillographiques, Res Orientalis I*, Paris 1989, pp. 149-157; eadem, "Les sceaux des mages de l'Iran sassanide," *Res Orientalis VII*, pp. 121-150. On the etymology of the terms, see P. Gignoux, "A propos de quelques inscriptions et bulles sassanides," *Histoire et cultes de l'Asie Centrale préislamique*, CNRS, Paris 1991, pp. 66-67.

⁴² Gyselen, "Les sceaux des mages de l'Iran sassanide," *op. cit.*, p. 124.

⁴³ *Plate 2* illustrates a Sasanian seal represented by a carnelian bezel, Inv. No. 1..2578. in the Museum für Islamische Kunst, Staatliche Museen Preussischer Kulturbesitz, Berlin. Photo courtesy the Museum für Islamische Kunst, Staatliche Museen Preussischer Kulturbesitz, Berlin. See also Göbl 1973, pl. 5:7a; Gyselen, *La géographie administrative de l'empire sassanide*, p. 158.

possibly by the same hand, bearing the inscription of a high Zoroastrian dignitary, "Vehdin-Shapur, chief-storekeeper of Iran," which is in the British Museum⁴⁴.

Images of *animals* (series 30.B-30N) in the Gans collection include the following: *rodents* (30.B); *bear* (30.D); *lions and other felines*, (30.E); *horse* (30.G); *boar* (30.H); *camel* (30.I); *cervid* (30.J); *bovid* (30.K), *ram* (30.L); *antelope* (30.M); *other horned animals* (30.N).

Birds (series 30.S) include the *coq* (30.S.01-30.S.08), *pheasant* (30.S.06-30.S.07), *duck* (30.S.08-30.S.17), *eagle* (30.S.18-30.S.28), and *other birds* (30.S.29-30.S.43). *Insects and fish* (series 30.T) are represented by the *scorpion* (30.T.01-30.T.08) and *the fish* (30.T.09-30.T.10). *Other animals* (series 33.X, 33.y, 31, 33) are *paired animals* (33.X.01-30.X.05), the *animal head* (series 30.Y) inclusive of the *bear* (30.Y.01-30.Y.02), *stag* (30.Y.03-30.Y.06), *ram* (30.Y.07-30.Y.09), *bull* (30.Y.10-30.Y.15), and *other* (30.Y.16-30.Y.21).

Other motifs are the *animal interacting with a human* (series 31)⁴⁵, *animal interacting with another animal* (series 33), and *fantastic motifs* (series 40.A - 40.C). In the latter category are included the *winged human* figure (40.A.01-40.A.02), the *winged animal* (40.A.03-40.A.19), *composite beings* (40.B.01-40.B.34), and *monsters* (40.C.01-40.C.04). Gyselen identifies three types of fantastic beings: those designated as fantastic only on the basis of their embellishment with wings (40.A); composite beings (40.B); monsters and animal masks (40.C)⁴⁶. Ancient Mesopotamian and Achaemenid models clearly inspire motifs such as the bull-man, represented by the man-faced, winged bull, usually referred to as *Gopatshah*, the shaggy-haired male figure with nude frontal body holding a staff and referred to as *Gayomard*, and the *Sacred Tree* flanked by animals⁴⁷.

The Gans collection, which is comprised of private seals only, lacks seals with the subject matter reserved for official seals⁴⁸. Apart from the human and animal motifs listed above, the collection includes *plant* motifs (series 50.A) represented by the *tulip* (50.A.01-50.A.11) and *triple blooms* (50.A.12-50.A.14), and *inanimate objects* (series 60) represented by the *altar* (60.01-60.04). *Monograms* (series 70), represented by 18 specimens in the Gans collection, are often explained as personal or clan devices, emblems, or insignia that appear to have absorbed monographic elements in later Sasanian times⁴⁹. The present catalog concludes with entries on seals with *undetermined* motifs (series 80), seals with Islamic inscriptions (series 100), seals identified as *copies or forgeries* (series 200), an *amulet* (series 300), and two Sasanian *bullae* (series 400).

⁴⁴ Bivar 1969, AD1; Herzfeld, *Paikuli*, pp. 79-80, fig., 36.

⁴⁵ On the topic of the she-wolf suckling a human infant in Sasanian glyptics, see G. Azarpay, "The Roman Twins in Near Eastern Art," *Mélange P. Amiet. Iranica Antiqua*, XXIII (1988), pp. 349-364.

⁴⁶ Gyselen 1993, p. 52.

⁴⁷ Brunner 1978, pp. 67-70.

⁴⁸ Gyselen, "Les sceaux des mages de l'Iran sassanide," *op. cit.*, pp. 121-150.

⁴⁹ Brunner 1978, pp. 123-124.

The imagery of *animals* and *birds* on Sasanian seals is generally characterized by a principal motif that may be represented singly or repeated, often in pairs and shown in confronted or addorsed configurations. The animal figure on these seals appears in simple, hieratic compositions against a plain background, occasionally framed by a hatched or beaded border. The ram, the winged horse, the duck and the rooster on seals in the Gans collection find counterparts in other media in Sasanian decorative arts, as on silk fragments from Antinoe in Egypt, now in the collections of the Louvre in Paris, and in the Textile Museum at Lyon, datable to the sixth and early seventh centuries (*plate 3*)⁵⁰. The hieratic severity, noted in the depictions of these animals in the decorative arts, is accentuated by their formal and chromatic sobriety. On the silk fragments from Antinoe, the majestic winged horse is embellished with a pearl collar, floating ribbons, and a rosette-topped, crescent-shaped crown. The short ribbons tied around the horse's ankles, stress the legs which appear animated by rapid motion. The ram is portrayed with a similar formal and chromatic sobriety and with a pearl collar and floating ribbons. It is further distinguished by its regal posture, stylized body markings and the large and hooded, golden eye. The profile head is embellished with a pair of great curved horns displayed in splendid frontality. The duck and the coq frequently have neck ribbons or carry jewels in their beaks (nos. 175, 188, 189). These attributes describe animals that posture as the noblest of their species. A similar display of majesty and sobriety characterizes the principal motif in other themes in Sasanian glyptics.

The significance of the motifs in Sasanian decorative arts has been a subject of considerable speculation⁵¹. Anna Jeroussalimskaia, of the Hermitage Museum, draws attention to possible astral, cosmological, and Zoroastrian implications of these motifs⁵². But a strictly religious explanation of these animals hardly accounts for their widespread use and popularity in the non-Zoroastrian world. Sasanian courtly symbols, embodied in the decorative arts, enjoyed considerable prestige and popularity among Iran's non-Zoroastrian neighbors, and Sasanian courtly art was clearly a source of inspiration for other imperial traditions and aspiring leaderships. But Sasanian art also projects another message, a message of universal appeal. This, it may be argued, is the portrayal of the positive social and spiritual values of the ancient Iranians. These values, which in many ways transcend the Sasanian period, hold the universe as god's coherent and orderly creation.

The ancient Iranian world view, as reflected in the Avesta and in Pahlavi sources, portrays the supreme creator, Ohrmazd, as goodness and light and his counterpart, Ahriman, as the

⁵⁰ Martiniani-Reber, *Lyon, musée historique des tissus, op. cit.*, cat. #10-11; Bénazeth, *Textiles et modes sassanides, op. cit.*, cat. #6, #60.

Plate 3 illustrates a detail of a Sasanian silk fragment from Antinoe, in Egypt, now in the Musée Historique des Tissus, Lyon, Inv. 897.III.3. See "Soieries sassanides," *Splendeur des Sassanides, op. cit.*, pp. 113-120; Martiniani-Reber, *Lyon, musée historique des tissus, op. cit.*, cat. #10-11; Bénazeth, *Textiles et modes sassanides, op. cit.*, cat. #6, #60.

⁵¹ For a fuller treatment of this topic, see Azarpay, "Sasanian Art Beyond the Persian World," *Mesopotamia and Iran in the Parthian and Sasanian Periods, Rejection and revival c. 238 BC - AD 642*, Proceedings of a Seminar in Memory of Vladimir G. Lukonin, John Curtis, ed., the British Museum, London 2000, pp. 67-75.

⁵² "Soieries sassanides," *Splendeur des Sassanides, op. cit.*, pp. 113-120.

quintessence of evil, darkness and deceit. God creates the world as a weapon against Evil. His creations include six spiritual entities that patronize god's material creations which are the sky, water, earth, plants, animals, man, and fire⁵³. Man's role is to cooperate with nature toward the ultimate defeat of evil by leading a life of good thoughts, good words and good deeds. The worthy man can expect to enjoy happiness and the good things of life on earth, and the "Best Existence" in the hereafter.

Avestan texts emphasize the stability and prosperity of the material world and mankind, animals, and plant life. God's weapons against Evil are listed in hierarchical order from good to best according to their social, material, and moral merits. Ingrained in the ancient Iranian psyche is not only the opposition of best and worst, but also the concept of superlatives, that which is best in all things. The concept of the best is first attested in the Gathas in the Old Avestan neuter plural "*vahishta*" (yasna 28.8) which refers to the "best things" (goods, teachings, words) of this life, and the rewards of eschatology, especially paradise (Pers. *behesht*). This *vahishta* is a chief value concept and the focal form throughout the Gathas⁵⁴. A hierarchical order underlies classifications of abstract and physical qualities in both the spiritual and the material world. It is found, for example, in the geographical order of countries and regions on earth, as it is in the stages traveled by the soul of the deceased from earth to the realm of infinite light in paradise. It defines social classes, their respective chromatic and physical associations, and the order of moral qualities in man, and it is notable in matters of Zoroastrian ritual⁵⁵.

The best king according to Zoroastrian traditional wisdom is the ruler who, as head of state and guardian of religion, creates justice and order. He is also a heroic hunter and supreme warrior⁵⁶. The best man is one who follows his beliefs and is truthful and respectful. The best woman is loyal, good natured, attractive, and young. The best livestock is the bull with a large herd of cows. The best horse is the swiftest, the best plants are the grape, the date, and wheat, the best

⁵³ Mary Boyce, *A History of Zoroastrianism* III, Leiden/Köln 1991, passim; R.C. Zaehner, *The Teachings of the Magi, a Compendium of Zoroastrian Beliefs*, London/New York 1956, ch. II.

⁵⁴ I wish to thank Martin Schwartz for providing me with this reference, and for his comments on the Gathic concept of *vahishta* also Gathas, Yasnas 30.2, 31.1, 34.15, 45.4, 45.5, 45.6, 50.5, *passim*.

⁵⁵ For a review of this question, see J. Duchesne-Guillemin, *Symbols and Values in Zoroastrianism, Their Survival and Renewal*, New York 1966, pp. 129-140. See also *Shikand-Gum Vazr*, translation and commentary by P.J. de Menasce, in *Collectanea Friburgensia* 30, Fribourg en Suisse 1945, I, pp.23-25. On Zoroastrian ritual, see, Williams, Boyd, *Ritual Art and Knowledge*, *op. cit.* On the classification of courtly tastes, skills and traits, see D. Monchi-Zadeh, *Xusrov i Kavatan ut Retak, Pahlavi Text, Transcription, Transliteration and Translation, Monumentum Georg Morgenstierne* II, Acta Iranica 22, Leiden 1982, pp. 47-91.

⁵⁶ *Menog i Khrad*, see translation and commentary by A. Tafazzoli (in Persian), Tehran 1354, XIV, pp.78-79. For earlier translations, see *Mainog-i Khirad* XV, in *Pahlavi Texts* III, tr. E.W. West, Oxford 1885, repr. Delhi/Varanasi/Patna 1970, pp. 107-108; Zaehner, *op. cit.*, ch. 1.

food is milk, and the best drink is wine. When drunk in moderation wine increases, among other things, understanding and intellect. It removes vexation and flushes the complexion. It improves memory, the senses, work and sleep. Wine is, therefore, a fitting drink for special occasions such as symposia, thanksgivings and memorials.

The imagery of Sasanian art gains special significance when viewed in the light of the ancient Iranian world view. Thus in the decorative arts animal motifs, such as the bull, the horse, the ram, the cock and the mythical *sen*, and plants, such as the pomegranate and the tulip, are rich in cultural, economic and religious significance. They are, moreover, celebrations of life's promise and bounty expressed as visual metaphors. It is surely God's best and most useful creations that are eulogized in Sasanian decorative arts. The brave warrior and heroic hunter, crowned and honored on the silver plate, is surely the best king. The high-born young queen or noble-woman carved on precious gems is certainly the best woman. The quintessence of swiftness, crowned and bejeweled and wishfully supplied with wings on decorated silver and fine silks, is clearly the best horse. The ultimate symbols of material bounty, cattle and sheep, embellished and majestically enhanced, are the best of animals. The versatile grape is the best of fruit, and the exhilarating and beneficial wine is the best of drinks. The blossoming tree and the vine harvest, as allusions to the promise of spring and the bounty of fall, are clearly symbols of the best of seasons.

These considerations explain the thematic content of Sasanian art as generic, with a collective significance that invariably embraces and overrides its specific historical or narrative meaning. Thus Sasanian decorative motifs, such as embellished birds, animals, and plants, and allegorical themes such as the royal hunt, may be read as visual metaphors that encapsulate ancient Iranian and Zoroastrian socio-religious ideas.

6

*A Comprehensive List of Motifs on the Sasanian Seals and on Seal-Related Objects in the Gans Collection*⁵⁷

The Human Figure (series 10, 11, 13, 14, 16, 20):

The Female Figure (10.A), 4 specimens.

The Male Figure (10.B), 6 specimens.

The Gayomard Motif (10.D), 15 specimens.

Schematic Human Images shown with Animals (10.E), 4 specimens.

Human Body Part (10.F), 1 specimen.

Human Involved in Action with Another Human (11), 4 specimens.

Human Involved in Action Against an Animal (13), 2 specimens.

Human Involved in Action against a Fantastic Being (14), 1 specimen.

Human Involved in Action with an Inanimate Object (16), 5 specimens.

Human Bust (20.B - 20.L), 21 specimens.

Animals (series 30.B-30N):

⁵⁷ The motifs on the seven impressions on two bullae in the Gans collections are classified according the system used in the classification of motifs on seals.

Rodents (30.B), 14 specimens.
Bear (30.D), 1 specimen.
Lions and Other Felines (30.E), 13 specimens.
Horse (30.G), 5 specimens.
Boar (30.H), 2 specimens .
Camel (30.I), 2 specimens.
Cervid (30.J), 23 specimens.
Bovid (30.K). 25 specimens.
Ram (30.L), 14 specimens.
Antelope (30.M), 12 specimens.
Other Horned Animals (30.N), 5 specimens.

Birds (series 30.S), 43 specimens.

Insects, Fish (series 30.T), 10 specimens.

Other Animals (series 33.X, 33.y, 31, 33):
Paired Animals (33.X.01-30.X.05), 5 specimens.
 Part of animal corpus (*series 30.Y*), 21 specimens.

Animal Interacting with a Human (31.1), 1 specimen.

Animal Interacting with Another Animal (33.1-33.11), 11 specimens.

Fantastic Motif (series 40.A - 40.C):
Winged Human (40.A.01-40.A.02), 2 specimens.
Winged Animal (40.A.03-40.A.19), 17 specimens.
Composite Being (40.B.01-40.B.34), 34 specimens.
Monster (40.C.01-40.C.04), 4 specimens.

Plant (series 50.A), 14 specimens.

Inanimate Motif (series 60):
Altar (60.01-60.04), 4 specimens.

Monogram (70.01-70.18), 18 specimens.

Undetermined (80.01-80.06), 6 specimens.

Islamic (100.001-100.004), 4 specimens (two on 100.03).

Copy or Forgery (200.1-200.4), 4 specimens.

Amulet (300.1), 1 specimen.

Bulla (400.1, 30.B. 1, 30.H.2-30.H.2), 2 specimens, one with one impression, the other with three impressions.

VI

NOTE ON THE CLASSIFICATION OF THE SEALS

Sanjyot Mehendale

The classification of catalogue entries of Sasanian seals in the Edward Gans collection at the Department of Near Eastern Studies at the University of California at Berkeley, is based on Rika Gyselen's model of the classification of seals according to iconographic theme, found in *her Catalogue des sceaux, camées et bulles sassanides de la Bibliothèque Nationale et du Musée du Louvre* I, Collection générale, Bibliothèque Nationale, Paris, 1993. The Sasanian seals in the Gans collection are broadly organized into the following categories: "Human Figures;" "Busts;" "Animals;" "Fantastic Creatures;" "Naturalistic Motifs;" "Inanimate Subjects;" "Monograms;" and, unlike Gyselen's catalogue, the added category of "Unidentified Subjects."

Each seal has an inventory number which commences with a two-digit numeral, the first of which corresponds to the seal's general iconographic classification grouped according to the following order:

0. No Iconographic Representation
1. Human Figures
2. Busts
3. Animal
4. Fantastic Creature
5. Naturalistic Motifs
6. Inanimate Subject
7. Monograms

The second digit of the inventory number refers to the particular category within the more general division. This two-digit numeral corresponds with the iconographic theme defined by the 'subject' of the image and the 'object' which describes the action. To illustrate this organization, "a single human figure" is denoted by the numeral 10, "human involved in action with another human" by the numeral 11, and "human involved in action with an inanimate object" by the numeral 16. In addition to the two-digit code at the beginning of each entry, the iconographic classification can be further subdivided by content, indicated by a capital letter or numeral. For example, a representation of a single woman would be classified by the two-digit code 10 followed by the capital letter A; the depiction of a single man by the capital letter B.

In addition to the entry codes, the conspectus of the catalogue further subdivides material as denoted by Roman numerals. These, however, do not show up in the individual catalogue entries. Roman numerals I and II are often used to subdivide further the material into "Single Subjects" and "Multiple Subjects."

As each collection is somewhat different, certain adjustments necessary in Gyselen's classification were deemed to accommodate the particulars of the Gans collection. For example, particular categories within Gyselen's corpus have no representative pieces in the Gans collection. Conversely, category 30.N in the Gans catalogue denotes "other horned animals," a

category not included in Gyselen's corpus. In order for the Gans catalog to parallel as much as possible the classification presented by Gyselen, it is necessary to indicate the lacunae in the Gans collection by gaps in the progression of catalog entries. For example, category 60 ("inanimate motif") is further divided into only one sub category B ("fire altar") without examples from sub-category A. In this way, the Gans catalog corresponds to Gyselen's classification in which 60.A denotes an "Altar" and 60.B refers to "Fire Altar."

VIII

CREATION OF THE ARCHIVE

Catherine Demos

This project began as an exploration of new technologies for art collections publication. Traditional publishers had been contacted, but they were either too expensive or did not want to handle this type of publication. When faced with a dead-end, the director of the project, Dr. Guitty Azarpay and her assistant, Catherine Demos decided to explore new media and discovered that the collection would positively benefit from a rich contextual presentation that was possible with digital publication. Ms. Demos records the digitization process and addresses difficult issues such as data preservation, project ownership, and copyright infringement.

The article begins by describing the history of the Sasanian seal publication project. The next section entitled "the Archive" discusses the creation of the components for the searchable database and the following section concentrates on the creation of the largest physical portion of the archive, the images. The article concludes with a description of the current contents of the seal archive in the Department of Near Eastern Studies.

For a complete history of the project, please refer to Creation of the Archive on the Sasanian Empire Website.

IX

ELECTRONIC PUBLICATON

Jeanette Zerneke

The Sasanian Empire electronic publication provides access to the Gans Seal collection through two distinct methods.

The first is through the Sasanian Empire Website: <http://ecai.org/sasanianweb>. This Website provides access to the Gans Sasanian Seal Collection catalog and Seal images through an online Web application. The application was developed specifically for this Seal collection, however, it could provide a model for similar types of collections. The application begins with a primary search by seal theme, shape, material, inscription type, or Berkeley catalog number. In most cases the user is prompted to provide a second criteria to narrow the result set to a smaller collection of seals. Then, a summary of information tailored to the type of search requested is

presented for browsing. From this menu, individual Seal catalog records and thumbnail images can be chosen and displayed. Finally a full screen image of either the Seal impression, Seal face or Seal profile can be displayed. This online application facilitates comparison of seals by the various search criterion; presents the full catalog record for each seal; and presents online images of the seals which are larger and easier to view than the original objects.

The second access method is through the Sasanian Empire ECAI (Electronic Cultural Atlas Initiative) Publication. ECAI is a collaborative scholarly project whose focus is using a distributed digital library model to catalog data from scholars worldwide by space and time. ECAI uses an interactive interface that displays map layers with a time scale bar. The eScholarship program of the California Digital Library hosts this ECAI publication. The URL for eScholarship is: www.cdlib.org. A specific URL and ISBN number for this publication will be included when the publication is completed. ECAI and CDL are working together to create a collection of new digital publications that bring together data from various sources to create virtual collections of information about cultural subjects such as the Sasanian Empire. These publications include information in a variety of media, from various institutions, collected and stored using the different protocols developed by different disciplines and organizations.

The Sasanian Empire ECAI Publication presents the Gans Seal Collection in context of time and place. It is an example of the capabilities of the ECAI system to include GIS data, historic maps, images, and texts in a time and place context. Since the individual Seals in the Gans collection have no provenance, the Sasanian Seal Collection Website and Web application are presented as a single map layer with a geographic extent based on the approximate maximum extent of the Sasanian Empire and a time range for the whole empire period. Then, additional geographic layers relating to the Sasanian Empire are included to provide a richer context for the seals. Two boundaries showing the empire extent near the beginning and end of the empires are presented. A gazetteer of Sasanian Empire places is included with information derived from the Sasanian Empire Map published by Tübinger in Germany. Five key sites in the Sasanian Empire are presented in a map layer that links to photographs and descriptions of the sites. Background information on current country boundaries, river locations and world heritage sites are included. This collection of layers is presented to give a context for the Sasanian Seal collection; to encourage the further development of geographic and time based information for the Seals; and to provide a teaching tool that incorporates the Seals in a resource for learning about this area of the world.

Further information about the content and design of the online publication is documented in the Sasanian Empire Project – Technical Summary.

BIBLIOGRAPHY

Ackerman, P., "Sasanian Seals," in A.U. Pope, ed., *A Survey of Persian Art*, London/New York 1983, I, pp. 784-815, IV, pp. 255-256.

Azarpay, G., "Sasanian Art Beyond the Persian World," *Mesopotamia and Iran in the Parthian and Sasanian Periods, Rejection and Revival c. 238 BC - AD 642*, Proceedings of a Seminar in Memory of Vladimir G. Lukonin, John Curtis, ed., the British Museum, London 2000, pp. 67-75.

Azarpay, G., "The Roman Twins in Near Eastern Art," *Mélanges P. Amiet. Iranica Antiqua*, XXIII (1988), pp. 349-364.

Bivar, A.D.H., *Catalogue of the Western Asiatic Stamp Seals in the British Museum. Stamp Seals II: The Sassanian Dynasty*, London 1969.

Borisov, A. Ia., & V. G. Lukonin, *Sasanidskie Gemmy*, Leningrad 1963.

Boyce, Mary, *A History of Zoroastrianism III*, Leiden/Köln 1991.

Brunner, C.J., *Sasanian Seals in the Metropolitan Museum of Art*, The Metropolitan Museum of Art, New York 1978.

Buchanan, B., & P. R. S. Moorey, *Catalogue of ancient Near Eastern Seals in the Ashmolean Museum III, The Iron Age Stamp Seals (c. 1200-350 BC)*, Oxford 1988.

Debevoise, N.C., "The Essential Characteristics of Parthian and Sasanian Glyptic Art," *Berytus I*, 1934, pp. 12-18.

Duchesne-Guillemin, J., *Symbols and Values in Zoroastrianism, Their Survival and Renewal*, New York 1966.

Erdmann, K., "Das Datum des Tq-i Bustn," *Ars Islamica IV*, 1937.

Erdmann, K., *Die Kunst Irans zur Zeit der Sasaniden*, Berlin 1943.

Frye, R. N. ed., *Sasanian Remains from Qasr-i Abu Nasr*, Cambridge 1973.

Frye, R. N., *A History of Ancient Iran*, C.H. Beck, München 1984.

Fukai, S., & K. Horiuchi, *Taq-i Bustan*, I-IV, The Tokyo University Iran-Iraq Archaeological Expedition Reports 10, 13, 19-20, Tokyo 1969, 1972, 1984.

Gans, Edward, "Berlin Banker to California Numismatist, 1887-1987," *an Oral History Conducted 1983-1987 by Ora Huth, Regional Oral History Office, Bancroft Library, University of California, Berkeley* 1987.

- Ghirshman, R., *Persian Art, The Parthian and Sassanian Dynasties*, New York 1962.
- Gignoux, P., *Catalogue des sceaux, camées et bulles sasanides de la Bibliothèque Nationale et du Musée du Louvre II, Les sceaux et bulles inscrits, Bibliothèque Nationale*, Paris, 1978.
- Gignoux, P., & R. Gyselen, *Sceaux sasanides de diverses collections*, Cahiers de Studia Iranica 1, Leuven 1982.
- Gignoux, P., & Gyselen, R., *Sceaux sasanides de diverses collections privées*, Leuven 1982.
- Gignoux, P., *Noms propres sassanides en Moyen-Perse épigraphique*, Iranisches Personennamenbuch, Fasz. 2, Wien 1986.
- Gignoux, P., & R. Gyselen, *Bulles et sceaux sassanides de diverses collections*, Cahiers de Studia Iranica 4, Paris 1987.
- Gignoux, P. & R. Gyselen, "Sceaux de femmes à l'époque sassanide," *Archaeologia Iranica et Orientalis, Miscellanea in Honorem Louis Vanden Berghe*, Gent 1989.
- Gignoux, P., "A propos de quelques inscriptions et bulles sassanides," *Histoire et cultes de l'Asie Centrale préislamique*, CNRS, Paris 1991, pp. 66-67.
- Göbl, R., *Sasanian Numismatics*, Braunschweig 1971.
- Göbl, R., *Der Sasanidische Siegelkanon*, Braunschweig 1973.
- Göbl, R., *Die Tonbullen vom Tachte-e Soleiman. Ein Beitrag zur spätsasanidischen Sphragistik*, Berlin 1976.
- Gropp, G., "Some Sasanian Clay Bullae and Seal Stones," *The American Numismatic Society, Museum Notes* 19, New York 1974, pp. 119-144.
- Gyselen, R., *La géographie administrative de l'empire sassanide, Les témoignages sigillographiques*, Res Orientalis I, Paris 1989.
- Gyselen, R. "Les sceaux des mages de l'Iran sassanide," *Res Orientalis* VII, pp. 121-150.
- Gyselen, R., "Quelque éléments d'iconographie religieuse dans la glyptique sassanide," *Mélanges J. Perrot* I, Paris 1990, pp. 253-267.
- Gyselen, R., *Catalogue des sceaux, camées et bulles sassanides de la Bibliothèque Nationale et du Musée du Louvre I*, Collection générale, Bibliothèque Nationale, Paris, 1993.
- Haerinck, E., "Trois recipients inédits de style sassanide," *Iranica Antiqua* XVI, 1981, pp. 161-172.
- Harper, P. O., & P. Meyers, *Silver Vessels of the Sasanian Period I: Royal Imagery*, New York 1981.

- Harper, P. O., & P. O. Skjaervo. et. al., "A Seal-Amulet of the Sasanian Era: Imagery and Typology, the Inscription, and Technical Comments," *Bulletin of the Asia Institute* 6, 1992, pp. 43-58.
- Harper, P. O., *The Royal Hunter, Art of the Sasanian Empire*, The Asia Society, New York 1978.
- Herzfeld, E., *Am Tor von Asien*, Berlin 1920.
- Herzfeld, E., *Paikuli, Monument and Inscription of the Early History of the Sasanian Empire*, Berlin 1924.
- Horn, P., & G. Steindorf, *Sasanidische Siegelsteine*, Königliche Museen zu Berlin, Mitteilungen aus den Orientalischen Sammlungen, Heft 4, Berlin 1891.
- Huff, D., "Technological Observations on Clay Bullae from Takht-i Suleiman," *Mesopotamia* 22, 1987, pp. 367-390.
- Jeroussalimskaja, A., "Soieries sassanides," *Splendeur des Sassanides, L'empire perse entre Rome et la Chine [224-642]*, Musée royaux d'Art et d'Histoire, Bruxelles 1993, pp. 113-120.
- Just Buttons, For Pleasure, Pastime and Profit* V: 8, Somerville, MA, May 1947.
- Kröger, J., *Sasanidische Stuckdekor*, Baghdader Forschungen, 5, Mainz am Rhein 1982.
- Lerner, J., *Christian Seals of the Sasanian Period*, Istanbul 1977.
- MacKenzie, D. N., "Some Names from Nisa," *Peredneaziatskii Sbornik* IV, Moskva 1986.
- Maenchen-Helfen, O., *The World of the Huns, Studies in Their History and Culture*, University of California Press, Berkeley/Los Angeles 1973.
- Mainog-i Khirad XV, in *Pahalvi Texts* III, tr. E. W. West, Oxford 1885, repr. Delhi/Varanasi/Patna 1970.
- Martiniani-Reber, M. & D. Bénazeth, *Textiles et mode sassanides, Les tissus orientaux conservé au département des Antiquités égyptiennes*, Musée du Louvre, Paris 1997.
- Martiniani-Reber, M., *Lyon, musée historique des tissus, Soieries sassanides, coptes et byzantines Ve-XIe siècles*, Réunion des musées nationaux, Paris 1986.
- Menasce, J. de, "Un cachet parthe," *Syria* XXXIX, 1962, pp. 225-230.
- Menasce, J. de, "Déchiffrement de motifs alphabétiques de l'époque sassanide," *Bulletin de l'Institut Français d'Archéologie orientale* LIX, 1960, pp. 309-314.
- Menog i Khrad*, see translation and commentary by A. Tafazzoli (in Persian), Tehran 1354.

Monchi-Zadeh, D., *Xusrov i Kavatan ut Retak, Pahlavi Text, Transcription, Transliteration and Translation, Monumentum Georg Morgenstierne II*, Acta Iranica 22, Leiden 1982.

Mordtmann, A., "Sasanidische Gemmen," *Zeitschrift der Deutschen Morgenländischen Gesellschaft* XXIX, 1875, pp. 199-211.

Movassat, Johanna D., *The Large Vault at Taq-i Bustan: A Study in Late Sassanian Royal Art*, doctoral dissertation, University of California, Berkeley 1988.

Schippmann, K., "L'influence de la culture sassanide," *Splendeur de Sassanides, L'empire perse entre Rome et la Chine [224-642]*, Musée royaux d'Art et d'Histoire, Bruxelles 1993, pp. 131-141.

Schwartz, Martin, "*Sasm, Sesen, St. Sisinnion, Sesengen Barpharanges, and ... 'Semanglof'," *Bulletin of the Asia Institute* 10, 1996, pp. 253-257.

Shaked, Shaul, "Notes on the Pahlavi Amulet and Sasanian Courts of Law," *Bulletin of the Asia Institute* 7, 1993, pp. 165-172.

Shaked, S., "Jewish Sasanian Sigillography," *Au carrefour des religions, Mélanges offerts à Philippe Gignoux*, Res Orientalis VII, pp. 239-256.

Shikand-Gumn Vazr, translation and commentary by P.J. de Menasce, in *Collectanea Friburgensia* 30, Fribourg en Suisse 1945.

Vanden Berghe, L., "La Sculpture," *Splendeur des Sassanides, L'empire perse entre Rome et la Chine [224-642]* Musée royaux d'Art et d'Histoire, Bruxelles 1993.

Vollenweider, M. L., *Catalogue raisonné des sceaux, cylindres et intailles I*, Genève 1967.

Williams, Boyd, *Ritual Art and Knowledge, Aesthetic Theory and Zoroastrian Ritual*, Columbia, South Carolina 1993.

Zaehner, R. C., *The Teachings of the Magi, a Compendium of Zoroastrian Beliefs*, London/New York 1956.