JADE

Consultant Editor

ROGER KEVERNE

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To Matthew and Thomas

JADE
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FOREWORD

RECUMBENT HORSE
Chinese, Ming Dynasty. Length: 3½ in (9 cm). The formation of the head with its marked convexity of outline resembles that of one depicted on a mural painting in a Northern Song tomb, discovered at Pai-Sha in Honan. Despite its size, this horse has a strong sculptural quality. Worked from pale green jade with light brown markings.

It has been said that a single daily issue of a newspaper such as *The New York Times, Neue Zürcher Zeitung* or *Le Monde* contains more information than someone living in the 17th century would have faced in a lifetime. Jade scholarship cannot escape the information explosion of our century. Our knowledge on the subject of jade has been radically expanded in two directions, from the past and in the present, and a definitive survey bringing together the latest research from around the world is long overdue.

The best and most complete studies on the jade of earlier periods have come from archaeological excavations only carried out in our century. Carefully controlled digs, be they in China, Russia, Mexico or many other locations around the globe, have yielded an immense amount of information not available to the best scholars of the past whose references were often only the texts of those less than expert in the field. Increasingly sophisticated archaeological practices and scientific techniques of analysis mean that our knowledge of specific periods is now more complete and accurate than ever before.

The first Western attempt at a world survey on jade came in the early 1800s and was by a French sinologist, Abel-Rémusat, based on the volumes available in the King's Library in Paris. It is about the size of a small book of poetry. The next survey was done by a German mineralogist, Fischer, toward the end of the 19th century, and is the length of a short novel.

At the end of the 19th century came two monumental volumes by the American jade enthusiast Heber Bishop, who employed the best specialists of his time in a collective effort to survey the jade scene worldwide. These volumes were bigger than was necessary considering the amount of text included (measuring 24 × 18 inches, 61 × 46 cm, and weighing 110 lb (50 kg) together), and Bishop was not interested in wide dissemination of the subject. He printed only 106 copies, none of which was for sale, and then destroyed the plates. The copies were sent to important libraries, museums and crowned heads around the world. As the crowned heads fell over the years some copies came on to the market but a reprint for widespread reading and reference has never taken place. Thus this 20th-century volume, designed to make the best jade scholarship available to the widest possible readership, is very welcome.

Obviously research still continues. New finds of mines of raw jade material around the world have answered many puzzling questions from the past. Scientific studies made with nuclear-age laboratory equipment have answered other questions about both raw jade and finished artefacts. In view of this, publishing a worldwide survey on jade is an ambitious venture that can only be accomplished by picking a deadline and choosing the best specialists in each field to give the reader a comprehensive review of the entire subject.

The work in this book comprehensively reflects the latest and most authoritative research available. It will be a landmark in the field of jade for decades to come.

Robert Frey and Robert Deans
Co-founders of FRIENDS OF JADE

INTRODUCTION

ROGER KEVERNE

FIG. 1 **VESSEL**
Chinese, 18th-century. Length: 7 in (18 cm). A vessel of ruyi *form, the sides with two large dragons, the whole supported on short bracket feet. The stone is a fine white mottled tone. This fine jade is large in size and is effective in its use of the stone, which is left undecorated on the main body to contrast with the bold dragons on the sides.*

FIG. 1

Jade excites a variety of responses. Whereas some shy away from it, finding it cold, unresponsive and perhaps even forbidding, others are fascinated by its properties, and, once fascinated, are liable to become obsessed for life. The stone has for centuries preoccupied human beings of all types and races, and for a variety of reasons – gemological, aesthetic, mythological, sociological and purely commercial. Jade can stimulate both in its raw state and in the form of a work of art, and it is one of the great pleasures of even the most cynical of dealers or the most objective of scientists to watch the eyes of a new initiate light up and sparkle at the sight of a fine piece. The fascination of the stone, its mystery and historical significance, are in no way diminished by deepening academic knowledge and aesthetic understanding.

It is reasonable to assume that, at the mention of jade, the thoughts of the lay reader will immediately turn toward China, and, although the other sections in this book will serve to give a correct emphasis to the stone's significance in other areas, it is in many respects a fair enough prejudice given the stone's past and popular associations. China, with its lengthy and enduring cultural history, has embraced and developed jade, both as medium and symbol, as no other civilization has ever done. The dominance of the Chinese in their appreciation and reverence for jade is reflected in the amount of space allocated to China in this book. However, unlike other attempted surveys, attention is also given to the very important role jade has played in other cultures, which are commonly glossed over or ignored as centres of study and appreciation.

It would be wrong to claim that this is the most ambitious publishing project ever attempted on the subject of jade. That honour must rest – and probably always will – with Heber Bishop, who in 1906 issued his magnificent two-volume edition of *Investigations and Studies in Jade* in New York. It encompassed the finest of jade scholarship of the time and incorporated the most wonderful examples of lithographic printing, hand-colouring, engraving and ornamental bookbinding from what was truly a golden age of book-making. But Bishop's book was never available for sale to the mass of students, scholars and collectors who could have so greatly benefitted from the information it contained.

The world has moved on since Bishop, and our knowledge of the origins of jade, its decoration and the part it has played in so many important cultures has changed and evolved in parallel with new archaeological discoveries and the development of scientific and analytical techniques which would have astounded those turn-of-the-century scholars. But in nearly a century there has, up until now, been no comparable attempt to catalogue or codify our knowledge of jade in a definitive form.

It was impossible a century ago to provide colour photography of a quality – and, indeed, in the quantity – necessary to impart any real understanding of the subtlety and variety of tones and textures in jade. This volume renders the jades in full, with a high emphasis placed on the accuracy of the colour reproduction. The majority of the jades illustrated have not been seen before in publications, the exceptions, of course, being particularly fine or

FIG. 2 **KNEELING BOY**
Chinese, 18th-century. Length: 2⅜ in (6 cm). A jade carving of a kneeling child with a ruyi *sceptre clasped in his hands. The stone is of a pale celadon green tone.*

FIG. 2

FIG. 3 ***BI* DISC**
Chinese, Han Dynasty. Diameter: 3 1/16 in (7.8 cm). A circular bi, *the main body with a design of small, spherical bosses incised with curls. The stone is grey with light brown and russet markings. This small and sensitively worked* bi *is enhanced by its mellow colourings.*

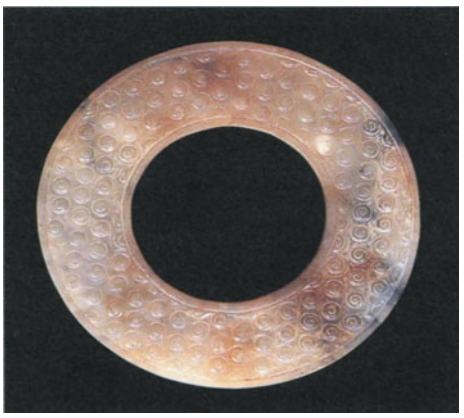


FIG. 3

famous pieces which have been seen in other volumes but which must also necessarily take their rightful place here.

Our intention in *Jade* is to match Bishop's desire to combine in a single work the most authoritative contemporary jade research from the world's leading experts with the best illustrations that modern technology can produce: but we then wish to go further, in publishing the finished work widely, and at a price which will for the first time make such a comprehensive volume generally accessible to academics, researchers, scholars, collectors and enthusiasts everywhere.

The Sections and Contributors

It is clearly important to start with basics, and thus **Dr Jill Walker's** section on jade gemology is fundamental in defining what the stone actually is, and placing it within a gemological context with other gemstones and minerals. Jill Walker is a Graduate Gemologist of the Gemological Association and was formerly active at that association in their California headquarters. She is the author of many articles in publications and journals, such as *Gems and Gemology*. Her contribution explores the scientific nature of the stone and why it is so special. Analysis is made of the textures and colours in which the stone is found, and of those materials which can be used to copy it, and which can be passed off as true jade. An important feature here is guidance on distinguishing and detecting 'fakes'.

Walker also traces the historical approach to defining jade, splitting nephrite and jadeite into their separate mineral groups and examining their chemical compositions. She locates the worldwide occurrences of deposits and sources, and briefly describes the mining systems and methods of gathering samples. Her points concerning the surface appearance of jade will be particularly useful to the scientist, scholar and collector.

Dr Daphne Rosenzweig, an Adjunct Associate Professor in Oriental Art at the University of South Florida, first studied Far Eastern languages and literature and East Asian art and archaeology, and researched at the National Palace Museum in Taiwan. She is a member of the Association for Asian Studies, the Society for the Study of Chinese Religions and the International Society of Appraisers. In 1988 she published the award-winning *The Appraisal of Oriental Art.* Her chapter on evaluating Chinese jade carvings comprises a considered view of how she feels jades should be assessed and how the circumstances of both taste and geographical area can affect their prices. She points out the logical defects and merits to be found in jades of all ages and while many connoisseurs will be aware of what should or should not recommend a jade, her analytical

FIG. 4 *Map showing approximate jadeite and nephrite source and culture regions of the world.*

FIG. 4

and systematic approach is extremely useful.

Rosenzweig emphasizes the problems inherent historically in dating jade and the most recent efforts made by authorities in addressing this problem; she stresses the necessary discipline of judging a jade on its own merits and not by its pedigree or the 'important' name of its former owner. As all jade connoisseurs know, there is obviously nothing wrong in a jade's value being enhanced by its former distinguished or famous owner, but this should be of secondary importance in assessing the intrinsic merits of the piece.

Daphne Rosenzweig has also contributed a chronological overview of Chinese history, invaluable for dating and locating jades within their period.

Angus Forsyth is a past president of the Oriental Ceramic Society, and a member of the Royal Asiatic Society and Royal Society for Asian Affairs. He has a fine personal collection, and his contribution on jades of the Chinese Neolithic period (Hemudu to Erlitou) and the Post-Neolithic Shang to Zhou periods is imbued with the knowledge of someone who understands and appreciates the subject and who has seen and handled a considerable volume of jades.

He usefully discusses the Chinese character for jade, *yu*, and its broader use by the Chinese over thousands of years; a particularly emotive reference being the traditional expression 'smashing jade' to describe death for a noble cause. He provides a useful reference list of Chinese terms for the jades and draws attention to the fact that the early jade workers' main output was objects for the tomb. He also highlights the sheer length of time it took to fashion a fine piece.

Forsyth refers to archaeological excavations of the 1980s and his work, as with other authors in this volume, contains the latest and most up-to-date information. His descriptions of jades are detailed but easily understood, and he provides us with extensive coverage of the variations of types and designs on jades and their use and function in tombs.

The text is enhanced and developed throughout with useful historical information allied to social developments in ancient China, one instance being his writing on the excessive consumption of alcohol in the Yin period, showing that some problems never leave us. On the more positive side, he notes the rising importance of the family unit in Chinese society and its relevance to the Confucian ethic, which was developed more fully in the fifth century BC.

Forsyth uses up-to-date information available on other areas of Chinese art, such as bronzes, to emphasize the relationships that developed between the variety of media the Chinese used, noting that despite the emergence of bronze, jade was sufficiently well established to retain its

importance. Designs on bronze, ivory, tortoiseshell and lacquer as well as jades have been repeated for centuries, and in many cases the workers and artisans were not necessarily confined to working in just one medium.

Within Forsyth's sections can be found interesting and important features by professors currently working on relatively new finds in China. The piece on Hongshan jades by **Dr Sun Shoudao** and **Dr Guo Dashur** adds much to our previous understanding of the origins of the dragon symbol, and the article by **Mo Yongkang** on Liangzhu jades provides valuable guidance on the classification of these jades into three areas: ritual use, pendants and decorations, and jade used as an inlay or as part of another item.

Brian McElney is a Hong Kong lawyer with a superb private jade collection. He is a member of the Min Chiu Society and the Hong Kong branch of the Royal Oriental Society, and has written many important articles on jade. He writes in fascinating detail on jade from the Han to Song periods.

Dr Yang Boda is the emeritus Director of the Palace Museum in the Forbidden City in Beijing. He is the leading authority on jade in the Far East, and is respected wherever jade is studied around the world. He is the author of many works on jade, including volume nine of the prestigious 60-volume series on Chinese Fine Arts being serially published in China, and it is extraordinary that, until now, so little of his scholarship has been available in the English language. His contribution is that of a scholar whose experience, depth of knowledge and critical eye is second to none in Beijing, and he provides an insight into Chinese jades of the Yuan, Ming and Qing periods which is reinforced by both historical sources and by his unique access to the current information emerging from controlled excavations.

Dr Boda refers to jade, as do all the contributors, in its historical context, while comparing it with other contemporary works of art – such as paintings – to give depth and substance to his analysis. The illustrations selected from the Palace Museum Collection in Beijing are, in many cases, seen here for the first time and, and with the evidence that he provides for their dating, they will in the years to come become a landmark and standard reference for collectors and scholars involved in the researching of this particularly difficult area.

Dr Li-Ping Tan is Professor of Geology at the National Taiwan University, and author of the definitive work on the jade of Taiwan. His contribution traces the discovery of jade in Taiwan and the origin of its extraction, estimating jade mining to be one of the largest business concerns in Taiwan in the late 1950s, allied to the explosion in the numbers of lapidary workshops which followed this increase in production. The boom in jade mining is traced through to its subsequent decline and virtual cessation in the 1980s.

He describes the excavated tombs which have produced such a rich variety of finds, and regrets that the former unscientific and speculative digging has meant that many sites have been lost. Finally, he explains in detail the

FIG. 5

FIG. 5 **BASKET VESSEL**
Chinese, 18th-century. Height: 2 in (5 cm). An unusual vessel of curved basket form, with a pierced floral band and a gently ribbed lower section. The base is inscribed with a poetic line in seal script referring to court favourites: once-dazzling beauties banished to 'the cold palace'.

FIG. 6 **WATER POT**
Chinese, Kangxi period. Height: 3⅛ in (8 cm). A fine jade water pot and cover of globular form, the domed lid carved with a coiled dragon in shallow relief. The vessel is worked with three dragons in high relief coiling around the sides in pursuit of a flaming pearl, while rough waves issue from the base.

FIG. 6

development and nature of the cat's eye jades and the sad lack of restraint in the use of dynamite to mine the stone – though he also notes the later rescue for polishing of some stones discarded in this process.

Dr Kazuya Chihara, emeritus Professor of the Department of Geology and Mineralogy at Niigata University, Japan, concisely covers the mineralogical and artistic history of jade in his country, linking design and usage – as power symbol – with the political structure and geographical shifts in authority over the centuries. Linked very closely to Japan geographically and culturally is Korea; the discussion of its jade completes this section of the 'Pacific Rim'.

Russell Beck is Curator of the Southland Museum and Art Gallery in New Zealand and the author of several books on New Zealand jade, as well as being a carver of some repute. He has organized many influential exhibitions on jade sources and carving from Australasia and the Pacific Rim.

Beck records early in his section the value of jade in Maori society and its importance and precedence over gold (as was the case in China). He notes the attitudes to the stone in New Zealand and the use of the word 'greenstone', a somewhat loose term. His discussions extend to bowenite, originally and mistakenly thought to be nephrite, when it is in fact a serpentine. The misnomer is perpetrated today, and many of the objects made from bowenite are sold today as 'new jade' (buyer beware!).

He notes the types of jade, locations and how the Maoris first worked their jades using crude hammer methods (before saw-cutting was developed), before moving on to the grinding and drilling techniques which led to the practice of heating the stone, with extraordinary results. The tools the Maoris made are listed and defined, as is the single jade weapon that they developed, and the famous *hei-tiki* ornament. Inevitably, the arrival of Europeans led to the production of copies and reproductions, which fortunately have now been properly identified.

Robert Skelton OBE, formerly Keeper of the Indian Department at the Victoria and Albert Museum in London, is an acknowledged expert in the decorative arts of Islam and India, with a speciality in jades of the Mughal period. His section on Islamic jades explores an area in which there has been, until now, little new research and information.

The whole area of Islamic-inspired jades has been bedevilled with the problems of origin, principally, whether an example was created at the original source of inspiration or is, alternatively, a Chinese 'Mughal' copy. Skelton also makes the distinctions between Turkish jade-working and other Mughal work, reattributing some examples.

In turning to India, Skelton draws attention to the relatively recent (16th- to 17th-century) establishment of jade-working there in comparison to its earlier occurrence in

FIG. 7

FIG. 7 **JADE VASE**
Chinese, 18th-century.
Height: 6 in (15 cm).
A fine jade vase of bronze form, the rounded lip rim over a cylindrical neck with twin elephant-head ring handles. The body is of a square faceted form over a spreading foot. The stone is of palest celadon green tone with whiter suffusions.

other cultures. He records the writings of observers at the Mughal court and the lack of evidence of a fully developed jade school until the latter half of the 17th century.

He describes in detail the Shah Jahan cup in the Victoria and Albert Museum, probably the most famous Mughal jade in the world, as an example of just how fine an Indian jade can be. The former theories that the best Mughal jades were Chinese copies of earlier Indian examples have more recently been challenged and the view established that many of the finest jades in the Mughal style were actually worked in India.

The great interest the emperors of China took in Mughal jades, and the consequent adaptations of Mughal designs by the Chinese jade workers supplying the court and domestic market, are reviewed and discussed. It now seems less likely, as has been suggested in the past, that such Mughal-influenced pieces were fashioned with the Indian 'export' market in mind, and more likely that they were made to exploit a trend in taste among the richer patrons at home.

Skelton also contributes to the European section his new research on the possible influence of some of the European artists on their Chinese counterparts – proselytizing for the first time the theory that European jade craftsmen may have been paid the ultimate compliment of having their ideas copied by artists in the home of jade.

Within the European section we come of course to Russia, an important jade source. The fascinating history of Russian jade is traced with the continuing hope that yet more information will be made available in years to come, as the Soviet Union opens its doors to external scholars.

The connection between Russia and China is explored, with their 20th-century relationship culminating in Chinese reproductions of antique jades being made from Russian material. This leads us to that figure rare in the world of jade, an actual named artist, in this case the famous Fabergé, who produced exquisite creations ardently sought to this day.

Stanley Leaming worked with the Geological Survey of Canada in British Columbia before being invited by the Smithsonian Institution to research jade artefacts on the Labrador coast. His publications include *Jade in Canada* as well as many articles for academic and mineralogical journals. Here he covers North America extensively, discussing aboriginal use of jade and, in more recent times, the rediscovery of jade occurrences in the time of the gold rushes, when Chinese miners recognized jade in formerly deserted streams. In fact, Wyoming stones were destined to be shipped to China in later years. Leaming casts his net widely across his geographical area, noting the sites and their unusual features, including up-to-date geological information from a variety of sources, though noting that little jade is now coming from Alaska. He takes us on an intriguing educational tour in his discourse on early man's use of jades as implements in the region. It is interesting to note that in these cultures the early employment of jade for tools progressed toward its adoption as a symbol of authority, paralleling the development in ancient China.

The interest in jade in Canada has led to the stone being adopted as the mineral emblem, although some warning notes of concern are being sounded about the depletion of its resources.

Dr Ronald Bishop is Senior Research Conservationist at the Smithsonian Institution in Washington, D.C. He is a specialist in Meso-American jades, as is his co-contributor, **Dr Frederick Lange,** who is Director at the Center for Central American Art and Archaeology at the University of Colorado, Boulder, Colorado.

In respect to terminology, they immediately note that the word jade is used in a very broad sense, as in other cultures, and record that it has been known to describe other hardstones, so that the convenient description 'social jade' comes into play. They do, however, quote Carmen Cook de Leonard, who proves that the ancient jade workers knew well enough how to identify true jade from other stones when it came to the selection process. The authors trace the development of jade use in the early Meso-American cultures, connecting the style of Mayan jades to their peaceful society, and describing their preference for the bright emerald stones over the blue tones. Attention is drawn to the fact that Central American jades are mainly burial types, but that the Mayan jade culture threw up more domestic items.

They enter the debate about the use of the term 'Olmec' and the stones worked by this society, and cover other cultures, arguing that virtually all jades find their final use in the ceremonial context. The work of scientists who have studied the compositional variation of jade and other minerals in the second half of this century is discussed, and they point out that jadeite is rarely found as a single rock, but more normally as a constituent of others, exploring the subject in precise, scientific detail but with great lucidity. The jades that have been excavated on specific sites are related to their likely sources and the trade routes by which they may have travelled.

Elizabeth Kennedy Easby, a leading authority on Central American jades, brings to our attention the existence of jade artefacts in Southern America, which albeit small, have hitherto tended to be ignored.

As the book throughout is designed to help the reader, whether browsing or seeking detailed information, there are additional sections that will prove invaluable references: glossaries include both English terms and Chinese terms, and a Pinyin/Wade Giles transliteration glossary identifies

FIG. 8

FIG. 9

old- and new-style Chinese terminology. The section on public collections of jade will enable those who wish to see more to find the museums and collections where jade is held, and the bibliography by **Captain John Sinkankas** – the most extensive yet published devoted to the subject of jade – serves to help with further reading, particularly in specialist areas.

It may never again be possible to bring together so many authorities within a single volume. Their experience and historical scholarship, allied to their understanding and access to the most up-to-date research and information (much of which has flowered in the last 20 years), present us with a previously unrivalled opportunity to fully understand and take a firm grasp of the subject. It is particularly interesting to note how – from such a wide diversity of cultures, backgrounds and schools of thought – there have come together in harmony so many common threads, and how there is so much agreement and reaffirmation on the essential themes of jade scholarship, serving to emphasize and strengthen the general arguments, theories and judgements put forward.

Jade has intrigued mankind for millennia, and the enigma of its fascination is in no way lessened by the learning unveiled in this volume. Quite the reverse: the affection and reverence in which the stone is held can only be enhanced by greater awareness. Today, as never before, we can join with the ancient Chinese, who encountered and accepted jade with simplicity, and christened it the stone of heaven.

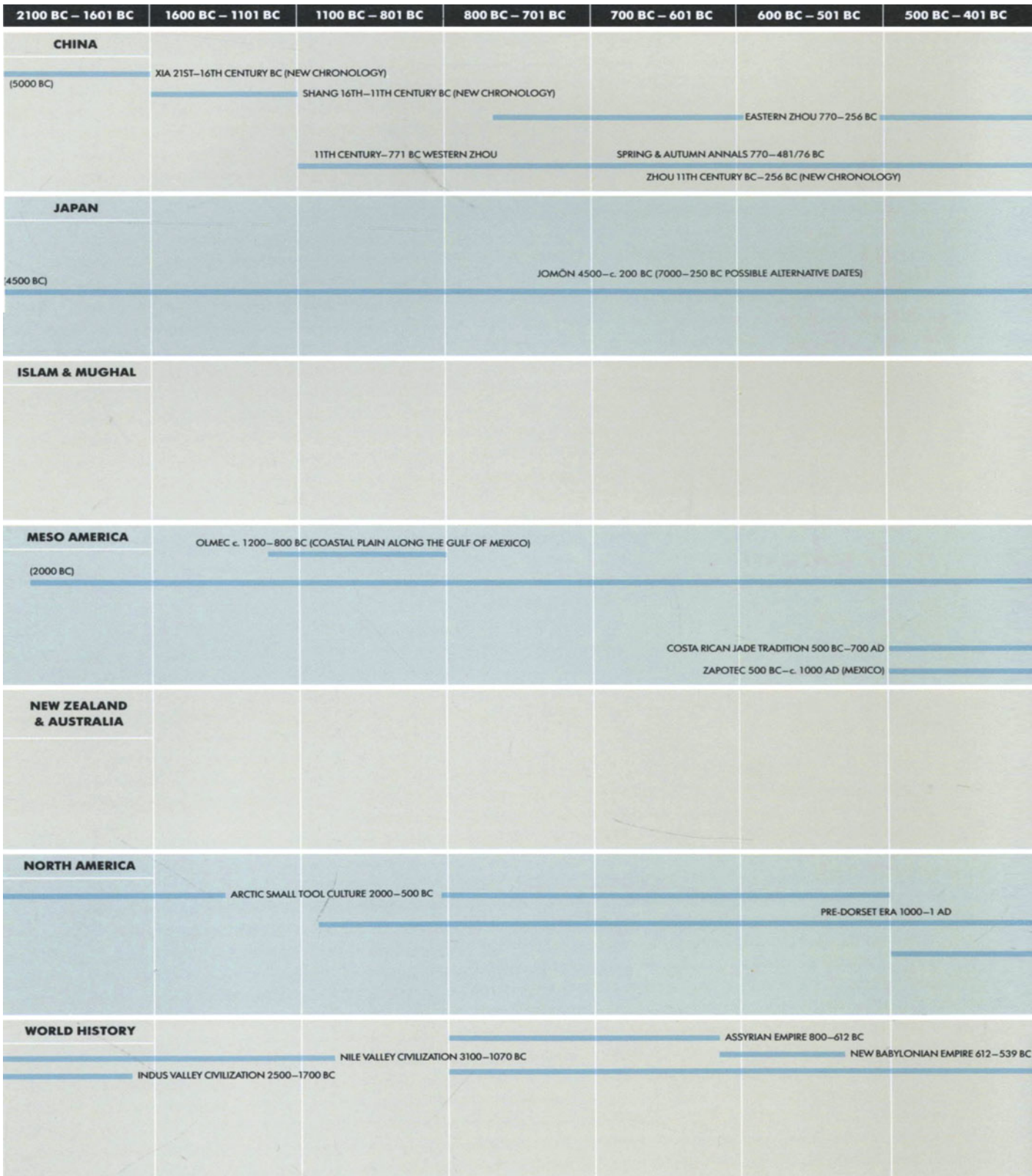
FIG. 10

FIG. 8 **LIPPED BOWL**
Chinese, 18th-century. Diameter: 6 1/16 in (17.7 cm). A vessel of well rounded and lipped form, the top bridged by a musical stone, pierced character and tassels; the sides with double bat handles. The stone is a mottled pale celadon green tone. This form was popular in jade, and was made in a variety of sizes. Most examples tend to be of a high quality and this one is particularly good.

FIG. 9 **JADE BOWL**
Chinese, 18th-century. Height: 2 3/4 in (7 cm), diameter: 4 1/4 in (11 cm). A circular jade bowl, with a foliate lip rim and four leaf-shaped feet. There are twin curved flower-head handles either side of a continuous petal design. The stone is of a good white tone with russet brown areas.

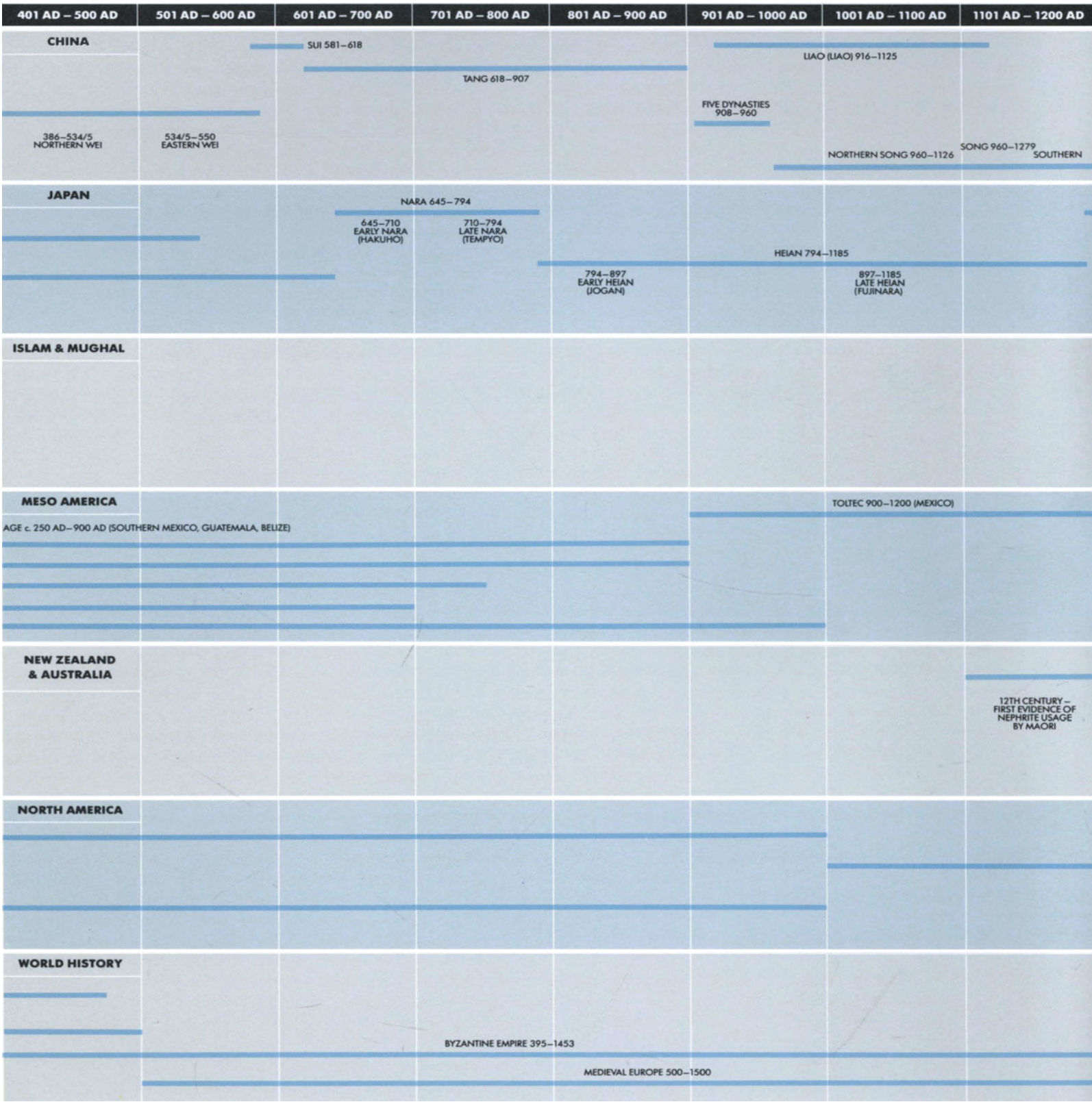
FIG. 10 **JADE BELL**
Chinese, Song Dynasty. Length: 5 1/4 in (13.5 cm). A bell of flaring form, the handle in the form of two crouching animals, the body decorated in low relief with bovine taotie masks, rope-work and archaistic motifs. The stone is of a pale green tone with brown inclusions. This well-detailed jade is very much in the tradition of the Song period with its interest in the antiquarian.

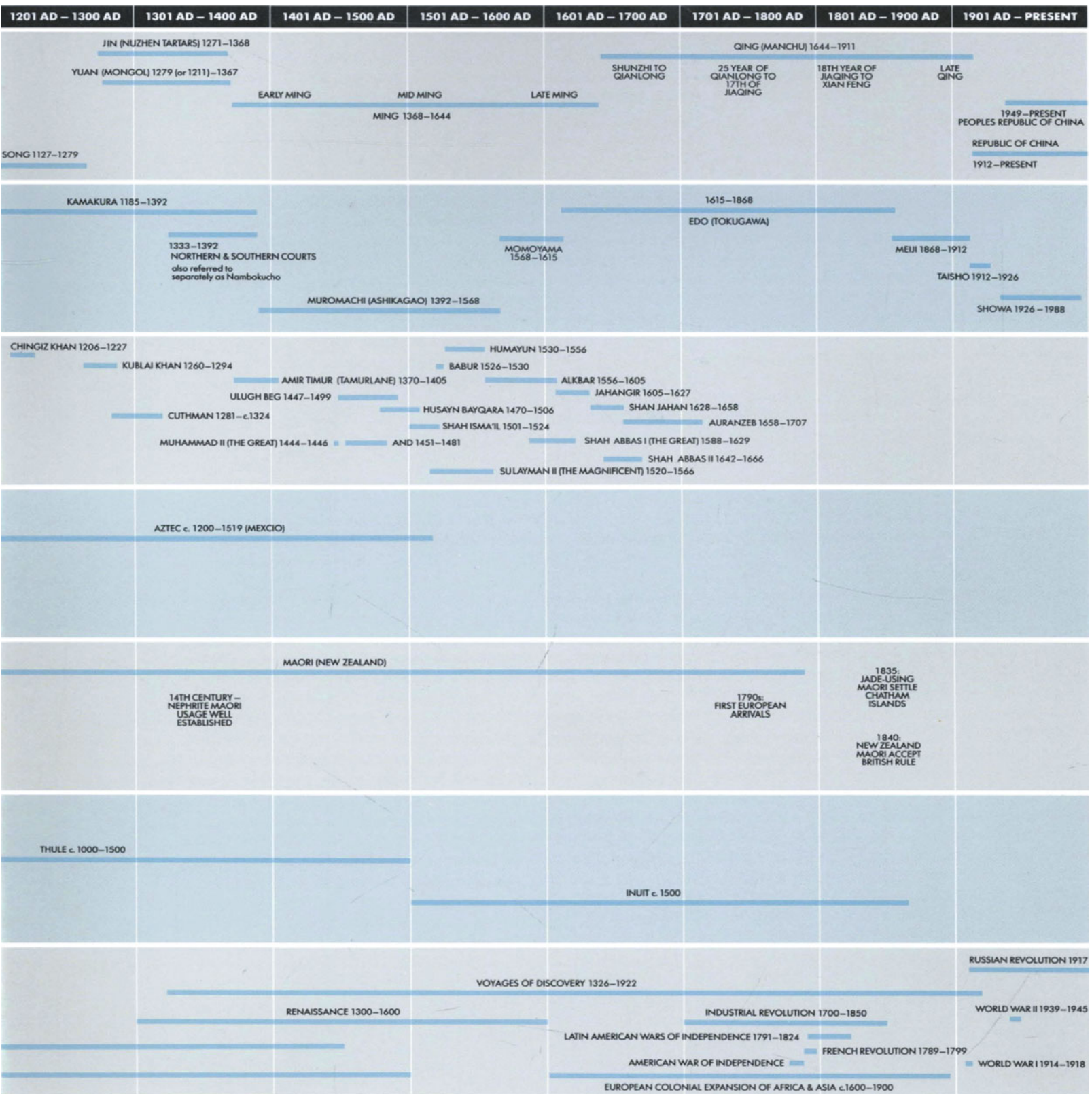
CULTURAL CHRONOLOGY CHART



CULTURAL CHRONOLOGY CHART

CULTURAL CHRONOLOGY CHART




1201 AD – 1300 AD
1301 AD – 1400 AD
1401 AD – 1500 AD
1501 AD – 1600 AD
1601 AD – 1700 AD
1701 AD – 1800 AD
1801 AD – 1900 AD
1901 AD – PRESENT
JIN (NUZHEN TARTARS) 1271–1368
YUAN (MONGOL) 1279 (or 1211)–1367
SONG 1127–1279
EARLY MING
MID MING
LATE MING
MING 1368–1644
QING (MANCHU) 1644–1911
SHUNZHI TO QIANLONG
25 YEAR OF QIANLONG TO 17TH OF JIAQING
18TH YEAR OF JIAQING TO XIAN FENG
LATE QING
1949–PRESENT PEOPLES REPUBLIC OF CHINA
REPUBLIC OF CHINA
1912–PRESENT
KAMAKURA 1185–1392
1333–1392 NORTHERN & SOUTHERN COURTS
also referred to separately as Nambokucho
MUROMACHI (ASHIKAGAO) 1392–1568
MOMOYAMA 1568–1615
1615–1868
EDO (TOKUGAWA)
MEIJI 1868–1912
TAISHO 1912–1926
SHOWA 1926 – 1988
CHINGIZ KHAN 1206–1227
KUBLAI KHAN 1260–1294
AMIR TIMUR (TAMURLANE) 1370–1405
ULUGH BEG 1447–1499
CUTHMAN 1281–c.1324
MUHAMMAD II (THE GREAT) 1444–1446
AND 1451–1481
HUMAYUN 1530–1556
BABUR 1526–1530
HUSAYN BAYQARA 1470–1506
SHAH ISMA'IL 1501–1524
SU LAYMAN II (THE MAGNIFICENT) 1520–1566
ALKBAR 1556–1605
JAHANGIR 1605–1627
SHAN JAHAN 1628–1658
AURANZEB 1658–1707
SHAH ABBAS I (THE GREAT) 1588–1629
SHAH ABBAS II 1642–1666
AZTEC c. 1200–1519 (MEXCIO)
MAORI (NEW ZEALAND)
14TH CENTURY – NEPHRITE MAORI USAGE WELL ESTABLISHED
1790s: FIRST EUROPEAN ARRIVALS
1835: JADE-USING MAORI SETTLE CHATHAM ISLANDS
1840: NEW ZEALAND MAORI ACCEPT BRITISH RULE
THULE c. 1000–1500
INUIT c. 1500
RUSSIAN REVOLUTION 1917
VOYAGES OF DISCOVERY 1326–1922
RENAISSANCE 1300–1600
INDUSTRIAL REVOLUTION 1700–1850
WORLD WAR II 1939–1945
LATIN AMERICAN WARS OF INDEPENDENCE 1791–1824
FRENCH REVOLUTION 1789–1799
AMERICAN WAR OF INDEPENDENCE
WORLD WAR I 1914–1918
EUROPEAN COLONIAL EXPANSION OF AFRICA & ASIA c.1600–1900

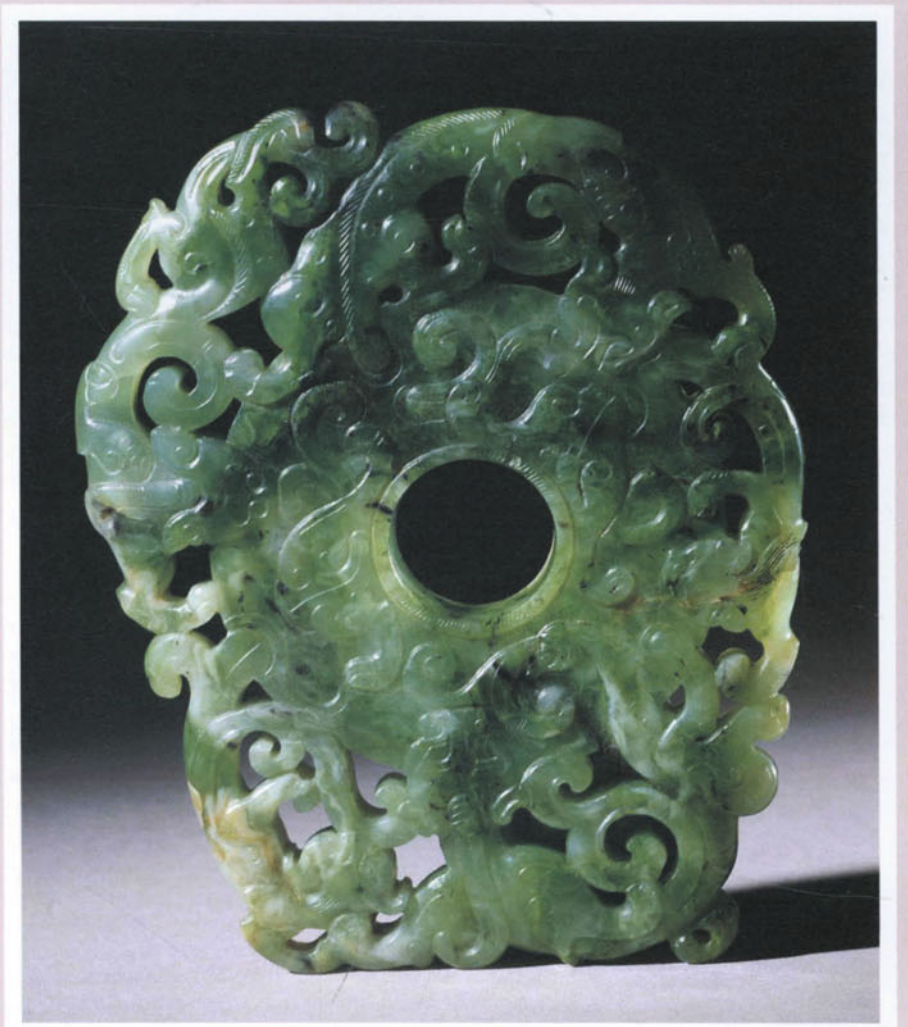


FIG. 1

FIG. 1 **JADE *BI* DISC**
Chinese, 18th-century. Height: 3¾ in (9.5 cm). A jade bi *disc of archaic form. The edges are carved in open-work with scrolling stylized dragon designs around a grain-patterned central disc. The stone is spinach green with paler infusions and black speckles. A fine example, the variations in the stone have been used to great effect. The colour of the stone is more pale and translucent than is usually found in the 18th-century.*

CHAPTER 1

JADE: A SPECIAL GEMSTONE

The Gemology of Jade

JILL WALKER

FIG. 2

FIG. 2 **INCENSE BURNER**
The colour differences in this late 19th-century jadeite covered incense burner indicate slight differences in the chemical make-up. The front is worked in high relief with a fire-breathing dragon.

It has a 'certain something' that made a Chinese emperor offer 15 cities for a jade carving he could hold in one hand; that made Montezuma smile when he heard that Cortés was interested only in gold, since Montezuma's most precious possession was jade. That caused men of civilizations oceans and centuries apart to believe it to be the stone of immortality. That made some men forbid it to their wives, and other men speak through it to their gods, and still others spend years carving a single object from it.[1]

RICHARD GUMP

Jade is a unique gemstone. It has a 'certain something' that distinguishes it from other gems. Art historians are fascinated by its special place in different civilizations; philosophers marvel at the mystical qualities assigned to this 'stone of heaven', and gemologists struggle to define its unique traits and system of valuation.

What makes this gemstone so mysterious and desirable throughout time? The answer lies partly in its unique characteristics. Jade admirers in all disciplines have noted its soft, glossy appearance, its smooth feel, unusual colour combinations and extreme toughness.

Jade is unlike other highly desirable gemstones in several ways. First, the most commonly sought-after gems such as ruby, sapphire, emerald and diamond are usually faceted – that is, they have individual plane surfaces. Jadeite is rarely faceted. The most beautiful jade jewellery is often composed of cabochons, which instead have smooth dome-like surfaces. Necklaces and earrings may be in the form of beads or discs, while pendants are often contoured.

Another feature that makes jade special is its unusual texture. As we will examine later, this texture gives rise to a different transparency in valuable jewellery pieces. While a top-quality ruby, sapphire or emerald would most likely be transparent, a jade piece will be, at best, semi-transparent.

Many people are of the opinion that jade, given its value and distinctive features, warrants its own evaluation system. Only two gems in fact have their own appraisal standards: diamonds and pearls. Jade and other coloured stones are graded essentially by the same standards. A separate evaluation system for jade may take some time as scientific standards are still evolving.

This chapter will explore the gemology of jade – that is, the scientific nature of jade that makes it so special. The mineralogical definition of jade will be examined first, followed by a discussion of jade's colours, sources and trade terms. Next, the common jade simulants and their trade names will be introduced. Lastly, the gemological methods used to identify jade and its most common simulants will be outlined so that a jade buyer understands which tests provide conclusive proof of jade.

FIG. 3

FIG. 3 **BOWENITE CARVING**
Bowenite, the pale apple-green form of serpentine, is an attractive jade simulant. Bowenite was mistakenly identified as nephrite by Dr. Bowen, after whom it is named. Bowenite is harder, and hence may take better polish and have a higher lustre than most other forms of serpentine.

FIG. 4

FIG. 4 **BELT BUCKLE**
Each section of this belt buckle has curling dragons, and it is united by a dragon-head hook. The stone is of a fine rust-brown tone.

FIG. 5

FIG. 5 **JADEITE RING**
This ring depicts the colour of top-quality jadeite: that is, an even, highly saturated green.

FIG. 6

FIG. 6 **CRESTED BIRD**
Song Dynasty. Length: 2⅜ in (6.3 cm). A small, crested bird, beautifully modelled from jade of an attractive green-brown tone with russet markings.

JADE IS TWO STONES

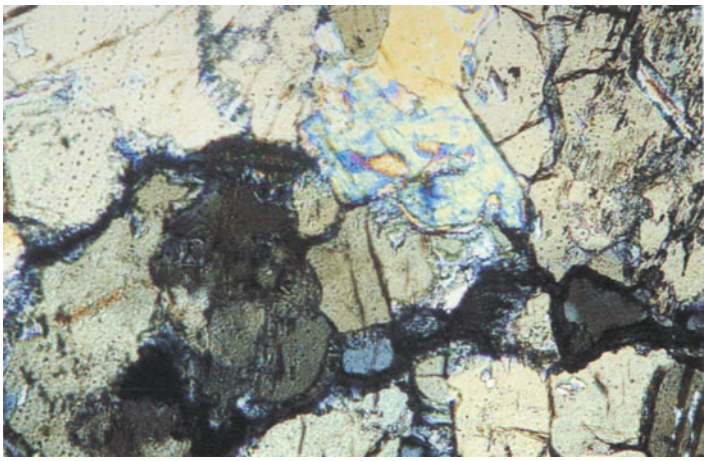


FIG. 7 **JADEITE SECTION**
A thin section of jadeite shows many interlocking granular crystals. This is magnified 100 times.

FIG. 7

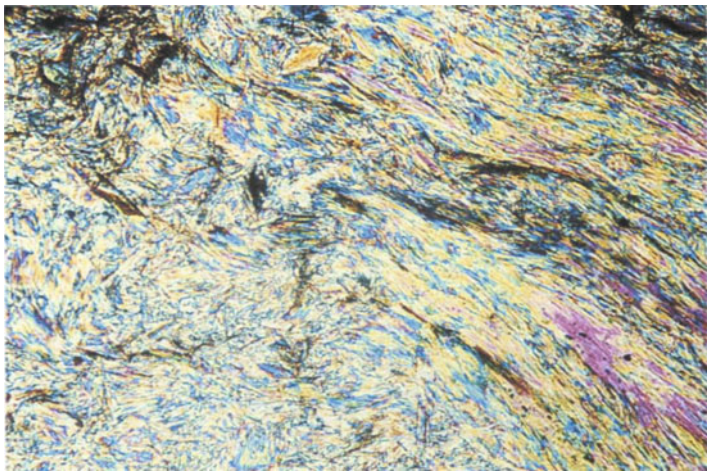


FIG. 8 **NEPHRITE SECTION**
A thin section of nephrite shows interwoven, fibrous crystals. This is magnified 100 times.

FIG. 8

Although most people associate jade's history with the Far East, the English word 'jade' is actually derived from the Spanish phrase *piedra de ijada* or 'loin stone', from the material's reputed power to cure kidney ailments. Artefacts from the great ancient societies of Central America prove that jade was an important part of their culture. The Mayans, Olmecs and Aztecs used jade extensively in burial masks, pendants, rings, ear flares, collars and discs. The exact sources of all this jade have yet to be documented, but carvings from these civilizations have been unearthed throughout Central America.

Curiously, the scientific nature of this jade – and the jade used by the Chinese – was not fully understood until the 19th century. Around the middle of this century, Professor A. Damour proved that the gemstone called jade is actually two separate and distinct materials: jadeite and nephrite. Today, the former is considered to be the more valued of the two for jewellery, because fine-quality, favoured or preferred jadeite is an intense medium green, whereas even the best nephrite tends to be a darker, more blackish green.

Most of the material that the Spanish had called jade was actually jadeite, although its hue was somewhat darker than its Far Eastern counterpart. Interestingly, the recognition of the two jades was not significant until the best source for top-quality jadeite, Burma (now Myanmar), was commercially exploited.

For centuries, the Chinese had used their native nephrite and other translucent minerals in important carvings. In fact, the Chinese word *yu*, which we translate as jade, actually means any stone suitable for carving. But above other minerals, nephrite was revered for its special qualities: its extreme toughness, smooth polish and alluring translucency.

Although jadeite had reportedly trickled into China from Burma since the 13th century (and reputedly even

earlier), it did not make its mark for another 500 years.[2] As trade began to increase between China and Burma in the 1780s, jadeite started to appear in the imperial lapidaries of China, possibly as tribute to the Chinese emperor.

The Chinese called the intense green jadeite *fei cui* (kingfisher) after the brilliant green plumage of the bird of that name. It was also called 'new jade' to distinguish it from China's nephrite jade.[3] And, possibly because of its ready acceptance by the Qing Dynasty Emperor Qianlong (1736-1795), top-quality green jadeite was later dubbed 'imperial' jade.

Mineralogical Differences

Although Damour proved that nephrite and jadeite belong to two different mineral groups, gemologists and mineralogists are still debating jade's finer chemical points. Strictly speaking, nephrite belongs to the amphibole mineral group, while jadeite is a member of the pyroxene group. When different pieces of nephrite and jadeite are analyzed, however, they may not fall neatly into these two categories.

Nephrite is actually a mixture of two different amphiboles. Actinolite (a calcium magnesium-iron hydroxyl silicate) forms with tremolite (a calcium magnesium hydroxyl silicate) to create the fibrous nephrite jade. As a result, nephrite is not classified as a mineral species, but as a variety of the actinolite-tremolite series. Its complex chemical composition is usually listed as $Ca_2(Mg,Fe)_5(OH)_2(Si_4O_{11})_2$. The appearance of an individual piece of nephrite may give a clue as to the proportion of each mineral present. White and grey nephrite are often closer to tremolite in composition, while green, yellow and brown nephrite may be closer to actinolite (the iron in actinolite replaces magnesium, imparting a noticeable hue).

Jadeite has its own chemical intricacies. As documented by Damour in 1863, jadeite is a separate and distinct mineral species, a sodium aluminium silicate, with an ideal chemical composition of $NaAl(Si0_3)_2$. Many minerals do not vary much from their ideal compositions, but jadeite may actually grade into other minerals of the pyroxene group – for instance, jadeite may contain high concentrations of diopside or acmite.

Such composites still qualify as jadeite so long as jadeite's gemological properties (refractive index, specific gravity, spectrum and hardness) are not significantly altered. For example, chloromelanite, a trade term for very dark green to black jadeite, has a high diopside content. Even though its iron-rich composition is significant enough to darken jadeite's green hue, the diopside content is not substantial enough to disqualify this material as a type of jadeite. When the diopside content is high enough to increase a material's refractive index and specific gravity

FIG. 9

FIG. 9 **LAVENDER VASE**
This delightful thin, delicate lavender vase, of Mughal influence, exemplifies the subtle tones in which jade can be found. Lavender jade, usually worked into jewellery rather than vessels as here, is almost universally restricted to pieces from the late Qing and after.

FIG. 10

FIG. 10 **FRACTURE SECTION**
On the left is seen the fractured surface of a piece of nephrite. It has a granular texture characteristic of fractured jade, as opposed to the conchoidal fracture seen in the dyed chalcedony on the right.

beyond the accepted range for jadeite, the material is called diopside-jadeite.

In defining both jadeite and nephrite, texture is as important as mineralogical composition. The material must be tough, compact and fine-grained. In the case of nephrite, it must also consist of interlocking fibres. If the fibres are not interlocking but simply parallel, the material lacks the requisite toughness and therefore cannot be considered to be nephrite.

Colours

The various colours of *yu* were inextricably tied to Chinese traditions. To cite a few examples, the Chinese integrated the various colours of jade in their religious ceremonies and in their personal adornment. According to the ancient text *Zhou li*, which described the ceremonial uses of jade, a Master of Religious Ceremonies would use six different coloured jade objects to perform homage:[4]

> *With the round tablet* bi *of bluish colour, he does homage to Heaven. With the yellow jade tube* cong, *he does homage to the Earth. With the green tablet* gui, *he renders homage to the region of the East. With the red tablet* zhang, *he renders homage to the South. With the white tablet in the shape of a tiger (*hu*), he renders homage to the region of the West. With the black jade piece of semi-circular shape (*huang*), he renders homage to the region of the North.*

Six colours of *yu*, then, represented six cosmic powers: heaven, earth and the four points of the compass. During the Zhou period, different colours and qualities of jade (or other carved gems considered *yu*) were worn as girdle ornaments to indicate rank (Laufer, 1912):

> *White jade considered the most precious was the privileged ornament of the emperor; jade green like the mountains was reserved for the princes of the first and second ranks (*kung hou*); water-blue jade was for the great prefects (*tai fu*) . . . and a plain official had to be content with a stone inferior to jade called* juan min *(presumably prehnite).*

Many people today are not aware that jade comes in many different colours. In addition to its rich green hues, jadeite also occurs in white, green, yellow to reddish-orange, brown, grey, black and lavender or slightly reddish-purple (sometimes referred to as blue). See Fig. 12 for examples. Trace elements are responsible for the colours of jadeite; for example, the vivid green colour is primarily caused by minute amounts of chromium, although traces of iron may also be present. The yellow and yellowish-green hues are the result of iron. Lavender was formerly ascribed only to manganese until recent chemical studies showed that lavender jadeite can in fact be caused by an iron charge transfer.[5]

By contrast, nephrite generally occurs in less vivid hues; the full colour range includes light to dark green, yellow to brown, white, grey and black. Iron is chiefly responsible for its green, yellow and brown hues (green may have traces of chromium). Most white and grey nephrite have much less iron in their chemical make-up than coloured nephrite does.

Because of jade's texture and mode of formation, both jadeite and nephrite may also occur in mottled hues, or in different hues on the same boulder. As can be seen in many museum collections, the Chinese often took great care to integrate such colour variations in their carvings. Colour mottling is common in jade jewellery, too. For example, 'moss-in-the-snow jade', a white piece of jadeite containing green streaks, is often fashioned into attractive pendants or earrings.

Sources

Nephrite occurs in a number of locations around the world, but gem-quality jadeite is found only in a few places. Interestingly, the oldest known sources for both jades are still significant sources today.

The most important jadeite mines are found in the Kachin Hills of northern Burma, approximately 70 miles (112 km) northwest of Mogaung, an important jade cutting and trading village.[6] From end to end, the mining area is approximately 800 sq miles (2080 sq km), the boundaries being the Uru River on the east and the Chindwin River on the west.

The major jadeite deposits in this region are found in Tawmaw, Hweka and Mamon. Of these three mining areas, Tawmaw is by far the most important jade tract. The mining methods used today are still fairly primitive, and vary depending on whether the jadeite is found in primary deposits (mines) or in alluvium. In the areas where jadeite is recovered in dykes, modern methods of mining are used, but such methods are sometimes not successful due to jadeite's extreme toughness. In such cases miners may resort to a primitive method of breaking up the deposits; the rock face is heated with fire and then quickly cooled with water which fractures the surface, making it more easily recoverable. In the alluvial areas where jadeite is recovered from the Uru and other riverbeds of the Myitkyina district, mining is accomplished by digging small pits to depths of 20 ft (6 m) or more until the jadeite-bearing rock is reached.[7] Recovered boulders are then sorted and inspected by hand.

Before they are sold, commercially significant jadeite boulders are 'mawed' – that is, a flat of about 1×1½ inches (2.5×4 cm) is cut and polished on the material in an attempt to reveal the boulder's interior colour. Since jadeite's colour is

rarely uniform, a buyer still has to speculate about the final outcome of cutting the material.

Although top-quality jadeite almost always comes from Burma, jadeite has also been found in Guatemala, California, Japan and Switzerland. The jadeite deposits in Guatemala were rediscovered around 1974. Prior to this find, the source(s) of jadeite used by the ancient civilizations of Central America had been largely lost. American expatriates living in Guatemala found jadeite in several locations near the village of Manzanal, in the Motagua Valley.[8] According to the new studies, jadeite from this area occurs in a wide range of commercially feasible hues, including green, bluish-green, variegated white and light greyish-green, white and black. While the colour range is similar to that found in Burma, top-quality Guatemalan jadeite does not approach the vivid, semi-translucent green found in classic Burmese jadeite.

Jadeite has been found throughout the state of California in a wide range of colours: white, light green, dark greyish-green, dark bluish-green. Typically, the translucency and texture of this jadeite do not match fine Burmese material, but some of it is commercially acceptable.

In 1939, jadeite was discovered in the Clear Spring area of San Benito County, California. Since then, jadeite has been found loose within riverbed nodules of serpentine, or in albite schist associated with serpentine. Stream boulders of jadeite have also been recovered on the north fork of the Eel River, in Trinity County, as well as in a glaucophane schist near Valley Ford, Sonoma County. In addition, a dark green to black jadeite has reportedly been found in San Diego County, California. A non-gem-quality jadeite-nephrite mixture has also been discovered in stream beds near the town of Covelo in Mendocino County, California. The only other place that this intergrowth has been reported is in the Kunlun mountain area of Xinjiang Province, China.[9] (For more detailed information on California deposits, see North America, page 304.)

Specimens of jadeite have been found in Japan, near the village of Kotaki, Niigata Prefecture. To date, most of this material is fairly pale and some of it lacks jadeite's characteristic toughness because it contains streaks of tremolite and albite.

Prior to the introduction of jadeite in the late 18th century, the Chinese used their native nephrite jade in carvings and religious objects. By far the most important source of this nephrite was the northern slope of the Kunlun Mountains. This source continues to be important today. The Kunlun Mountains are located in the southern Xinjiang Uygur Autonomous Region. According to recent studies, the principal collecting centres are currently near the towns of Hetian (Khotan), Yutian, and Minfeng.[10] Nephrite is usually found as alluvial boulders near the base

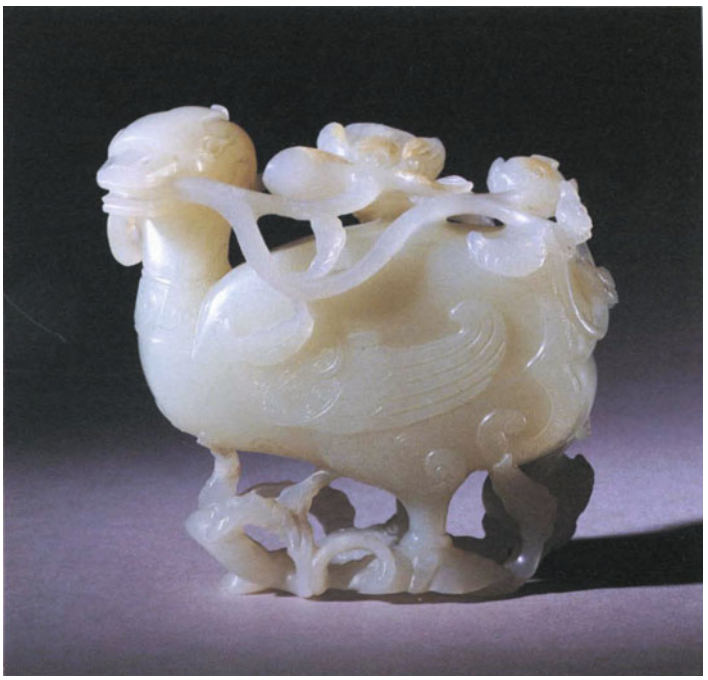


FIG. 11

FIG. 11 **STANDING DUCK**
This nephrite working depicts a standing duck with a fruiting branch in its beak. The wings and feathers are carved in a stylized form and the stone has a good white tone.

FIG. 12

FIG. 12 **JADEITE COLOURS**
Jadeite occurs naturally in a wide variety of colours, as can be observed in the different coloured jadeite cabochons illustrated here.

of these mountains; however, mines have been worked in the Kunlun mountains for over a thousand years.[11]

While nephrite from the Kunlun Mountains occurs in a great variety of colours – green being the most common – the Chinese consider 'mutton-fat' or best white nephrite to be the most desirable. Green nephrite has also been reported near Manas, north of the Tianshan range, in northwestern Xinjiang Uygur Autonomous Region,[12] and in Sichuan Province.

In addition to China, nephrite has been found in British Columbia, Canada; Australia; New Zealand; Taiwan; Alaska, California, Oregon, Washington State and Wyoming in the United States; the Soviet Union; Poland; Italy; Switzerland; and a few other sites. Of these sources, British Columbia and Taiwan are reputed to be the top commercial producers.

Historically, nephrite deposits in China, Europe and New Zealand are significant. Artefacts from these areas prove that prehistoric civilizations recognized jade's unusual toughness. Both jadeite and nephrite are durable, but nephrite is slightly more resistant to breaking than jadeite because of its unique, interlocking fibrous structure.

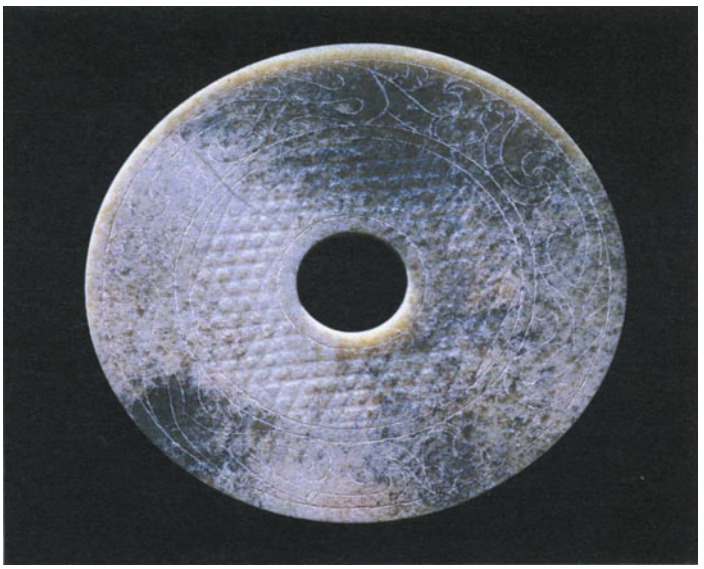


FIG. 13

FIG. 13 ***BI* DISC**
Chinese, Han Dynasty. Diameter: 5⅝ in (14.5 cm). Green and white calcified areas can be seen clearly on this jade, indicating its great age. The sides of this fine bi *are engraved with stylized archaic birds and a raised 'rice grain' pattern.*

In the Swiss Lakes area, archaeologists have unearthed functional articles such as axe heads, scrapers and instruments of war made of jade. Digs have also uncovered nephrite implements in New Zealand. The Maoris of New Zealand had taken advantage of jade's toughness, as is evidenced by the fact that they fashioned jade into tools (axes and chisels) and weapons. Over time, as metals were discovered, civilizations transferred their attitude of respect for jade as a purely functional object to one of reverence for its religious, symbolic and/or purely aesthetic value.

Trade Names

In an effort to describe the different colours of jade, many trade names have evolved over time. These names have included everything from animal and vegetable appellations to mineral and source terms. For example, in different parts of the world, certain types of jade have been called chicken-bone, kingfisher, mutton-fat, nightingale and shrimp; apple, chrysanthemum, melon, moss, peach, sunflower and spinach; emerald, sapphire and pearl; as well as Burmese, Canadian and New Zealand jade.

Some of these trade names are still used today (see Table 1). For example, top-quality jadeite might be called 'Imperial jade', or 'emerald jade'. This connotes an even, highly saturated green or slightly bluish-green colour (see Figs. 5 and 14). Another common term for jadeite is 'apple green', which indicates a vivid, slightly yellowish-green colour.

Trade names can be misleading, though, since they may be used differently around the world. These terms may simply refer to a jade piece's location or colour, rather than its overall quality. For example, an 'Imperial' jadeite ring may have outstanding colour, but it may not possess all the other factors that make it a top-quality stone, such as evenness of colour, semi-transparency and freedom from noticeable inclusions. Likewise, a 'Burmese jadeite' specimen may indeed come from Burma but that does not mean it has exceptional colour.

The common trade terms for nephrite also warrant caveats. Since this jade makes up all the important carvings prior to the 18th century, many of the terms connote age or cultural use. For example, nephrite that may have been used in burial rites is often known as 'grave' or 'tomb' jade. Green jade used in prehistoric times by the Maoris in New Zealand has been called 'Maori stone' (for a complete description of this jade, see Jades of the South Pacific, page 220). Due to the fact that some jade has been artificially aged,[13] such designations need to be verified by archaeologists and gemologists with specialized knowledge.

TABLE 1: COMMON TRADE NAMES FOR JADE

Type of jade	*Trade name*	*Standard colour/appearance*
JADEITE	*Apple*	Intense, medium yellowish-green
	Chloromelanite	Very dark green to black, opaque to semi-translucent. This type of jadeite contains high concentrations of other pyroxene group minerals (e.g., diopside).
	Fei cui, kingfisher	Intense, medium green.
	Imperial gem, emerald	Intense, medium green to slightly bluish-green; semi-transparent to translucent. Considered by most to be top-quality.
	Moss-in-the-snow	Translucent white jadeite with green streaks called streamers.
	Yunan	Dark strong green, semi-translucent to opaque. When cut thin, it appears translucent.
NEPHRITE	*Axe*	In reference to the use of jade as a tool; obsolete term.
	Chicken-bone	Opaque white to very light brown or grey; may have been buried or burned.
	Grave, tomb	Ancient burial pieces whose colour may be yellowish or brownish due to iron oxidation. (Artefacts from Central America, however, may be jadeite.)
	Maori stone	Dark green material from New Zealand, mainly prehistoric.
	Mutton-fat	Translucent white to very light yellow.
	Spinach jade	Medium to dark greyish-green.

FIG. 14

FIG. 14 **VASE**
A Chinese vase worked in a beautiful dark spinach-green Russian stone. Top and finial are worked with leaves in low relief; the body has a curling leaf design in relief on a plain background; and the shoulders bear double leaf ring handles. The proportions are pleasing, though its composition and style indicate its origins as later than the 18th century.

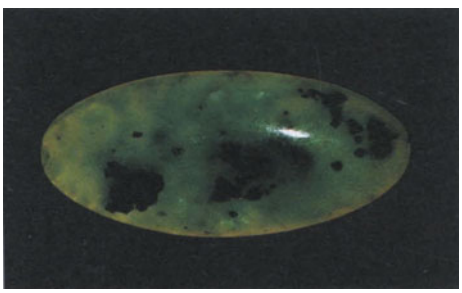


FIG. 15

FIG. 15 **CHROMITE IN SERPENTINE**
Black inclusions, such as the chromite in serpentine seen here, may suggest that the stone is a jade simulant.

FIG. 16

FIG. 16 **CHINESE RAM**
This Chinese nephrite ram has a very pale tone with some russet markings. The colour is well used in the design. This piece dates to the 17th/18th century.

JADE SIMULANTS

FIG. 17

FIG. 17 **SERPENTINE / ZOISITE VASE**
This vase depicts a less commonly seen jade simulant – serpentine mixed with zoisite. Taking a refractive index on several parts of this material would reveal the different natural minerals that are present.

In addition to all the accepted trade names for jade, buyers also need to be aware of the terms that are used for jade simulants. 'Simulants' are those natural gem minerals and glass or plastic substitutes that appear to have some of the same visual characteristics as jade, but that lack jade's unique optical, physical and chemical properties. For example, some of the misleading trade terms include 'Mexican jade' for calcite; 'Amazon jade' for amazonite; and 'Metajade' for a certain type of glass (see Table 2). While gem experts recognize these names (although the material may be misidentified), jade novices are often confused by them.

'Synthetic' jadeite is the only material that virtually duplicates the mineralogical properties of jade. Produced successfully by scientists R. C. DeVries and J. Fleischer at General Electric in the 1980s, this material has essentially the same chemical composition and crystalline structure as jadeite. To create a lavender colour manganese is added to the melt, while the various shades of green are achieved by introducing chromium. Buyers need not worry yet about its market impact for General Electric does not intend to commercialize this product. (Seiko also holds similar patents.)

Given jade's beauty and value in many different cultures, it is easy to understand why so many gem materials have been represented as jade. Jade, in fact, has more simulants than most other valuable gemstones. Counting the relatively obscure simulants (see Table 3), approximately 30 gem materials make the list of believable simulants. Many of these gems are translucent and colour-mottled like jade, and some of them occur in colours that resemble jade's valued hues, such as nephrite's white or jadeite's medium green, variegated green-and-white and reddish-orange hues. (The statue in Fig. 18 is for instance not jade but aventurine quartz.) Even jadeite's rare lavender hue can be duplicated by injecting an organic dye into cryptocrystalline minerals.

With all these materials being represented as jade, how does the average buyer distinguish jade from its simulants? Fortunately, only about ten of these simulants are regularly seen in the jewellery trade. Some of these possess visual characteristics that indicate or prove their identity. In cases where visual clues are inconclusive, or in situations where expensive purchases are being made, standard gemological tests can be performed.

TABLE 2: MISLEADING TERMS FOR JADE SIMULANTS

Simulant	*Misleading term*
CALCITE	Oriental alabaster (trade name)
dyed	'Mexican jade'
CHALCEDONY	
Chrysoprase	'Queensland jade'
Dyed jasper	'Swiss jade'
Jasper	'Jasper jade'
	'Oregon jade'
GLASS *(partially devitrified), also known as Imori or Iimori stone*	'Metajade'
IDOCRASE	'Vesuvianite jade'
Californite	'American jade'
	'California jade'
MALACHITE	'Silver Peak jadeite'
MICROCLINE, AMAZONITE	'Amazon jade'
	'Colorado jade'
PECTOLITE	'Alaska jade'
	'Pectolite jade'
PREHNITE	'Japanese jade'
PSEUDOPHITE	'Styrian jade'
QUARTZ	
Aventurine	'Regal jade'
	'Indian jade'
	'Imperial yu'
SERPENTINE *(Antigorite)*	'Korean jade' (now particularly confusing as true nephrite has been found in Korea)
Bowenite	'Suzhou jade' (may also refer to talc)
	'New jade'
TALC	'Fujian jade'
also known as Steatite or 'Soapstone'	'Henan jade'
	'Manchurian jade' (now particularly confusing as true nephrite has been found in Manchuria)
	'Shanghai jade'
TL GROSSULARITE	'Transvaal jade'
	'South African jade'
	'Garnet jade'
	'White jade'
VERD-ANTIQUE *(mixed with marble)*	Verdite (trade name)

FIG. 19

TABLE 3: JADE SIMULANTS

AGALMATOLITE (pagodite), also known as Pagoda stone
ARAGONITE (may be dyed)
BERYL, green non-transparent
FLUORITE
MALACHITE
MAW-SIT-SIT (rock composed primarily of kosmochlor (ureyite) with varying amounts of the amphibole, chlorite and feldspar group minerals)
MICROCLINE, AMAZONITE
OPAL, PRASE
PECTOLITE
PINITE
PLASTIC
PSEUDOPHITE (chlorite group)
PYROPHYLLITE
SERPENTINE, mixed with zoisite
SILLIMANITE (fibrolite)
SMARAGDITE (near actinolite in composition)
SMITHSONITE, also known as bonamite

FIG. 18

FIG. 18 AVENTURINE STATUE
Many natural gemstones have been represented as jade. This statue is worked in aventurine quartz – one of the commonest jadeite simulants. Due to its telltale visual characteristics, aventurine quartz is relatively easy to identify.

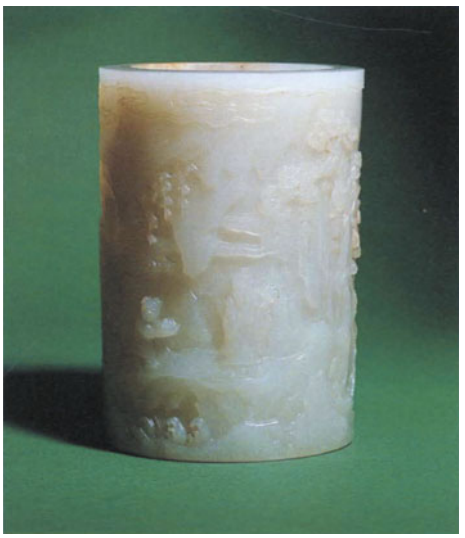


FIG. 20

FIG. 19 JADEITE BROOCH
This magnificent stone has a highly translucent, bright apple-green tone. Such colour was very popular with 19th-century Europeans, the period of the mount of this piece, but the jade-working itself, of a writhing dragon, is undoubtedly earlier in date.

FIG. 20 BRUSH POT
Chinese, 18th-century. Height: 3¾ in (9.5 cm). A small cylindrical brush pot worked in high relief, with a scene of Shoulao and his acolytes amongst rocks and trees, from jade of a good white tone.

JADE IDENTIFICATION

FIG. 21 **JADEITE JEWELLERY**
This jadeite necklace and earrings illustrate some of jadeite's unique characteristics: its exquisite colour, vitreous texture, and semi-transparent/translucent nature. The natural green jadeite beads are 30 in (76 cm) long; the largest bead is ⅓ in (9.5 mm) in diameter; the natural green jadeite earrings are 1 in (2.5 cm) in diameter.

FIG. 21

With practice and an understanding of the techniques involved, jadeite and nephrite can be readily separated both from each other and from their simulants. The best method is first to look at the material, since a great deal of information about a gemstone's composition and properties may be discernible, and then to have those gemological tests performed that will effectively lead to an identification.

Visual examination of a jade-appearing material may yield significant identifying clues such as texture, surface lustre and fracture, as well as characteristic inclusions, evidence of dye, the presence of phenomena and possibly other distinguishing characteristics. All these visual characteristics contribute to the typical appearance of a gemstone, thus allowing an expert with a well-trained eye to limit the range of possibilities quickly after an initial examination of the material.

Even experts support the suppositions they make after a visual examination with standard gemological tests. The two tests that provide the most diagnostic results are those that use the refractometer and the spectroscope. Specific gravity determinations and hardness points may also provide useful supplementary data. The rare cases that require additional instrumentation usually involve mixtures of materials or materials that contain impurities. If green jade and its simulants mix with other minerals to the extent that their appearance and properties deviate noticeably from the norm, an identification can often be obtained by X-ray diffraction.

The recommended approach to the identification of jade is summarized in the property chart. After jadeite and nephrite, the 10 most problematic green jade simulants are listed from top to bottom in order of descending refractive index. From left to right, visual characteristics are listed first, followed by properties that are determined by standard gemological tests.

TABLE 4: PROPERTY CHART: JADE AND SIMULANTS

VISUAL CHARACTERISTICS						GEMOLOGICAL PROPERTIES		
Gem Material	*Texture*	*Surface Lustre*	*Fracture Surface*	*Inclusions/Dye*	*Other Distinguishing Features*	*Refractive Index*	*Specific Gravity*	*Hardness*
JADEITE	Interlocking granular structure	Vitreous-greasy	Granular, possibly splintery	May be dyed	Grainy, or dimpled surface; colour mottling	1.660-1.680[a] + 0.10[b] Spot: 1.66	3.34 +0.11[b]	6½–7
NEPHRITE (Actinolite/ tremolite)	Interwoven fibrous structure	Greasy-vitreous	Splintery, possibly granular	May have black inclusions (chromite, diopside), may show brown iron oxidation; rarely dyed	Chatoyancy	1.606–1.632[a] Spot: 1.61–1.62	2.95 ±0.05	6–6½
TL GROSSULARITE	Not apparent	Vitreous	Conchoidal	Usually dotted with black inclusions (magnetite, chromite)		1.720–1.730[c] Spot: 1.72	3.47+0.03 −0.32	7
IDOCRASE Californite	Not apparent	Vitreous, possibly resinous	Uneven to subconchoidal			1.713–1.718[a] Spot: 1.71	3.40±0.10	6½
ZOISITE Saussurite	May appear somewhat fibrous	Vitreous	Uneven to subconchoidal		Often variegated colours	1.691–1.704[a] Spot: 1.68-1.71 (1.52-1.57)[d]	2.95–3.40 2.60-2.75	6½–7
PREHNITE		Vitreous-waxy	Uneven to conchoidal		Usually pale yellowish-green	1.616–1.649[a] Spot: 1.63 Bire blink: 0.020–0.033	2.88±0.06	6–6½
SERPENTINE (Antigorite) Bowenite	May appear somewhat fibrous	Subresinous, greasy, pearly, resinous, waxy	Splintery to conchoidal	May have black, chromite inclusions, may be dyed	Colour mottling may be present	1.560–1.570 (−0.07)[a] Spot: 1.56	2.57±0.06	2½–4 5–6
TALC Steatite or 'Soapstone'	May appear somewhat fibrous	Pearly-greasy	Uneven	May be dyed	Soapy feeling	1.540–1.590[a] Spot: 1.55	2.75+0.05 −0.20	1–2½
QUARTZ Aventurine Dyed	Appears crystalline	Vitreous	Conchoidal	Chromium mica platelets (fuchsite) May have dye in fractures	Aventurescence	1.544–1.553[a] Spot: 1.54, 1.55	2.66±0.01	7
CHALCEDONY Chrysoprase	Not apparent	Vitreous-greasy	Conchoidal	May be dyed	Even colour	1.535–1.539[a] Spot: 1.53	2.60±0.05	7
'METAJADE' GLASS	Not apparent	Vitreous	Uneven to splintery to conchoidal	Fern-like structure, gas bubbles	Warm to touch	1.510	2.65	5½–6
CALCITE	Appears crystalline	Vitreous	Uneven to splintery	May be dyed	Cleavage may be noted (3 distinct directions)	1.486–1.658[a] Bire blink: 0.172	2.70±0.01	3

[a] *Doubly refractive.*
[b] *Increase due to diopside and acmite impurities, e.g., chloromelanite.*
[c] *Hydrogrossular as low as 1.690.*
[d] *Two different readings possible.*

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FIG. 22

FIG. 23

FIG. 22 **NEPHRITE LUSTRE**
Nephrite usually exhibits a greasy surface lustre, as seen here.

FIG. 23 **JADEITE LUSTRE**
Jadeite usually exhibits a vitreous surface lustre, as seen here.

Visual Characteristics

To a discerning eye, jade is different in appearance from its simulants. The ancient philosopher Confucius (551–479 BC) recognized the unique visual traits of jade when he likened them to worldly virtues:

> *Its polish and brilliancy represent the white of purity, its perfect compactness and extreme hardness represent the sureness of intelligence; its angles, which do not cut, although they seem sharp, represent justice; the pure and prolonged sound which it gives forth when one strikes it represents music. Its colour represents loyalty; its interior flaws, always showing themselves through the transparency, call to mind sincerity; its iridescent brightness represents heaven . . .*

The alluring appearance of fine jade is created by certain optical and physical properties, some of which can be detected by an experienced eye. The visual factors that contribute to jade's unique appearance are the stone's texture, surface lustre, fracture surface, inclusions and distinctive surface features. While the net visual effect is not enough to identify the gem material conclusively, it renders clues that are invaluable in the identification process.

TEXTURE

This relates to the 'perfect compactness' of jade noted by Confucius. It is the quality of jade that makes it the toughest of gem materials. The toughness of a gem material is not the same as its hardness: toughness is the resistance to breaking, chipping or cracking, while hardness is the resistance to scratching or abrading.

Jade's quality of toughness explains why, when a major earthquake struck southern California and shook various art objects off the shelves in a store in Santa Barbara, most of the jade pieces did not break.[14] Jade is not an extremely hard material; jadeite is listed as 6½–7 on the Mohs scale of hardness and nephrite as 6–6½. The toughness of jade, however, is unsurpassed, and of the two jades nephrite is somewhat tougher. This attribute of nephrite was recognized by prehistoric peoples, as evidenced by its use in early tools and functional implements.

The toughness of a material is related to its internal structure, which is different for nephrite and jadeite. The internal structure, in turn, is often reflected in the texture of the stone. Thus, by looking at texture, the difference between jadeite and nephrite – and between these stones and their simulants – may become apparent.

Jadeite and nephrite are aggregates; that is, they are made up of a number of individual crystals. Aggregates are usually distinguished by the size of the individual crystals, but in the case of jadeite and nephrite it is the nature of the individual components that is distinctive. Magnification of

a thin section from each of the materials provides a dramatic comparison: in jadeite (see Fig. 7), the crystals appear as separate entities even though they are intergrown, whereas in nephrite, the crystals take on a rope-like, fibrous appearance and seem to be inextricably woven together (see Fig. 8). This difference in structure is reflected in the visual appearance of the two materials: jadeite normally looks granular while nephrite looks fibrous.

None of the jade simulants has the tightly bound structure of either jadeite or nephrite, although aventurine quartz and calcite often appear to have the same degree of crystallinity as jadeite. None of the common jade simulants possesses a texture similar to nephrite; nephrite's interwoven structure qualifies it for a unique rating of exceptional toughness. Of all the jade simulants, saussarite, talc (also called steatite) and a few types of serpentine may appear fibrous.

SURFACE LUSTRE

When Confucius notes that jade's 'polish and brilliancy represent the whole of its purity', he touches on the significance of the stone's surface appearance, especially its ability to take a high polish. Lustre is the appearance of a material's surface in reflected light, as determined by the quality and quantity of light reflected. In order to evaluate lustre on a polished gemstone surface, simply note the sharpness of the image that the light source creates and the brightness of the area surrounding that image.

The refractive index of the stone and quality of the surface (which is determined by the polish) are the two main factors that affect how much light is reflected, although texture may also affect lustre. In the case of jade, it is almost impossible to achieve an optically flat, planar surface upon polishing because the random orientation of minute crystals causes undercutting during the sanding operation. As a result, the quality of light reflected from the surface is affected, so that the surface of most polished jadeite and nephrite has a slightly 'greasy' lustre. Because of its structure, polished dark green nephrite usually has a greasier appearance than jadeite. Even the best polished nephrite often looks as though someone has left fingerprints on it, or smudged its shine. As evidenced in the Chinese jade dragon carving shown in Fig. 22, the reflection of the light source is dim, and the area surrounding the reflection is blurry.

The lustre of a gemstone often varies from one sample to the next, and there are no sharp divisions between types of lustre. Yet the jade simulants can be grouped into basic lustre categories. Aventurine glass, glass and calcite are, like some jadeite, usually vitreous (the most common type of lustre on transparent gemstones, like the surface of most window glass in reflected light; see Fig. 23). These materials reflect much of the light off their surfaces.

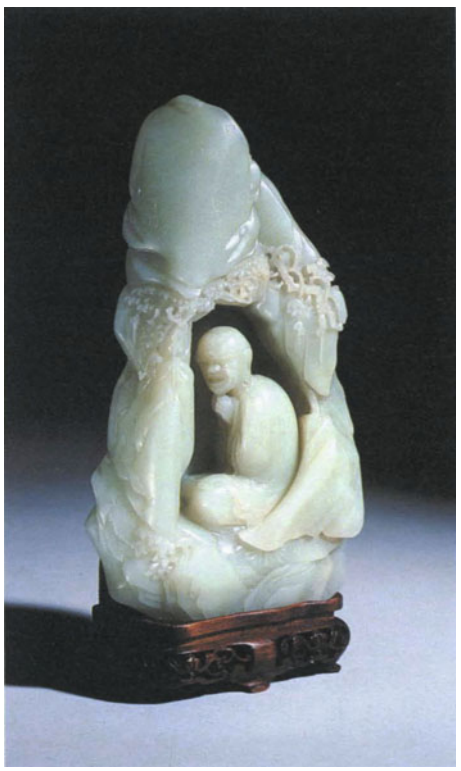


FIG. 24

FIG. 24 **LUOHAN**
Chinese, Qianlong period. Height: 8 in (20 cm). A fine imperial jade boulder carved in high relief with a seated Luohan. An inscription identifies the figure as the 14th Luohan, and describes him as 'neither god nor mortal, with clear eyes and projecting forehead'. The jade used to work this piece of a popular celadon green tone.

The surface lustre of grossularite, chalcedony (cryptocrystalline quartz), saussurite, idocrase, prehnite and serpentine may range from vitreous to greasy, but usually it lies somewhere in between. Talc generally has the poorest lustre of all. At best it is greasy, but because of talc's extreme softness and inability to take a good polish it is usually waxy or pearly.

FRACTURE SURFACE

A break in any direction other than along a cleavage plane is called a fracture, and the surface of that break differs in appearance depending on the nature of the material. Crystalline aggregates such as jadeite and nephrite may show the same type of fracture, but more usually they differ. A granular fracture is characteristic of jadeite (see Fig. 7). The surface of a granular fracture looks like that of a lump of sugar; that is, it shows the fine, individual crystals of the material.

Jade, though, may also exhibit a splintery fracture, which looks like the surface of a broken piece of wood. The splintery, or fibrous, appearance of a fracture is most often seen on nephrite, reflecting its fibrous structure. This splintery fracture is characteristic not only of jade but also of common jade substitutes such as serpentine, 'metajade' glass and calcite.

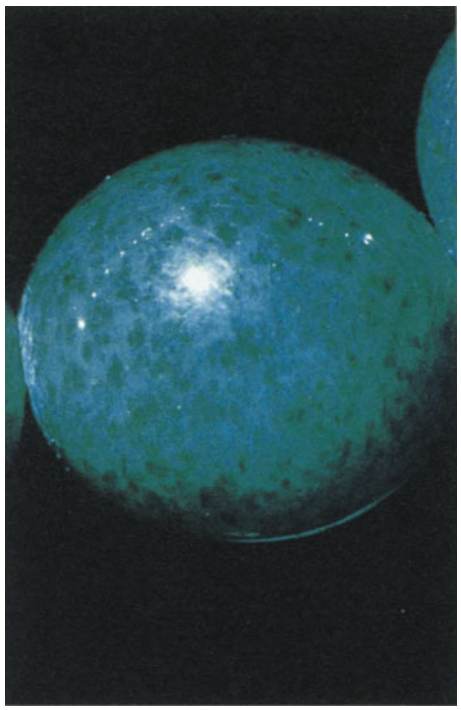


FIG. 25 **AVENTURINE QUARTZ**
The presence of green chromium mica (fuschite) inclusions, such as those seen in these 5/16 in (8 mm) beads, are suggestive of aventurine quartz.

FIG. 25

A conchoidal fracture may be as helpful as a granular fracture when separating jade from its substitutes. A conchoidal fracture has curved ridges similar to the outside markings on a shell. While a granular fracture may suggest jade, a conchoidal fracture usually suggests a jade simulant. As indicated in the property chart, many jade simulants show conchoidal fractures on a broken surface.

Several of the jade substitutes exhibit an uneven fracture surface, that is, a break that does not have any regular pattern although it often appears jagged. Because it is nondescript and may be seen in many of the jade simulants (and possibly jade), an uneven fracture is not as helpful in jade identification as a granular or a conchoidal fracture.

INCLUSIONS

Jade and its substitutes often contain the same types of inclusions. When combined with the colour and typical appearance of the stone, though, the inclusions may aid in the identification of the material. For example, grossularite and serpentine (see Fig. 15), as well as nephrite, often contain black chromite inclusions. If the chromite inclusions are scattered throughout a medium bluish-green, semitranslucent to opaque material, the gemologist suspects grossularite (or hydrogrossular, that is grossularite with a high water content). The types of nephrite and serpentine that most often contain chromite are generally a darker green.[15] It cannot be assumed, however, that all black inclusions are chromite; often they are magnetite or diopside.

Some inclusions in jade simulants can serve to identify the material. Round green platelets that are so densely packed that they give the gemstone colour, suggest aventurine quartz. Such platelets are fuchsite, a green chromium mica, and prove that the material is not jade. These disc-like inclusions, pictured in Fig. 25, can be detected with the unaided eye if the material is examined under good lighting.

'Metajade' glass, also called Imori or Iimori stone, is an excellent green imitation that is made by the Iimori Laboratory in Japan. This material can be detected by its inclusions as well as by its other optical and physical properties. Because the material is partially crystallized it exhibits a fern-leaf pattern that is easily seen under magnification, as illustrated in Fig. 26.[16] Patterns such as these, which are the result of devitrification (the partial change from an amorphous to a crystalline structure), suggest glass. Gas bubbles may also be present.

DYE/OTHER ENHANCEMENTS

Organic dyes have been used to impart colour to jadeite, nephrite and their simulants. As might be expected, green and lavender dyes are the most frequently encountered. Jadeite is dyed more frequently than nephrite because it tends to be more porous and more available in white or light hues.[17]

One of the key diagnostic tests for dye is magnification. A jeweller's loupe or microscope will usually reveal dye in surface cracks or fractures throughout the stone. The ease with which the dye is detected depends on the nature of the material and the dye used. In the case of jadeite, the granular structure of the stone may cause the dye to be unevenly distributed or more heavily concentrated in some areas. Care must be taken not to confuse this characteristic with the colour mottling of untreated jadeite (see Fig. 31). Dyed green jadeite, however, can be positively identified by spectroscopy. Dyed lavender jadeite may fluoresce strong orange under long-wave ultraviolet light (most untreated lavender jadeite fluoresces weak brownish-red) and bluish-purple under X-ray fluorescence.[18]

Traces of organic dyes have also been found in several jade simulants such as quartzite, serpentine, calcite and talc. Green dye, for example, hides the 'non-gemmy' quality of quartzite and imparts a fairly believable jadeite colour. The dye in quartzite can be detected under magnification in the form of heavy concentrations of colour in the fractures that usually occur throughout the stone. While magnification is also usually sufficient to detect dye in calcite and talc, positive proof of dyed serpentine is determined by spectroscopy.

As part of a final processing step, jade is sometimes coated with a thin film of paraffin wax to hide small

fractures close to the surface.[19] This does not normally alter the overall appearance of the gem but it may cause problems for a setter if he or she does not realize flaws are present. Under magnification, an expert might see scratches in the coating or concentrations of wax in surface pits or cavities. Gemologists sometimes test for paraffin wax with a hot point; if not performed correctly, however, this can be a destructive test.

Heating and irradiation may also alter jade's colour. Experiments have shown that heating might lighten the green colour of jade, change a piece of jade containing yellow or brown inclusions in the rind to brown or red, and be used before quenching in acid to age jade artificially.[20] On the other hand, irradiation has generally produced only brown or blotchy colours which fade in sunlight or on heating to 100°C (212°F). It has been rumoured, however, that irradiation might be responsible for some of the lavender jadeite on the market today, although as yet there is no proof of this claim.

Composite stones are occasionally seen in the jewellery trade. In the late 1950s, the GIA Gem Trade Laboratory identified an interesting type of assembled jadeite cabochon. It was a triplet – or three pieces of carefully cut translucent white jadeite layered with a green jelly-like substance to impart colour. The triplets were cleverly constructed: a solid cabochon coated with a green gelatinous substance fit snugly into a concave outer cabochon; these were sealed with a flat, oval piece of jadeite cemented to the back. In the mid-1960s the GIA Gem Trade Laboratory also reported a more conventional triplet containing a green cement layer.

With adequate illumination, a loose or unmounted jadeite triplet is easy to spot. But if the triplet is mounted in rings, earrings or cuff links, with covered backs, the separation plane is not readily visible. What may further deceive an expert is the refractive index – it will be 1.66 since the triplet is composed of jadeite. However, under magnification, a gemologist might find gas bubbles in the jelly-like layer and/or detect the carefully hollowed contact zone. In addition, the spectrum of a jadeite triplet is the same as dyed green jadeite.

OTHER DISTINGUISHING FEATURES

As previously noted in relation to surface lustre, the structure of jadeite may cause undercutting during the sanding process, which results in a grainy or dimpled surface appearance. This dimpled surface, the result of minute, randomly oriented crystals, is not found in the common jade simulants.

Phenomena, or unusual optical effects, may also help in the identification of a jadeite simulant. The fuchsite inclusions in aventurine quartz set up a glittery effect as the stone is turned in light. Aventurine quartz is the only jadeite simulant that exhibits this effect, known as aventurescence.

Another phenomenon called chatoyancy or 'cat's-eye effect' may signal the mineral group to which nephrite belongs. This material occasionally surfaces in the jewellery trade under the names 'cat's-eye nephrite', 'cat's-eye actinolite' or 'cat's-eye tremolite'. Since it is more apt to be actinolite, and since the chatoyancy is primarily due to the reflection of light from parallel fibres (by definition, nephrite has randomly oriented, interlocking fibres), it is most appropriate to call this material 'cat's-eye actinolite' (see Fig. 28). This cat's-eye effect is fairly common in the tremolite-actinolite series of minerals and is rarely seen in the jade simulants.

A true jade aficionado may develop a sense for the feel of jade. In an article, 'The Art of Feeling Jade',[21] it was stated that the jade fishers of Hetian (Khotan), who wade the rivers in search of jade, find it by the touch of the foot. Also, Cixi, the last Empress Dowager of China, was said to have trained her fingers to recognize jade. In addition, when jadeite was first introduced in China, the Chinese apparently knew 'it wasn't the same [as nephrite] as soon as they handled it, it didn't feel the same'.[22]

While on the subject of tactile sensations, it is interesting to note that glass and plastic are warm to the touch, while crystalline materials are cold. Thus, all jade and jade simulants other than glass and plastic should feel cold to

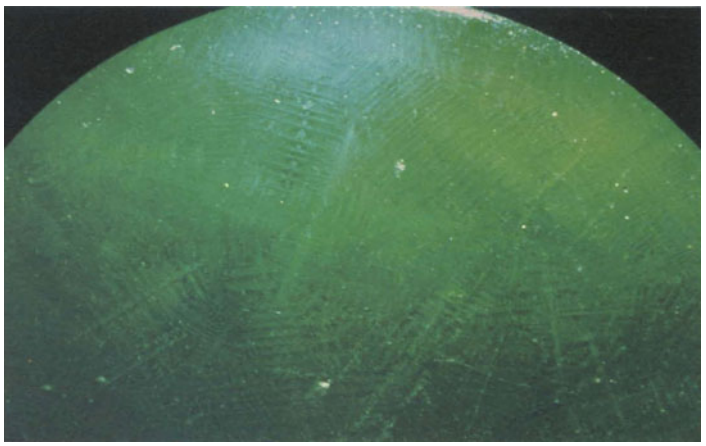


FIG. 26

FIG. 26 **METAJADE GLASS**
Metajade glass often shows a fern-leaf pattern under magnification. This image is magnified five times.

the touch initially. Also, talc can be easily identified by its slippery, or soapy, feel which gave rise to its name of 'soapstone'.

In short, a visual examination of a gem material can limit the field of possibilities and can help to separate nephrite and jadeite. The renowned jade dealer, Richard Gump, attempts in *Jade: Stone of Heaven* to pinpoint the difference in the appearance of most green nephrite and jadeite:

> *The brightness and clarity of jadeite's tones contrast sharply with the soapy, almost aged-looking hues of most pieces of nephrite. Jadeite comes closer to being, and sometimes is, translucent. In general, one might say that the colours of jadeite turn toward vividness and translucency, while the hues of nephrite are greasier, denser, and heavier.*

Visual characteristics can provide some valuable indications to the identification of jadeite and nephrite, but they usually lead only to suppositions that should be backed by positive gemological tests.

Gemological Tests

Standard tests used to verify the identity of jade simulants include refractive index readings, specific gravity determinations and spectroscopic analysis. Less frequently, careful hardness tests are conducted. Sophisticated laboratories may also use X-ray diffraction.

REFRACTIVE INDEX READINGS

The refractometer is one of the most helpful instruments in the separation of jade from its simulants. Almost all of the jade simulants have refractive indices well above or below that of jadeite and nephrite. The only difficulty lies in using the refractometer on the surface that is usually accessible.

With faceted gemstones, a flat facet of the stone in question is placed directly on the refractometer hemicylinder with a small amount of liquid. Since jadeite, nephrite and their simulants are generally cut with rounded or curved surfaces, a 'spot' or 'distant vision method' must be used to read the refractive index. The spot technique requires that a portion of the curved surface be placed or held on the refractometer with a small drop of liquid, the size of which is reduced until the image that is seen without the eyepiece magnifier is only two or three scale increments. By reducing the stone's image to a very small spot, gemologists can obtain a meaningful refractive index that should serve to separate jade from most of its simulants. (Note: in taking a spot reading, it is only possible to judge the refractive index accurately to the hundredth place, e.g., 1.66.)

Using the spot technique and a little ingenuity, one of the Gemological Institute of America's laboratory experts was able to take a refractive index reading on a large jade carving. An associate held a light source to the refracto-

FIG. 27

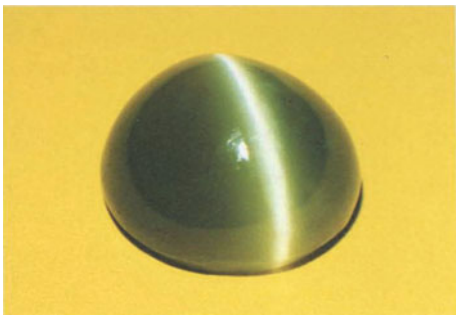


FIG. 28

FIG. 27 **RECUMBENT LION GROUP**
A jade group of a recumbent lion supporting a cub on its back. The beast is carved in shallow relief with a stylized tail and fur. The stone is celadon green with russet brown suffusions. It is dated to the Ming Dynasty.

FIG. 28 **ACTINOLITE CAT'S-EYE**
The chatoyancy, or 'cat's-eye' phenomenon of this cabochon is due to the fibrous structure, a rare feature. The stone needs to be cut at a precise angle before being ground and polished. The best cat's-eyes come from Taiwan.

meter porthole, as the gemologist held the refractometer hemicylinder on the gemstone surface rather than the gemstone on the hemicylinder.

Jadeite and nephrite are easily separated from one another by their refractive indices. Although both are doubly refractive, it is rare to see the full spread of refractive indices listed on the property chart because both are crystalline aggregates. Also, only one refractive index is easily resolved with the spot technique. The refractive index obtained, however, is usually sufficient to distinguish the two materials, since jadeite's reading tends to be around 1.66 and nephrite's is around 1.61.

The jade simulants can be divided into three groups on the basis of refractive index: those with refractive indices higher than that of jade, those with refractive indices lower than that of jade and those with refractive indices that could be confused with jade (see Fig. 30).

Grossularite, idocrase and saussurite have refractive indices that are usually higher than that of jadeite. Saussurite's refractive index (R.I.) may vary because it is a rock. If it is mixed with feldspar or serpentine, its R.I. may be as low as 1.55; more often, saussurite shows a much higher R.I., around 1.68 to 1.70, due to the presence of idocrase or zoisite (see Fig. 17). Such a reading is too high for pure jadeite, but could indicate chloromelanite, which is a very dark green to almost opaque type of jadeite. Saussurite can be separated from chloromelanite by spectroscopic analysis, X-ray diffraction or possibly the presence in saussurite of two widely different refractive indices (which indicates the presence of different minerals).

Most jade simulants fall into the second category, that is, materials that have lower refractive indices than jadeite or nephrite. Quartz, chalcedony (cryptocrystalline quartz), serpentine, talc and most types of glass or plastic used as simulants can be easily separated from jadeite with the use of the refractometer.

Using the regular spot refractive index technique, the gemologist might mistake calcite and prehnite for jade. Both of these materials can, however, be identified by employing the 'birefringence blink' technique. Birefringence is a measurement of the difference between two refractive indices in a doubly refractive material. Although jadeite and nephrite are doubly refractive, they rarely show any birefringence; whereas prehnite may show birefringence of 0.020 to 0.033, and calcite one of 0.172. The birefringence blink technique uses the standard spot-reading procedure, which requires white light and no magnification. A slightly larger amount of liquid may be needed. When the polaroid plate in front of the refractometer eyepiece is rotated it is possible to note the extent to which the shadowed lines (which represent refractive index) jump inside the spot, or stone image (see Fig. 29). Provided that the stone is lying in

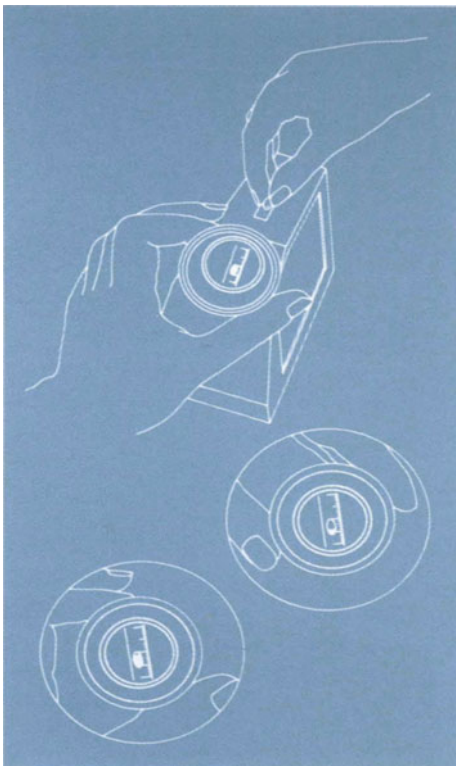


FIG. 29

FIG. 29 **THE BIREFRINGENCE BLINK TECHNIQUE**
This test involves rotating a polaroid plate in front of the refractometer with the magnifier removed. If the stone is placed in the approximate direction of maximum birefringence the R.I. shadow will jump within the spot image. Birefringence is estimated as the amount of movement seen. As illustrated in the two circular diagrams, prehnite will show a maximum birefringence of 0.030 as the polaroid plate is turned.

FIG. 30

FIG. 30 **DYED CALCITE**
Dyed calcite such as this can look like jadeite, and its refractive index can be confused with that of jadeite. The birefringence blink technique is therefore suggested for this material.

FIG. 31 **DYED LAVENDER JADEITE**
Dyed lavender jadeite may look deceptively similar to naturally coloured jadeite as illustrated here; the dyed jadeite cabochon is on the left, and the natural lavender jadeite is on the right. Dye may be unevenly distributed throughout a colour-treated piece of jadeite, giving the appearance of 'natural' colour-mottling found in untreated jadeite.

FIG. 31

FIG. 32

FIG. 32 **LAVENDER *BI***
Visual examination alone may lead a trained observer to suspect that this bi *was dyed lavender jadeite. Experts, however, support their initial sight identification with gemological tests.*

the direction of the greatest birefringence, there is a slight but noticeable shadow movement in prehnite, and in calcite shadows appear to leap between the different refractive indices and may even blink from red to green.

SPECIFIC GRAVITY DETERMINATIONS

Specific gravity (S.G.) determinations are not as conclusive as refractive index readings because many of the jade simulants have specific gravities close to that of jadeite and nephrite, and the measurements are not constant in most of the jade simulants because they often mix with other minerals. Specific gravity is defined as the ratio of the weight of a substance to the weight of an equal volume of water at 4°C (39.2°F). It is estimated by the use of heavy liquids, and precise measurements are obtained on a hydrostatic balance.

The specific gravity liquid that is most useful in separating jadeite from nephrite and from most other jade simulants is methylene iodide (3.32 liquid). When nephrite or most jade simulants are immersed just slightly under the surface of the liquid they will bob to the top, while jadeite will remain suspended or sink very slowly to the bottom.

For large pieces, an accurate specific-gravity measurement can be obtained on a balance that has been adapted for hydrostatic measurements. The material is weighed first in air and then in water to determine the weight lost in water. The specific gravity is found by dividing the material's weight in air by the loss of weight in water.

On property charts the specific gravity of jadeite is usually listed near 3.34, although it may vary depending on the presence of impurities. For example, chloromelanite may have a specific gravity as high as 3.45 due to the presence of diopside while jadeite with a high albite content may register as low as 2.90.[23] Taking this range into account, nephrite and three of the common jade simulants – grossularite, zoisite and idocrase – have S.G. values that could be confused with jadeite. However, all of these gemstones could be identified by their refractive index readings. All the other common jade simulants have S.G. values far lower than that of jadeite.

The specific gravity of nephrite usually ranges between 2.90 and 3.00. Nine of the 10 jade simulants discussed here have specific gravity values that are significantly different from nephrite: those of grossularite, zoisite and idocrase are normally higher, and those of quartz, chalcedony, 'metajade' glass, bowenite, talc and calcite are normally lower. Only prehnite could be confused with nephrite on the basis of specific gravity, in which case the refractometer would make the distinction.

In short, specific gravity should be used as a supplementary test in the separation of jade from jade simulants. Jadeite, and many jade-like materials, may contain

impurities that will cause the specific gravity to vary. Also, specific gravity determinations can be helpful only if the results are noticeably higher or lower than that of jadeite or nephrite. Two other tests provide more conclusive results: refractive index readings and spectroscopic analysis.

SPECTROSCOPIC ANALYSIS

The spectroscope may provide identification of jadeite, although it is not helpful with nephrite (which usually does not show absorption lines in the spectroscope). Jadeite and some of its simulants show absorption that correlates with the presence of certain colouring agents, so their absorption patterns are distinctive. For example, pure jadeite is white; the various colours in which jadeite appears are due to the presence of impurities such as iron and/or chromium. Green jadeite owes its coloration primarily to chromium, even though some iron may also be present. The higher the chromium content in jadeite, the stronger and more distinct the absorption pattern is in the red part of the spectrum. Some of the jade simulants also have characteristic absorption patterns that, when used in conjunction with refractive index readings, definitely identify these materials.

The spectroscope is helpful in that both cut and rough, as well as mounted or loose, materials can be tested. In order to assure accurate results, the maximum amount of light must be sent through the material, and the slit of the spectroscope must be adjusted correctly. Since jadeite and its simulants are normally translucent to opaque, the transmitted light that passes through the material may not be sufficient for the absorption pattern to be seen in the spectroscope. Reflected light will usually resolve the absorption lines on a more opaque material. When using reflected light, it should be ensured that the spectroscope picks up the maximum amount of light reflected from the stone (see Fig. 33).

To achieve maximum results, the slit of the spectroscope must be opened the correct amount. Specifically, the more light absorbed by the stone, the more the slit must be opened to pick up absorption lines. However, the slit should not be opened beyond the first point at which the absorption pattern is seen or else too much light will enter and the lines will not appear distinct. Special attention must also be paid to the position of the drawtube to obtain proper colour resolution.

Two colour areas of the spectrum are particularly important in the identification of jadeite – the violet and the red. In the violet end of the spectrum, jadeite often shows a line around 4370 Å that appears in only one of its simulants. It is most easily seen in jadeite that is pale green; in darker green material, the line may be obscured by general absorption in the violet-blue area. If difficulties are encountered, Anderson[24] suggests that a flask of copper sulphate be placed in front of the light source in order to eliminate the glare from the red and yellow sections of the spectrum. Prehnite is the only gemstone that may show an absorption line in the same area (4380 Å). Green jadeite, however, normally has additional lines in the red that prehnite does not have.

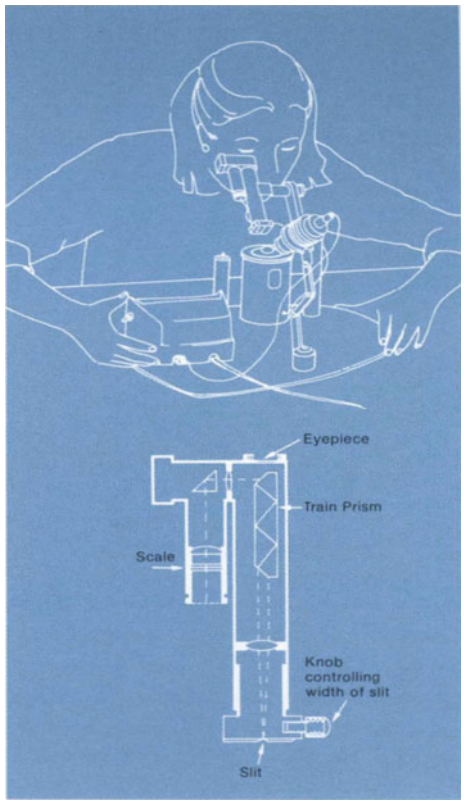


FIG. 33

FIG. 33 **SPECTROSCOPE** *Reflected light is most often used to resolve absorption lines on translucent-to-opaque materials such as jade and its simulants. The spectroscope and the light source should be positioned so that the maximum amount of light reflected from the specimen is seen.*

A band seen near 4640 Å in the blue area of the spectrum signifies idocrase (or hydrogrossular, a type of grossularite that grades into idocrase). Broad absorption in the violet-blue region that cuts off in the area between 4800 and 5200 Å indicates serpentine. Bowenite, the hardest variety of serpentine, may even show a line around 5000 Å.[25] If idocrase or zoisite is present in saussurite, this material may show a line around 4600 Å.

The red area of the spectroscope is also important in the identification of jadeite. Spectral absorption in the red may indicate dye in jade, serpentine or chalcedony; it may signal a triplet; or it may indicate the presence of chromium, a primary colouring agent in some green gem materials.

Medium green jadeite characteristically shows three distinct bands in the red, near 6300, 6600 and 6900 Å.[26] These bands usually have absorption shading in between them and the shading darkens near 7000 Å. Lighter tones of green jadeite usually will not exhibit all three lines;

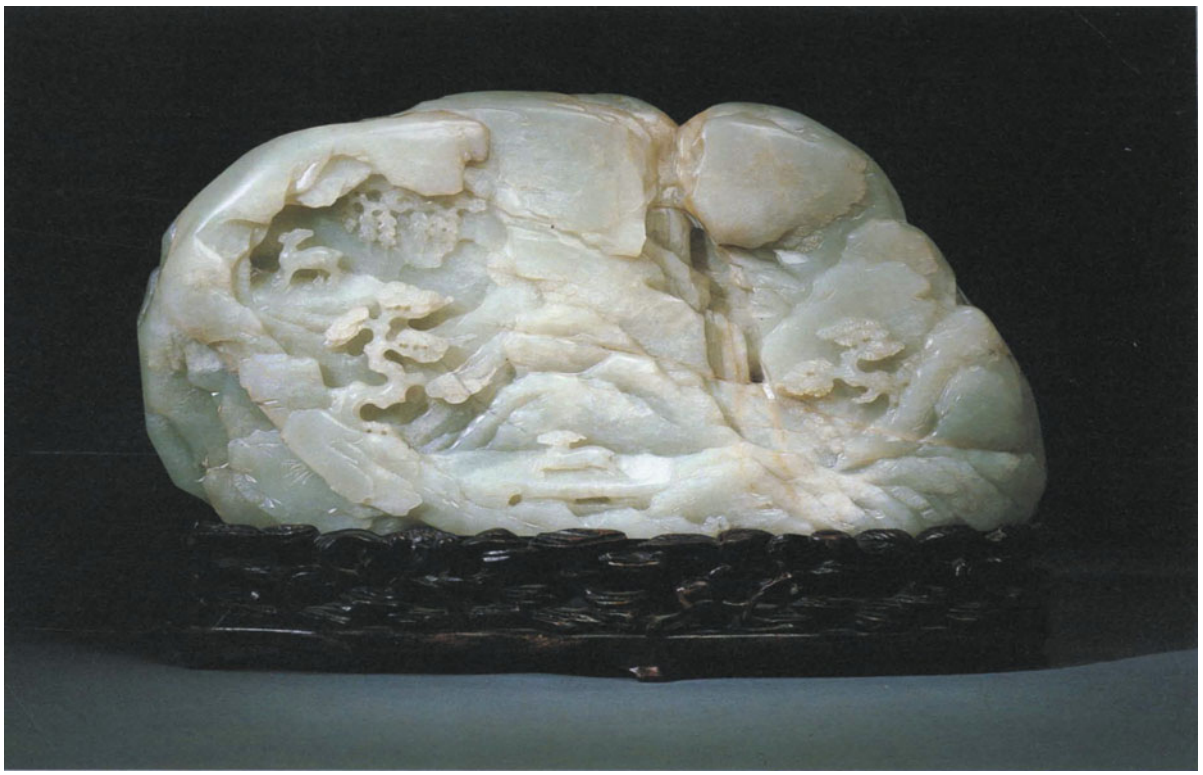


FIG. 34 **BOULDER**
Chinese, 18th-century. A boulder worked in relief with two deer amidst rocks in front of pine trees and a waterfall. The reverse side of this boulder, showing two Immortals and an attendant walking up a cliff face, is depicted in Fig. 145, page 187.

FIG. 34

instead, they will exhibit one or two lines (usually 6600 and 6900 Å) and dark shading near 7000 Å.

Dyed green chalcedony and rare chrome-coloured chalcedony may exhibit somewhat similar narrow bands in the red, but there is no subtle shading between the bands as in jadeite. Refractive index will also suffice to separate these materials.

A piece of 'metajade' glass was tested by the Gemological Institute of America Gem Trade Laboratory and found to have a spectrum 'identical to that of a naturally coloured green jadeite'.[27] Most pieces of 'metajade' do not show this spectrum and are easily identified by their visual characteristics, refractive index and specific gravity; the latter two values are considerably lower for 'metajade' glass than for jadeite.

A broad band in the red, extending from approximately 6300 to 6700 Å, is proof of dye in green jadeite. The novice spectroscopist often cannot tell the difference between the broad dye band and the shaded bands of untreated jadeite. However, if the spectra are compared side by side, it is apparent that a light area exists between the high numeric edge of the dye band and 7000 Å. In untreated green jadeite, the immediate area near 7000 Å is quite dark.

The broad band in the red area also proves dye in serpentine, once the material has been identified by refractive index. The band appears in green jadeite triplets as well, because of the dye in the cement layer.

Many gem materials that are coloured by chromium show absorption lines in the red area of the spectrum. Aventurine quartz may show lines in the red because of the presence of chrome mica. Even though aventurine's lines, near 6500 and 6800 Å, are close to that of jadeite, the overall absorption pattern is different. Like in other jade simulants that show lines in the red, aventurine quartz can be verified by refractive index and specific gravity. Characteristic inclusions, as discussed above, are also helpful in the identification of this material.

Thus, the spectroscope is a key instrument in the identification of jadeite. It can provide quick, positive proof of green jadeite, dyed green jadeite and many green jade simulants if the spectroscope results are analyzed in conjunction with refractive index readings.

HARDNESS TESTS

Hardness tests are rarely used in gemology because, if improperly done, they can easily mar or even break a gem material. Moreover, other gemological tests are just as quick and are usually more diagnostic. However, although hardness tests should never be performed on transparent gemstones, the tests may have some application in the case of a translucent to opaque material such as jade.

Hardness is the ability of one material to scratch another. The hardness of gem materials is rated from 1 to 10 on a scale developed by Mohs (it is a relative scale in that the numbers do not represent equal increments of hardness). A set of hardness points is most commonly used for this test. Each of the small metal tubes in the set usually holds a piece of a mineral of known hardness that has been ground to a point and centred into one end of the tube. Common minerals include diamond, synthetic corundum, topaz, quartz and feldspar.

The material should be observed under the microscope while a hardness point is drawn firmly across an extremely small, inconspicuous area. Then the test surface should be

wiped and examined to see whether the point has powdered itself or actually scratched the test surface. The gemologist should always start with a low hardness point and then try increasingly harder points until a scratch is made.

Jadeite cannot be separated from nephrite using this test because their relative hardness values are too close. Hardness tests would only help separate materials that have a hardness value that is significantly lower than jade, such as serpentine, calcite and talc. The other common simulants are of the same hardness as, or slightly harder than, jade. Although most serpentine is between 2½ and 4 on the hardness scale, the variety bowenite may have a hardness value as high as 6 (see Fig. 3 for a bowenite example). Because the hardness of jade is between 6 and 7, bowenite cannot be separated from jade on the basis of a hardness test.

Calcite has a hardness of 3 on the Mohs scale, which makes it easy to distinguish from jade. However, other gemological tests, such as birefringence, are recommended in the identification of calcite.

Perhaps the best application of the hardness test lies with the identification of talc. Since talc has a hardness of 1 to 2½, even a fingernail (which has a hardness of 2½ or lower) will cut into it. Its low hardness may also be evidenced by a low lustre on account of surface scratches resulting from wear or contact with other materials.

When using hardness points to separate jadeite from its simulants, it should be remembered that many jade-like materials contain impurities that have have hardness values different from the main mass. It is therefore advisable to avoid testing areas that differ in colour or texture from the basic material.

In short, hardness tests will determine that a gem material is too soft to be jadeite. They will not identify the material, and the results help in the detection of only a few jade simulants.

X-RAY DIFFRACTION

The most precise test in jade identification involves X-ray diffraction by the powder method. Not only can this test identify most crystalline materials, but it can also detect variations in their mineralogical compositions. Unfortunately, X-ray diffraction is feasible only for sophisticated laboratories. It takes more time than other gemological procedures, requires costly equipment, and a skilled laboratory technician must set up and interpret the test.

The powder method is the best for gemstone analysis because only a small amount of the material is required. Chuck Fryer, director of the Gemological Institute of America's Gem Trade Laboratory, has devised a technique in which a very minute scraping from the girdle of the gem is sufficient for the test. The crystalline particles can be picked up and cemented to a very fine glass spindle. The spindle is then mounted in the centre of a cylindrical camera that has a small hole to allow X-rays to pass through to the material. A filmstrip fits snugly around the inside wall, and when X-rays strike the material the atomic planes of the material show up by reflection of the X-rays as a certain diffraction pattern that is recorded on the filmstrip. The diffraction pattern on the filmstrip appears as curved lines, the spacing and intensity of which are characteristic for the specific crystalline substance.[28] By applying mathematical formulae, or by comparing the filmstrip patterns against standard patterns of known materials, most gem materials can be positively identified. This is true for jade and jade simulants as well as for any other single-crystal mineral.

FIG. 35

FIG. 35 *A rough cut of tremolite cat's eye jadeite from Taiwan. When a cabochon is cut at the correct angle and polished, a unique chatoyancy or reflective effect – like a cat's eye – is the result. A polished cat's eye is shown in Fig. 28.*

Jade's Special Properties

Gemologically speaking, jade is special. Both jadeite and nephrite are unique crystalline aggregates that possess unusual texture and extreme toughness. Although chemically complex, both jades have distinctive compositions; their chemistries create the sensuous hues and exquisite colour patterns that make them so esteemed.

Given such innate beauty, it is easy to understand why so many materials have been represented as jade. Jade, in fact, has more simulants than most other gems. As a result, jade buyers are often overwhelmed by the number of trade terms that exist for both jades and their simulants. Since trade terms may be misleading, costly gem pieces labelled jadeite or nephrite should be examined by a gemologist. The identification of jade requires an awareness of its appearance, skill in instrumentation and sound deductive reasoning. Although visual characteristics may provide proof that a gem material is not jade, assumptions made from visual inspection usually need to be supported by appropriate gemological tests.

A CHINESE CHRONOLOGY

DAPHNE LANGE ROSENZWEIG

FIG. 1

FIG. 1 **CRESTED CRANE** *Chinese, 18th/19th-century. Height: 8¾ in (22.2 cm). This superb jade is large in size but gracefully handled and finely detailed. The natural flaws in the stone have been incorporated as a feature to define the wing feathers.*

As indicated by several chapters in this book, our knowledge of the history of Chinese jade-carving has been enhanced in recent years by excavations of datable tombs from many different locales and periods as well as by the increasing accuracy with which scientific tests for the dating and origin of artefacts are applied and interpreted. In addition, a new wave of researchers with excellent connoisseurship skills seems likely to break the Song and Ming jade history 'codes' in the near future.

In spite of these advances, however, there are still many obstacles hindering the development of an all-inclusive, totally satisfactory, history of Chinese jade carving. Speculation about jade production during the Liao, for example, has yet to be verified, and it may well be that distinguishing many late Shang jades from those of the early Zhóu is beyond the scope of even an expert.

Current archaeology is altering not only long-held theories about characteristic carving styles of antiquity but, even more fundamentally, about the correct dating of the earliest dynasties of China. The chronology presented below lists both traditional and newly proposed dates for these periods. The accuracy of either is still in question, but at least they suggest relative time frames. After the Eastern Zhou, the dating of dynasties is essentially secure.

NEOLITHIC
≈ c.5000 BC–c.1700 BC

As indicated in Angus Forsyth's chapter on Neolithic Chinese jades, recent excavations of Neolithic-period burial sites in diverse localities of China (see page 52 on 'Principal Jade-Using and Jade-Influenced Neolithic Cultures') have brought to light numerous jade carvings, executed in a variety of techniques. The carvings appear to have been carved exclusively for funerary purposes.

It has been posited that during the Neolithic era the possession of jade carvings was the prerogative of upper-

class persons only, and further, that even at this early stage of societal development, such carvings were considered so essential and desirable that members of this society were willing to support a full-time jade carving production facility. Overall, the quality of workmanship and material of this period is impressive, particularly in Liangzhu jades.

With our increasingly profound knowledge of the artefacts and artistic potential of the Neolithic era, it is not improbable that among many tentatively-dated 'Shang' or 'Archaic' jade carvings in older collections outside China, there are some which could now be appropriately labelled 'Neolithic'.

XIA (HSIA)

≈ 21st–16th century BC (new chronology)

≈ 2205–1760/6 BC (old chronology)

Apart from visits to displays in mainland Chinese museums, collectors and appraisers probably will have few if any opportunities to encounter at first hand works which are reliably dated to this elusive period. Recent excavations apparently verify that this period, long held to be 'mythical', did in fact exist, although details of its governmental and societal structure await further finds by archaeologists.

As indicated by Forsyth on page 77, the Erlitou cultural period (dated c.1900–1700 BC) is pivotal for understanding the development of both bronze and jade technology. There have been bronzes and jade ritual implements of some little sophistication dated to this period, but unless the works were found in a datable context (a recently excavated, undoubtedly Xia site), any attribution to the Xia is of dubious validity. It is not impossible that some jades which have been dubbed 'Shang' might actually pre-date the Shang and would properly be dated to the Xia, but the state of knowledge at this time does not allow for such subtle distinctions[1].

SHANG

≈ 16th–11th century BC (new chronology)

A specific range of dates from 1523–1028 BC has been suggested by some authors. The Anyang phase is now dated to the 13th–11th century BC.

≈ 1766–1122 BC (old chronology)

Shang jades are found in many museum and private collections worldwide, but because of the problems of authentication (mentioned in the chapter 'Appraisal of Chinese Jades', page 194), collectors and appraisers would do well to consult experts in the field for their opinion and should not fail to take advantage of available scientific tests to help establish the correct date of a work. Most of the works are of ceremonial or burial type; well-established ritual practices demanded jade forms as a matter of course. New excavations, such as the tomb of Fu Hao, illustrate how very limited our view of the possibilities of Shang jade have been. The more three-dimensional works recently discovered are unlike most early jades in established private or museum collections outside of China, and indeed, recent excavations reliably dated to specific years within the Shang period have provided archaeologists and art historians with a wealth of new information about the surprising diversity of form, material, function, and technology of Shang jades. An interesting facet of the Shang is that there seems to have been an appreciation of jades from previous eras – an instinct for the antiquary and for collecting that is so typical of later Chinese dynasties (see Forsyth, page 88).

ZHOU (CHOU)

≈ 11th century–256 BC (new chronology)

Several authors have suggested a specific year, 1027 BC, for the beginning of Zhou.

≈ 1122–256 BC (old chronology)

The Zhou Dynasty is subdivided into two chronological periods, Western or Early, and Eastern or Later. The Eastern (or Later) Zhou is subdivided into two chronological sections, Spring and Autumn Annals and Warring States.

≈ Western Zhou: 11th century (1027?)–771 BC (new chronology)

≈ Western Zhou: 1122–771 BC (old chronology)

≈ Eastern Zhou: 770–256 BC (new and old chronology)

≈ Spring and Autumn Annals: 770–481/76 BC

≈ Warring States: 481/76–221 BC

Like Shang jades, many Zhou (particularly later Zhou) jades may be found in established collections, the stock of specialist dealers and at auction. There are problems of authentication, but the elegant later Zhou pieces are rarely successfully copied in later periods, although their forms and decorative patterns are extremely popular in archaizing jades of the Song, Ming and Qing. It should be noted that distinguishing late Shang from early Zhou jades is usually a futile exercise in connoisseurship, since stylistically and technically there was apparently a gradual rather than abrupt transformation in jade-carving from one period to the next, however. Forsyth has suggested (page 96) that (apart from the representation of silkworms) the three-dimensional form of the Shang/Yin phase was replaced for a period by 'flat zoomorphic plaque forms', that surface embellishments became increasingly sophisticated as the Zhou progressed, and that preferences in surface gloss qualities varied over the course of the dynasty; an understanding of these minutiae of technique and style can aid art historians and connoisseurs in dating Zhou jades, just as the jades recently found in datable excavations allow experts to comfortably distinguish Warring States from Spring and Autumn Annals jades.

By the end of the Zhou, the uses for jade carvings had

extended beyond the funerary and ritual to the ornamental (including sword furniture) and overtly utilitarian (table goods). Jade technology had reached a level of achievement unsurpassed until the advent of new abrasives and electrically-driven tools in the 19th and 20th centuries.

QIN
≈ 221–206 BC
As was the case with the Xia period, collectors and appraisers are most unlikely to encounter jades verifiably of the Qin apart from mainland exhibitions based on the recent (and continuing) excavations at pits flanking the imperial tomb site outside Xi'an. So far, jade carvings have not been a factor in the artefacts uncovered in the course of the tomb complex excavations, but that is not to rule this possibility out for the future, particularly since the tomb itself has yet to be excavated. Certainly, outside this tomb complex area, it would be difficult to assign any jade to this period; there is simply not enough data.

HAN
≈ 206 BC–AD 220
Like the Zhou, the Han period is subdivided into two chronological sections, Western (or Early) Han and Eastern (or Later) Han.
≈ Western Han: 206 BC–AD 24
≈ Eastern Han: AD 25–220
Or, alternatively,
≈ Western Han: 206 BC–AD 8
≈ Wang Meng interregnum: AD 9–24
≈ Eastern Han: AD 25–220
In terms of jade studies, the second set is meaningless, there being no known verified examples of 'Wang Meng'-era jades; the division is of political interest, but has little practical application apart from the fact that there are dislocations and new centres of patronage between the pre- and post-Wang Meng eras.

Distinguishing between Western and Eastern Han is important in evaluating Han jades, since there are characteristic carving techniques associated with each. As with late Shang/early Zhou jades, the distinction between late Zhou and early Western Han jades is often obscure, and attempts to establish such distinctions represent difficult, as well as almost pointless, exercises in connoisseurship since – as with most time frames – the country achieved the transformation from one era to another in localized fashion, some areas entering the new era at the 'official' date, others lagging behind technically, politically and otherwise.

The Han as a whole is a most exciting epoch, as indicated by the recent discoveries in jade carvings; excavations of the last few decades as well as current archaeological diggings have provided a wealth of new information about this highly productive, luxury-loving, refined era. Han forms were copied extensively by several later dynasties.

THREE KINGDOMS AND SIX DYNASTIES
≈ AD 221–581
≈ Three Kingdoms: AD 221–265
≈ Southern and Northern Dynasties: AD 265–581
According to conventional wisdom, the most artistically fecund periods of this politically chaotic period were:
≈ Eastern Jin: AD 317–420
≈ Northern Wei: AD 386–534/5
≈ Eastern Wei: AD 534/5–550
≈ Northern Qi: AD 550–577
These four periods, however, are more famous for their painting, calligraphy, theoretical and critical studies, and Buddhist art (including cave art) than for other arts.

Given the current state of knowledge about the artistic output of the other kingdoms, and an overall paucity of excavated tombs from this period, any assumptions as to the style or styles of jade carvings from this era are theoretical. Most experts believe that jade output was reduced during most of this complex period, but surely there are tombs to be dug and revelations to be made in this regard. In terms of understanding the history of Chinese jade-carving, this is a most unsatisfactory era.

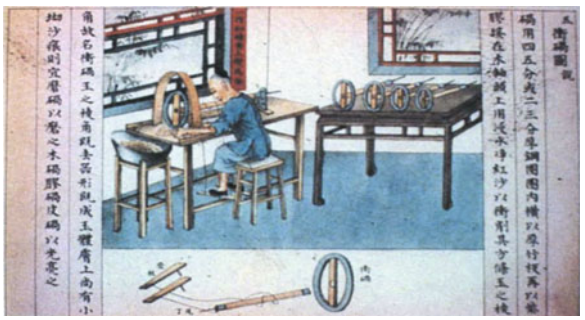
SUI
≈ AD 581–618
Given the fine stone sculptures associated with this short era, it is not improbable that there might also have been a minor jade carving industry during the Sui, but the small number of extant artefacts impedes speculation about this issue. As with the previous period, there is much room for improvement in the knowledge of jade-carving production in this politically important era.

TANG (T'ANG)
≈ AD 618–907
Based on their excavation history or their relationship to the ceramic and metal arts of this 'Golden Age', a limited number of jade carvings have been assigned specifically to this period by scholars. As more tombs are excavated the potential for an increased understanding of Tang-era jades is great. The jades ascribed to the Tang – most of which are carvings depicting the animal kingdom – appear of uniformly high accomplishment in terms of three-dimensional rendering, the interesting jade material then in use, the refinement of the finish, and the overall liveliness and believability of the object represented.

FIG. 2 *Traditional method of working jade.* *Illustrations by Li Shih-Ch'uan.*

1. SAWING OPEN THE CRUDE JADE
The two-handled steel saw is kept moist with wet black sand while the larger boulders are cut by men pulling and pushing at either end; smaller pieces are suspended with balancing counter-weights and cut open with a 20-inch-diameter plate saw. Crude jade is normally found embedded in stone: the first stage of working is to strip this away.

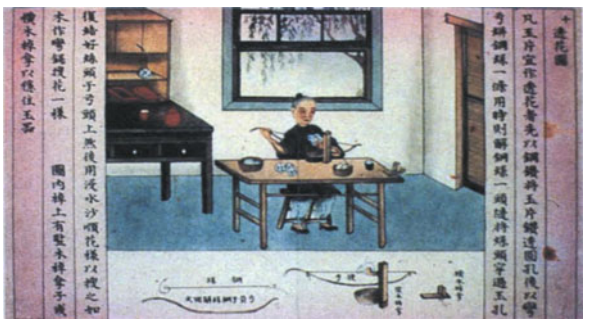
2. CUTTING TO SIZE
The resulting blocks are cut on a treadle saw to the size required to make a specific object. It is called a slicing saw, and is set on a wooden axle, turned by foot with a belt. Heavier blocks are suspended on a steelyard (an overhead wire) while the craftsman works; smaller pieces are held in the hand. The sawing is helped by the application of wet red sand.



3. SHAPING, SMOOTHING AND POLISHING
These processes take place on a succession of treadle wheels. The first has rings of steel, to take off rough edges; the second (grinding) wheel has thinner steel plates to give a uniformly smooth surface; the next wheels are wood and leather which combine to give the stone a bright, glossy polish.

4. HOLLOWING
If the object to be carved needs a hollow inside, this is created by a round, steel cylindrical borer, treadle-driven and mounted on an iron rod with channels to allow sand into the aperture to increase the friction. This process makes a 'core' which is completed by hand with a small hammer and chisel.

5. CARVING
To decorate the stone with designs the workman uses two types of tool: small round plates of steel with sharp edges, called ting-tzu *('nails'); and small steel plates with thicker edges, called* ya t'o. *These are treadle-driven, but much more delicate, and each craftsman develops shapes of tool which suit his own style.*



6. OPEN WORK
If a piece is to be carved in openwork, it must first be pierced along the lines of the design by a narrow drill called a diamond borer, and then worked with a small bow saw. The blade of the saw is inserted through the drilled hole before being attached to the other end of the bow: the jade is held in a vice.

FIG. 2

One manner in which Tang art *per se* has affected later jade-carving is in the rather horrific re-creation of Tang ceramic horse types in modern jade and other hardstones, produced in mainland workshops and widely advertised in antiques and art magazines in North America and Europe. There is no current evidence to suggest that jade carvings of this type and on this scale ever existed in the Tang period, and, judging from the elegant jade carvings of camels, ducks and other wildlife which can be attributed with some security to the Tang, any large horse carvings of the Tang would have been infinitely more refined in technique and proportion than these versions of 'Tang-style'.

FIVE DYNASTIES
≈ AD 907–960
Apart from several masterful paintings datable to this era of division and transition, there are few works which can be securely assigned to any of the five kingdoms involved. This is, once again, an area where tomb excavations are likely to prove the only aid in dating media such as jade-carving specifically to this short period and even more specifically to one of the five regions. Given the state of knowledge about artistic production of the era, it would seem appropriate for a jade carving to be called 'Five Dynasties', and such attribution would require proof.

LIAO
≈ AD 916–1125
In recent years there has been more information forthcoming about the artistic modes characteristic of this period, and much speculation about the development of important design motifs based on new tomb discoveries. It is clear that there were characteristic ceramics produced during the Liao, as well as metal arts and probably paintings, all sharing a distinctly different flavour though obviously closely linked to conventional Chinese production. It would be rash and speculative to state that a jade carving is of Liao origin and date, since the verifiable Liao examples are similar to Song jade in terms of technique and motifs.

SONG (SUNG)
≈ AD 960–1279
The Song, like Han and Zhou, may be subdivided into two significant periods:
≈ Northern Song: AD 960–1126
≈ Southern Song: AD 1127–1279
Song jade history is becoming clearer through the research of many thoughtful analysts in China, Taiwan and overseas, although the possible transformation of style, material and technique between Northern and Southern Song remains to be elucidated satisfactorily, as does clarification of what is implied by 'Song period style'. Works from this so-called 'Medieval' period, stretching from the post-Han to the pre-Qing centuries, tend to be assigned multiple dates, such as 'Tang-Song', 'Song-early Yuan', or even 'Song-Ming'. Given the present state of knowledge, such double-dating has been wise, but current research should allow for more refinement of dates in the future. Among verifiably Song jades there are many 'revival' works fashioned after Han jade (and bronze) artefacts; spritely, charming objects of personal adornment; and scholar's table objects (reflecting the period's profound interest in literature, art and history). Characteristic Song-period jade stylizations are identified by McElney (page 110).

Song-period jades are prized possessions of many classic collections. It is not unlikely that connoisseurs and appraisers will encounter a work of this period, but consultation with experts in the field is essential before assigning a Song date to any carving.

JIN (CHIN) (NUZHEN TARTARS)
≈ AD 1271–1368
The same remarks and warnings cited in the section on the Liao are relevant to the Jin.

YUAN (MONGOL)
≈ AD 1279 (or 1271)–1368
In spite of its brief duration, the Yuan was an enormously productive and important period in Chinese arts. Many works have been securely dated to the Yuan, but jade connoisseurship lags behind. Dating a jade carving to the Yuan is a speculative move, not recommended to any but an expert working in this specific field who will be aware of any new tomb finds and the cross-media stylizations that would allow a jade to be specifically dated to the Yuan. Yang Boda's section on 'New Art in the Jades of the Yuan Dynasty' (see page 130) elucidates many heretofore obscure aspects of jade-carving during this era. As Yang Boda indicates, Yuan jade carvings were sponsored by a specific audience of emperor, court and officials, and among the characteristic jade forms produced for this exclusive audience were scholar's table objects, table items (cups, for example), and magnificent showpieces of huge size. The transition from Song to Yuan jade-carving styles was uneventful, but the transition to Ming would prove dramatic. It is unlikely that securely-dated jades from this period will be found in Western collections or at market.

MING
≈ AD 1368–1644
This long period is famed worldwide for its superlative arts executed in media as varied as painting, ceramics, lacquer, ivory, metals and sculpture. There are jades which may be comfortably assigned to the Ming, as well as others that are

probably of this period but which have been cross-dated (as noted under the section on Song jade chronology). A number of researchers are presently engaged in examining what is a truly exciting period in Chinese jade-carving, and before long it should be possible to write a satisfactory history of Ming jade production techniques, sources, patrons and artists. Connoisseurs and appraisers certainly can begin to assign what are obviously Ming pieces (see page 135) to this period, but caution about specifying an absolute period to other less obviously Ming carvings is in order.

Reign marks were commonly used on Ming jades. They should be treated warily, since they, like reign-dated bronzes of Ming type, are often employed by post-Ming workshops for a variety of semi-honourable and dishonourable reasons. For the sake of readers, Ming reign names and dates are presented below, but this is not to suggest that the appearance of one of these names on a carving is a guarantee that it is genuinely of the period.

≈ Hongwu (Hung-wu), AD 1368–1398
≈ Jianwen (Chien-wen), AD 1399–1402
≈ Yongle (Yung-lo), AD 1403–1424
≈ Xuande (Hsuan-te), AD 1426–1435
≈ Zhengtong (Cheng-tung), AD 1436–1449
≈ Jingtai (Ching-t'ai), AD 1450–1456
≈ Tianshun (T'ien-shun), AD 1457–1464
≈ Chenghua (Ch'eng-hua) AD 1465–1487
≈ Hongzhi (Hung-chih), AD 1488–1505
≈ Zhengde (Cheng-te), AD 1506–1521
≈ Jiajing (Chia-ching), AD 1522–1566
≈ Longqing (Lung-ch'ing), AD 1567–1572
≈ Wanli (Wan-li), AD 1573–1620
≈ Taichang (T'ai-ch'ang), AD 1620
≈ Tianqi (T'ien-ch'i), AD 1621–1627
≈ Chongzhen (Ch'ung-chen), AD 1628–1644

QING (CH'ING) (MANCHU)
≈ AD 1644–1912

Jades from the Qing period appear in many collections both East and West. Each century, even each imperial reign, within the Qing has its distinct style, many of which can be identified with relative assurance, as indicated in the section on Qing Dynasty jades, page 145. The reign dates and names of the Qing emperors are presented below.

Although frequently of relatively inferior quality, late 19th- early 20th-century jades abound in Western collections, often having been brought back by missionaries and other visitors to pre-World War II China. Carvings of this period within the Qing (designated as 'late Qing' or 'turn of the century' works) may be easily confused with those produced in the coastal workshops of China during the 1920s and 1930s. It is not inappropriate to designate these late imperial or early modern carvings 'in the style of the late Qing', leaving sufficient latitude for the possibility of a slightly more recent date. This period marks the enormous flowering of the jade-workers' art, and the pinnacle of quality was reached in the middle and second half of the 18th century.

≈ Shunzhi (Hsun-chih), AD 1644–1661
≈ Kangxi (K'ang-hsi), AD 1662–1722
≈ Yongzheng (Yung-cheng), AD 1723–1735
≈ Qianlong (Ch'ien-lung), AD 1736–1795
≈ Jiaqing (Chia-ch'ing), AD 1796–1820
≈ Daoguang (Tao-kuang), AD 1821–1850
≈ Xianfeng (Hsien-feng), AD 1851–1861
≈ Tongzhi (T'ung-chih), AD 1862–1874
≈ Guangxu (Kuang-hsu), AD 1875–1908
≈ Xuantong (Hsuan-t'ung), AD 1909–1911

REPUBLIC OF CHINA
≈ AD 1912 – present

In 1949, the administration of the Republic of China was moved officially (albeit temporarily, in theory) from mainland China to Taiwan. There are many early modern works which were executed on the mainland before the move, although, as noted directly above, they can be difficult to distinguish from late Qing works. Since the move to Taiwan, jade workshops in the Taipei area have produced many jade carvings employing raw material from sources around the world as well as, for a time, Taiwan itself. The contemporary use of Korean nephrite was noted in this author's chapter on 'Connoisseurship and Appraisal of Chinese Jade Carvings', with a warning about mistaking these carvings for antique jades. Although other arts from the Republic of China may bear a cyclical date or a date indicating the year following the founding of the Republic (Zhonghua Minguo, Chung Hua Min Kuo) in which they were executed, jades of this period, and under this regime, are not usually so marked.

PEOPLE'S REPUBLIC OF CHINA
≈ AD 1949 – present

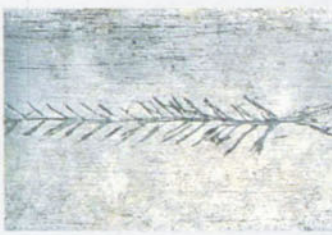
The People's Republic of China was founded in 1949, with its capital in Beijing. Conscious of tourist interest in jade carvings and the need to generate foreign currency, the government has established a number of workshops creating carvings, primarily for export. The subjects are routine, usually following established conventions as adjusted for tourist taste, but there is an abundance of showy technology, particularly in the elaboration of jade chains and pierced work. Truly superior jade carvings are relatively rare, although there are some quite spectacular pieces including large-scale propagandistic carvings produced during the Cultural Revolution.

FIG. 1

FIG. 1 **EAGLE RING** *Liangzhu/Longshan Cultures. Of translucent light green nephrite, this large bangle ring features two pierced dragons and a surrounding open-work flange with a rearing eagle with extended talons. In the Musée Cernuschi Collection in Paris, the piece represents a transition from the Liangzhu to Longshan cultures.*

CHAPTER 2

NEOLITHIC CHINESE JADES



Hemudu to Erlitou Period

ANGUS FORSYTH

ESTABLISHING A BASE TIME PERIOD

FIG. 2

FIG. 2 **TUBE FORM**
Hongshan Culture. Length: 6¾ in (17 cm), width: 4½ in (11.5 cm), depth: 2¾ in (7.2 cm). This tall, elliptical tube form, with oval mouth opening, is of opaque light green nephrite.

Until very recent times the study of Neolithic jade-working in China owed everything to theory and deduction. In consequence, many of the ideas of even the most learned and sincere scholars were of a tentative nature in the absence of a sound basis. Now the picture can be drawn with a new confidence and accuracy, based upon the reliable archaeological dating techniques of carbon 14 and thermoluminescence measurement of items of pottery and carbonized organic remains that have been excavated with jades and from jade culture levels. For over 40 years a steady programme of scientific and controlled archaeological excavation and analysis in China has furnished new, incontrovertible and often startling evidence of the age immediately preceding the introduction of bronze metal and the written word.

Late Pleistocene Era

PALAEOLITHIC (ANCIENT STONE AGE)
There is not yet enough detailed archaeological data on whether any distinction was made between stone and jade in applied tool production to enable a fruitful study of jade-carving during this period. The likelihood seems to be that the basic weaponry requirements of the hunter were satisfied by chip treatment of stone artefacts, although this leaves unexplained the objects fashioned from jade that are very occasionally found in excavated sites of this period.

MESOLITHIC (MIDDLE STONE AGE)
The same observations can be made with respect to this period, which terminated by approximately 8000 BC.

NEOLITHIC (NEW STONE AGE)

In jade studies, this is the earliest period of intelligently applied abrasion and drill-working or processing of uncarvable jade-type stones before the introduction of metal. It is an archaeologically identifiable and securely dated period extending from 6000 BC up to the period of the Erlitou culture in north central China, which is now normally considered to be the origin of bronze production in China between 1900 and 1600 BC.

This Neolithic period saw the development from the hunting nomad to the origins of settled agriculture. Early settled communities were based upon relatively simple exploitation of highly fertile alluvial silt deposits that were carried by numerous river systems down from the mountains in many Chinese provinces – but perhaps none so influentially as the loess washed down to the erratically formed lower floodplains of China's two enormous rivers, Huang He or Yellow River and Chang Jiang or Yangtze River, as well as, to a lesser extent, the Huai River.

Settled life was associated with domestication and selective improvement of animals, principally dogs, pigs, goats, sheep and cattle. Stone-spinning artefacts indicate cloth production and there is evidence of silk culture. Religious beliefs and subscription to ceremonial formality are evident in such things as burial arrangement and the creation of artefacts of a wholly non-utilitarian function, such as a number of jade categories both representational and imaginary in form. The origins of artistic expression can be seen on pottery designs and etchings and in sculpture in clay, stone and jade.

There is a series of still baffling but very significant pictograms or designs etched into Dawenkou pottery which have an arguable connection with very similar designs that appear incised on a limited number of Neolithic jades – none, unfortunately, from a controlled excavation. It is thus likely that the latter designs (see Fig. 4) are of the Dawenkou period and they are considered by some scholars to be the best evidence of the earliest development of writing in China – or at least communication of ideas through symbols. (Written Chinese is of course based on a pictogram or ideographic system but according to present understanding true, ordered pictogram writing was not to appear in China until the early historical period in the Shang Dynasty.)

FIG. 3

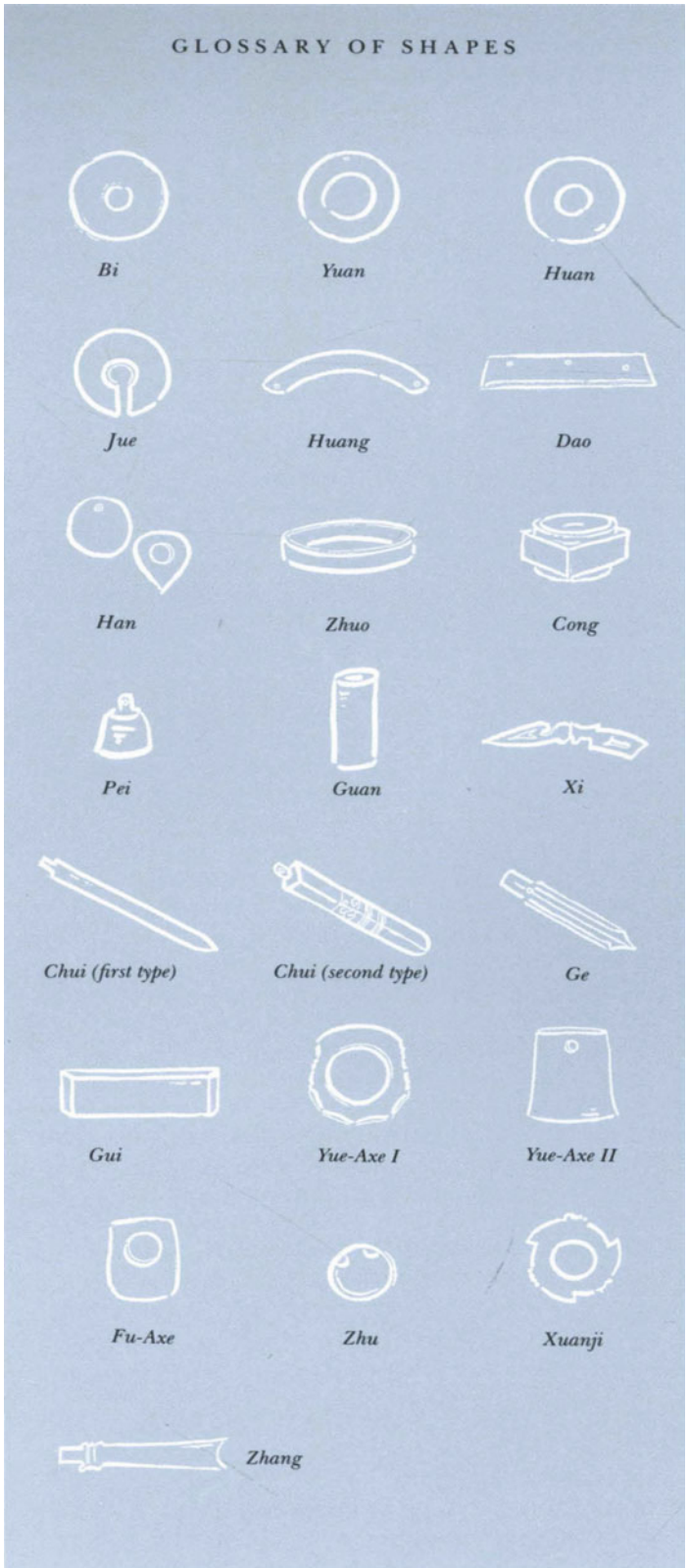
FIG. 3 CONG
Liangzhu Culture. Height: 2¼ in (5.6 cm). The stone of this cong *is an opaque buff tone, and its corners are incised with lines and double eyes. Excavated from Yaoshan, Liangzhu, it is in the collection of Cultural Relics, Yuhang County.*

FIG. 4

FIG. 4 INCISED BIRD
Dawenkou Culture. This etched jade shows a bird perched on the top of a crenellated pedestal with a 'stringball' incised sun symbol and crescent moon base. In the Freer Gallery collection, Washington, D.C.

FIG. 5

FIG. 5 BANGLE
Liangzhu/Dawenkou Cultures. Diameter: 2½ in (6.5 cm). Opaque yellow jade with calcified veining has been fashioned into a plain, narrow, circular ring. A transitional piece from the Liangzhu and Dawenkou cultures.



PRINCIPAL JADE-USING AND JADE-INFLUENCED NEOLITHIC CULTURES

c. 6000-1600 BC

JADE-USING CULTURES

North and Northwest China –
Liaoning Province and Inner Mongolia

Hongshan	c. 3500-2200 BC

Qinghai and Gansu Provinces/Upper Yellow River

Shilingxia	c. 4000-3500 BC
Majiayao	c. 3300-2700 BC
Banshan	c. 2700-2400 BC
Machang	c. 2400-2000 BC

Shaanxi Province/Middle and Lower Middle Yellow River

Cishan-Peiligang	c. 5900-5100 BC
Yangshao	c. 4800-3070 BC
Banpo type	c. 4800-4200 BC
Miaodigou type	c. 3900-3500 BC
Qinwangzhai type	c. 3400-3000BC
Henan Longshan	c. 2800-1900 BC

Lower Yellow River Valley/Shandong Province/
North Jiangsu Province (Huai River Basin)

Beixin	c. 5500-4400 BC
Dawenkou	c. 4500-2300 BC
Huating	c. 3800-3000 BC
Shandong Longshan	c. 2300-1700 BC

Upper and Middle Yangtze River/Sichuan/Hubei/
The Central Plain

Daixi	c. 4000-3300 BC
Qujialing	c. 2700-2600 BC
Qinglongquan III	c. 2600-1600 BC

Lower Yangtze River Basin/Lake Tai and East Central China
(Ningshao Plain)

Hemudu	c. 5000-4800 BC
Majiabin	c. 5000-3900 BC
Songze	c. 3800-2900 BC
Liangzhu	c. 3400-2250 BC

JADE-INFLUENCED CULTURES

South Coastal Provinces/Guangdong

Shixia Late Phase	c. 3000-2000 BC

ERLITOU PERIOD

The jade-using bridge between the Neolithic and the Bronze Age

Henan Province	c. 1900-1600 BC

FIG. 6

JADE IN NEOLITHIC CHINA

FIG. 7 **LONG FORM CONG** *Liangzhu Culture. Height: 9¼ in (23 cm). A fine example of the classic* cong, *this piece has a cylindrical centre surrounded by angled corners incised with human facial features. The stone is a green-brown mottled type.*

FIG. 7

The Chinese word for jade – *yu* – has developed unique and significant attributes for the Chinese people. It is reasonable to assume that the cultural development of China was based upon certain core principles and beliefs that succeeding generations, revolutions, religions and ideas did not displace but simply absorbed and acknowledged without fundamental change.

The idea of *yu* is one of these anchoring blocks to which the Chinese people have remained faithful through millennia. It is notable that Western ideas of mineralogy are not able fully to encompass this, because the Chinese use the term for a select number of mineralogically different stones which do, however, have distinct uniform qualities. The principal quality is steadfastness or endurance, which jade demonstrates by its extreme hardness of 6–6.5 on the Mohs scale, which runs from 0 for talc to 10 for diamond. The crystalline structure of candidate stones for jade is one of a felted nature, a seemingly haphazard arrangement of crosslaid skeins or filament bundles. The lack of any defined direction or parallel order in the lines of crystal growth makes the jade stone impossible to cleave. Accordingly the basically simple option of cleavage along a selected plane or flaw that makes for the easy manipulation of many other hard stones – including diamond – is closed to the jade-worker. Furthermore, the same quality frustrates all attempts to chip or split the material by sculpting – either as an end in itself or as an initial step to be followed by refining or polishing.

This means therefore that all jade-working is not 'carving' in the normal sculptural sense, but must be carried out through a process of abrasion. It follows further that some techniques clearly used on the softer medium of stone in

FIG. 8 **HUMAN FACE PENDANT**
Daixi Culture. Both sides of this oval pendant-plaque are carved with a humanoid face. The stone is opaque black nephrite.

FIG. 8

FIG. 9

FIG. 9 **THREE-PRONGED FORM**
Liangzhu Culture. Height: 2 in (4.8 cm), width: 3⅜ in (8.5 cm). Excavated from Yaoshan, Liangzhu, this type of jade was found near the head of the body and was probably a headpiece. It is carved with an animal mask, with a spiritual figure on either side.

FIG. 10 **HANDLE**
Erlitou Culture. A square form handle, of opaque green-white nephrite, incised with half of a taotie *mask on alternate registers.*

FIG. 10

Neolithic times are not necessarily of assistance in the study of Neolithic jade.

This quality of resistance to change by even the most dramatic means has led to jade's association with the notion of steadfastness and reliability – a concept perhaps even more meaningful in primitive times than in later ages.

Associated with this basic property of steadfastness are other qualities such as a mysterious, semi-translucent beauty of consistent and even colour and a coldness that immediately warms upon human touch. The touch factor is enhanced by perceptions of a slight greasiness, evincing a softness which is at the same time belied by the known extreme hardness. 'Smashing Jade', describing death for a noble cause, is a traditional expression in Chinese.

Western appreciations of this material date only from the arrival of literate, non-commercial Westerners to China and their exposure to its culture – a development of perhaps 400-500 years commencing with the Portuguese settlement of Macao in 1554. Previous cursory observations by such travellers as Marco Polo and Friar Odoric of Pordenone are not of material importance because of their very erratic nature.

The Western name 'jade' is an even later corruption of the Spanish *piedra hijada*, or loin stone, which derives from the Spanish colonial discovery of the Central American habit of placing pebbles of a local nephrite material on the flank to ease kidney ailments. From a similar root (the Greek *nephros* for 'kidney'), springs the Western word 'nephrite', now universally used as the Western term for the principal member of the *yu* group of stones in China.

At the core of this *yu* group are two principal nephrites, *tou shan shi*, or tremolite in English, and *yang qishi*, or actinolite. These are to be distinguished from the also very beautiful and hard stone the Chinese call *fei cui* (meaning 'kingfisher feather'). This comes from Burma and has been worked by the Chinese in quantity only since the late 18th century AD.

In 1863 an early Western attempt to resolve the developing confusion between nephrite and *fei cui* was made by the French mineralogist Damour, who coined the word 'jadeite' for *fei cui* – a successful innovation that has been followed ever since. It has been recorded that the earliest piece of worked jadeite found in China is a sceptre found in the tomb of the Ming emperor Wanli who died in AD 1620.

The great and fabled source of nephrite in the White and Black Jade rivers, which flow from the Kunlun Mountains to Khotan (Hetian), was not, as far as we know today, available to Neolithic peoples, whose known range of travel was extremely limited. They used locally available materials of appropriate hardness, some of which have been pronounced in present times to be nephrite, either tremolite or actinolite.

FIG. 11 **YUE-AXES**
Liangzhu Culture. Length of larger axe: 5¼ in (13.6 cm), width: 4⅛ in (10.5 cm). Of green jade with white flecks, and honey-coloured brown, these yue*-axes are each pierced with one circular hole.*

FIG. 11

Apart from sites in eastern China, Russian archaeologists have excavated Neolithic sites dating from 4000 to 2000 BC, which have yielded white nephrite *bi* and *yuan* type discs and rings in the Chinese idiom on an island in Lake Baikal, just north of Mongolia. Another Siberian site is at Khabarovsk, just northwest of the Xiaoxing'an Mountains in the part of Manchuria now demarcated in China as Heilongjiang or Black Dragon River Province.

Through the south of Manchuria – now demarcated as Liaoning Province – the Liao River flows in its silt-enriched basin to the Bohai Gulf. This river is now established as a major home of the Hongshan Neolithic jade-using culture of north China. The Baikal and Khabarovsk nephrite artefacts seem to be made from a local source material and it seems reasonable to assume that Chinese Neolithic jade-working in the Liao River valley, in Shandong and in the Jiangsu/Zhejiang regions used locally sourced material, though more definitive evidence of this is still awaited. A substantial number of Hongshan jades have been found to be made of a silicate of magnesium popularly called bowenite, which is of a similar physical structure to nephrite but slightly softer. Of eight well-polished Neolithic jades unearthed in 1989 in Fuxin, Liaoning Province, one has proved to be actinolite, and the rest tremolite.

In modern times large local deposits of a dark green fibrous serpentine stone with a hardness range of 4.5 to 5.5 are worked at Xiuyan County, Liaoning Province. The serpentine stone has been analyzed as a different magnesium silicate from that of at least one Neolithic site at Lingjiatun in Anhui Province. Tremolite and actinolite from the same site have been analyzed and found to be of a totally different structure from Khotan (Hetian) nephrite.

The July 1990 edition of the Chinese picture magazine *China Pictorial* carried a report and photograph of the largest jade boulder ever found in the world – a massive rock weighing 260 tons and measuring 16 ft 6 inches (5 m) tall, 36 ft (11 m) long and 19 ft 7 inches (6 m) deep – unearthed in Liaoning Province. There is a further jade source at Xiyugou or Little Jade Gorge, also in Xiuyan County, Liaoning Province. Here true nephrite of the *tou shan shi* or tremolite type is found in pebble form in the river in colours ranging from green to a pure pig-fat white.

In the Jiang Nan region of the Liangzhu Culture of the Lower Yangtze River a semi-translucent green to yellow material that took a fine greasy polish was used. The source of this material has not been positively identified but is believed to be in the same area. The types are tremolite, actinolite and serpentine.

As a broad principle it is possible to postulate that in Neolithic times, before the emergence of the working of gold and silver as commodities and treasures of extreme value, the great obduracy of jade and the commensurate difficulty of working it meant that it was used as jewellery to bestow citizens with wealth or high status or to symbolize meaningful ceremonial purposes. It was an extreme luxury and not available to the common man. The inordinate length of time that it took for jade to evolve to this status gave it an aura and esteem that even gold and silver were not able to dislodge until very recent times.

To the present day, in addition to the use of *yu* for jade, the Chinese also apply the expression 'jade stone' to a number of stones formed from a combination of minerals which, though not nephrite, are of a high jade quality. The existence of Neolithic artefacts made of such materials testifies to the respect for jade stone being as old as that for jade itself.

THE MECHANICS OF NEOLITHIC JADE-WORKING

FIG. 12 **CHAN AXE**
Dawenkou Culture. Length: 8½ in (21.5 cm), width: 4 in (10 cm). The butt of this slender axe, of opaque black nephrite with grey-green flecks, is pierced with two circular holes. It was found in Shandong Province.

FIG. 12

There appear to be different regional characteristics of jade-working developed by the different cultures. The most basic techniques for making holes are chipping, scraping, solid drillhead boring and hollow cylinder core-boring. As hole-making is a basic product of jade attrition, it is necessary to be familiar with the basic types of Neolithic jade holes shown opposite.

There seem to have been two fundamental processes for hole-making. In the first, the drill bit would probably have been a solid hand-held rod with a hemispherical end that the user would have covered with an abrasive dust of a harder material – perhaps in a grease matrix. This rod would have been forced against the piece to be worked and circular and downward pressure applied. The result was the creation of first a round depression and then a round hole with a dome profile. Small drill bit heads have not been identified in excavation but large drill bit heads have been found in Yangshao and Longshan culture sites. Made of sandstone, they are scored on with circular marks.

In the second hole-making method, the cone-shaped and straight-sided holes are either drilled from one side only on some pieces, or from both sides on other pieces. When drilled from one side a tube such as a bamboo stem would be dipped into abrasive paste and then rotated rapidly against the stone to effect a ring-form entry, leaving the solid core intact. Depending on the depth of material to be drilled through, a bevel-edged core would be formed that would eventually be anchored by a circular remnant of material from which it could easily be snapped off by tapping or pushing. Often the jagged edge of the snapped remnant is not ground or polished down. In thicker pieces, where the drilling has been done from each side of the piece, the meeting place of the two borings is not true to a single channel and a remnant of ridging

that is often not ground or polished-out remains at the common junction.

A number of drilled holes in different cultures have a helical scoring or ridging on the interior wall of the hole because this was often not polished-out as part of the process of finishing a piece. In Longshan dome-shaped, straight-sided and cone-shaped holes are all found. All holes, however, appear to be one-sided. In the Liangzhu Culture most holes are double-bevelled, formed by drilling with a bamboo tube through each side of a thin-walled matrix to meet at a common shoulder keel, enabling the formed and bevelled core to be snapped out. The shoulder keel is often not polished-out.

To produce a flat surface, the preferred method seems to have involved sawing right through a boulder of raw material – perhaps with some abrasive impregnated string or animal sinew – and then sawing again through the same thickness but perhaps ¼-½ inch (0.5-1 cm) or more away, thus producing a flat slice of the stone to which hole-making techniques could be applied. As an alternative to sawing by hand, a primitive but effective swing-saw process of cutting is thought nowadays to be the cause of the bow-shaped scars on many ancient jades.

If a rectangular or square shape was required, the flat-cut circular plate from the boulder would be sawn through on four sides to create the right-angled corners of the new shape. These longitudinal saw cuts would be made opposite each other on both sides of the plate. When the plate was sawn almost through to the middle on each side the exterior rough could be snapped away from the intended artefact along the length of the cut, leaving a longitudinal and distinct keel that would then be ground away to form a squared edge – but often not completely squared so that one can observe from the residual, polished keel how the process was achieved.

In certain cultures, such as Yangshao, only the cutting edge of an axe or knife form would be ground to a sharp blade finish. In others, such as Dawenkou and Longshan, the entire blade would be ground throughout to a finely polished finish all over.

In Dawenkou and Longshan jade blades with a cutting edge, the blade end is hollow-ground in a lunette form, the plane arcing gently from one side of the blade end up, across and over to the other side. This is repeated on both faces of the blade, resulting in a very thin and delicate blade. In the Liangzhu and other blade-forming cultures the blade is not hollow-ground in this lunette form. Instead, the pillowing of the gradually reducing body of the piece is curved gently down the plane surface to meet a similar movement from the opposite face and thus form a fattened blade edge, without the delicacy of the Longshan form but with a stronger and more robust body.

FIG. 13 **DETAIL OF ZHULONG (PIG DRAGON)** *Hongshan Culture. Shown is the helical cavity created by a hole drilled through the underside of the larval pig dragon.*

FIG. 13

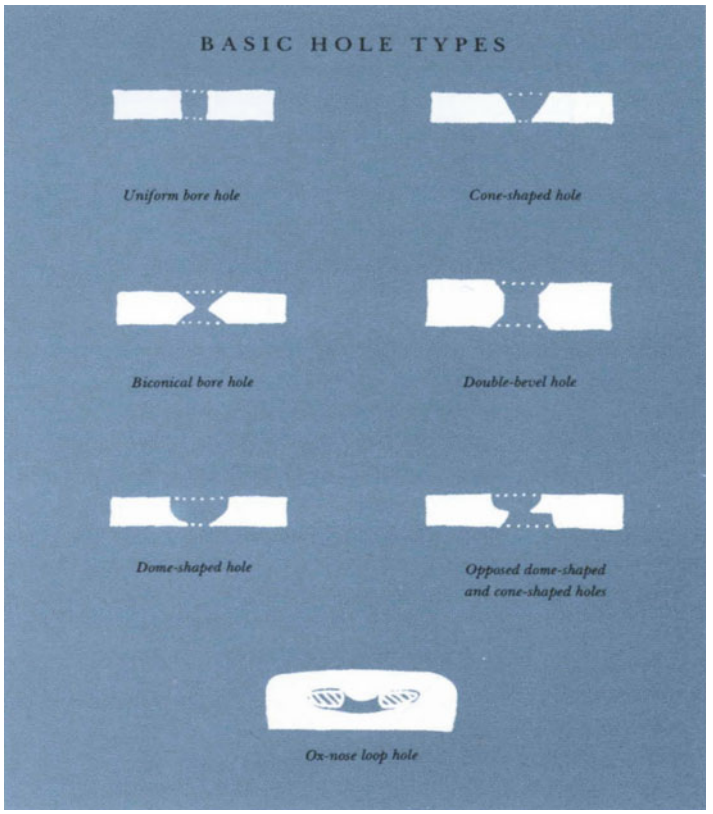


FIG. 14

REGIONAL DEVELOPMENT

FIG. 15

FIG. 15 **YUE-AXE**
Liangzhu Culture. Axe length: 6¾ in (16.7 cm), blade length: 3¼ in (8.2 cm). Excavated from Fanshan, Liangzhu, this white jade axe is now in the collection of the Institute of Archaeology, Zhejiang Province. The yue*-axe was a fairly common tool in the Liangzhu Culture, and its function was probably associated with military authority, as in later periods. This example was found together with two knobs that would have adorned the ends of the wooden handle on which the* yue*-axe itself was fastened; this combination had not been seen before.*

It can be clearly seen from a contour relief map that the floodplain and river valley regions of central and eastern China are broadly set in a contour below 600 ft (182 m) above sea level. This is substantially disrupted by ranges of hills and mountains that would not support primitive agriculture. Archaeological excavation is establishing beyond doubt that the Yellow River, dubbed 'China's Sorrow' as a result of its numerous and traumatic changes of course north and south of the Shandong Peninsula, can no longer be regarded by the Chinese as the exclusive fountainhead of nationhood. Equally important in the development of man's tenure of the Chinese landmass are a number of areas which are widely separated but principally to be found on a north-south axis along the east coastal region extending between Manchuria and Zhejiang Province south of Shanghai. Early settled communities elsewhere in the Chinese geographical area did not leave such startling and impressive evidence of cultural and artistic developments.

Neolithic man in China was bountifully blessed in being able to cultivate some of the richest and most fertile land in the world at the Yellow and Yangtze rivers' lower floodplains and estuaries, and along those rivers draining into the Bohai Gulf. Recent findings bear evidence of the advantage that he took of this happy circumstance and of the remarkable skill and ingenuity that the communities exercised on the demanding medium of jade as opposed to the vigorous and brilliant painted decoration on clay artefacts upstream in Gansu and Qinghai Provinces.

In general, Neolithic facility with jade seems not to have been put to use in meeting the physical needs of day-to-day life; instead it responded to a more ethereal imperative associated with spiritual wellbeing – of the dead rather than of the living. For it is a significant fact that, apart from an occasional find in or near the site of a dwelling house, Neolithic jade artefacts are rarely found in either dwellings or in what are clearly important temple complexes – some of which have yielded up in contrast amazingly mature and developed human sculptural forms in clay. The greatest

numbers of superb jades, in pristine and unused state, have been found in tombs – constituting the beginning of what became the standard funerary practice of all succeeding society in China to inter the finest jades as funerary objects, appropriate in lavishness to the stature of the deceased.

In consequence, the Neolithic application of jade to purely utilitarian expression is extremely rare. It is a perhaps surprising fact that the one really hard material available in pre-metal times was not set to applied uses when the need must have been acute. One remarkably elegant jade spoon of the Liangzhu/Longshan transition type, in form very similar to standard modern Chinese porcelain, was excavated in 1985 at Lingjiatun in Anhui Province and is so far a unique form from any Neolithic site.

As many of the jade pieces are complex and sophisticated forms, it is clear that they were made with extreme care and attention to detail. This would seem to suggest that the jade-working section of the Neolithic community drew substantially upon the basic food and shelter resources of the living in return for services performed almost exclusively for the dead. Pieces might take months, or even years, to make. The jade-workers were clearly a most important section of a community which, although principally involved in the daily round of agriculture and animal husbandry, retained a keen recognition of the supernatural.

It can be seen from the table of chronological development and geographical distribution at the beginning of this chapter that there are periods of general overlap. That said, however, the easiest developmental overview is found by a sequential examination of the site findings of the

FIG. 16

FIG. 16 **CONG MASK**
Liangzhu Culture. This mask shows a head with a cap, out of which many feathers stick out. The two arms have elbows pointing outward, with the hands back at the side of the body and fingers outspread. The legs are similar to the arms, with the knees pointing outward and the feet together beneath the body, like a frog. Though it looks like an animal mask, the immediate background is carved as a spiritual figure. The composition of the piece is well-balanced, and the detailed carving makes it a masterpiece of prehistoric carving. The first mask of this kind was discovered at Fanshan.

FIG. 17

FIG. 17
Map showing approximate boundaries of Chinese cultures in the Neolithic period.

FIG. 18 **CONG**
Neolithic. Height: 19¼ in (48 cm). A stone of black-grey tone has been carved into a cong *of tapering form, its cylindrical centre surrounded by incised angled corners. In the Eumorfopoulos Collection of the British Museum.*

FIG. 18

FIG. 19 **CONG**
Neolithic. Height: 2¾ in (6.7 cm). The cylindrical centre of this squat-formed cong *is surrounded by incised angled corners. The stone is a brown tone, with highly emphasized darker markings. The piece is in the Eumorfopoulos Collection of the British Museum.*

FIG. 19

principal Neolithic cultures in different areas, commencing in the northeast of China and progressing down to the south via the sub 600 ft (182 m) contour. As mentioned before, there were other Neolithic cultures developing simultaneously in other areas of China but they did not demonstrate any ability with, or interest in, jade in their daily lives or after death. For our purposes here, only those identified local cultures that worked and used jade have been taken as part of the overall picture.

Cross-fertilization of artistic ideas between the different jade cultures seems not to have been common, although there are well-established exceptions such as the stone forms of the typical Liangzhu Culture *cong* that have been excavated from the Liangzhu contemporary site at Shixia in northern Guangdong Province adjacent to Hong Kong. There are also discernible similarities between the Late Phase Liangzhu Culture and the Shandong Longshan Culture toward the close of the third millennium BC.

It can, however, be observed that the separate development of certain Neolithic jade cultures engendered independent but similar sculptural ideas that were available as a generic foundation upon which the geographically mobile and politically strong later peoples of Xia and Shang could draw in their own syncretic development of artistic form. In that light, these independent generic similarities of Neolithic regionalism should be seen as the foundation of the unified concept we call Chinese Art.

FIG. 20 **YUE-AXE**
Neolithic. Length: 6 in (15.1 cm). This blade is of plain form with one pierced hole, its stone a green tone with russet markings. It is in the Eumorfopoulos Collection of the British Museum.

FIG. 20

North and Northwest China, Liaoning Province and Inner Mongolia

HONGSHAN CULTURE, 3500–2200BC

The Hongshan Culture people lived along the banks of the Liao River in what is now Liaoning Province in north China. There were also communities of this culture in Inner Mongolia, south of the Xilamulun River. The similarity of excavated artefacts from these two large areas shows established lines of communication of a remarkable extent and a unity of practical and spiritual life attributable to common political rule.

Sites have been found on riparian lower ground and on low hilltops. We do not have very accurate records of houses, and the principal archaeological finds have been of temples and tombs – the former showing evidence of stone wall foundations and plastered wall superstructures of quite an advanced character. We know from these that the Hongshan people raised pigs and dogs and revered the pig in a manner that would not be readily comprehensible to many subsequent peoples. In the excavated temples there is evidence of coloured plaster walls and formed floors. In the temple nave numbers of smashed terracotta female figures – sometimes naked and standing and sometimes clothed and seated – indicate a matrilinear society or at least an advanced fertility cult. These figures, some of which are two-thirds life size, also demonstrate remarkable cultural innovation and sculptural maturity in the north of China at the time. This was an artistic sensitivity that was not to appear in other parts of China for 1000-2000 years. To date, however, no jade of the period has been found in a Hongshan house or temple.

Between 1983 and 1985 a substantial temple site was excavated by the Mangniu River, Niuheliang, in Liaoning Province. The temple was in the midst of a number of tombs, which were also excavated; the tombs alone contained jades among the burial objects. Some tombs had more than one occupant, arguably indicating human sacrifice.

A singular form of jade artefact unique to the Hongshan Culture is a spiral-form open-work flat pendant of rectangular or square profile. This form is mostly found carved on both sides but some are carved and formed on one side only. The type is ascribed by some observers to a cloud inspiration (see Fig. 21), but by others to a reptile design. In the tombs that have been excavated so far these pendants have been found near the head and also on the chest of the corpse.

Small axe forms have been found with a highly ground polish on both faces; three of the four sides are rounded, while the fourth side forms the blade. These axes are clearly not made for use but for offering in some propitiatory way connected with burial and possibly the afterlife.

Personal jade jewellery seems to be confined to beads of tubular, waisted and elliptical shape and with a channel drilled from each end to meet in the middle.

Another burial jade form is a hollow tapered tube or scoop taking the shape of an open-ended shovel with a tapered outline and an oblique or diagonal mouth opening at the broader end (see Fig. 2). The cross-section is oval and the walls of the piece are thin. The narrower end is usually pierced through each side with a small hole. There is yet no wholly acceptable explanation of the purpose of this form. In one burial it was found upon the chest of the corpse; in other burials it was found placed crosswise as a pillow beneath the head, giving rise to the suggestion that it was some kind of hairpiece or ornament. However, the substantial size of most of these pieces, which easily admit a fist into the broad open end, would make them very unwieldy and heavy-fitting for the hair. Nonetheless, given the funerary nature of the basic Hongshan jade repertoire, the strength or convenience of the user would be immaterial.

There is a single published find of a flattened rod of segments encircled in concentric rings and terminating in a figure-of-eight or butterfly-shaped finial; its purpose is a mystery. The end opposite the butterfly terminal is unfinished and appears ready for insertion into an orifice or matrix such as a wooden base or implement. Another Hongshan find is a curious flat hook-shaped object of unknown purpose with a central broad groove along its length, again terminating at its lower end with an unfinished insertion haft, or *tang*. This relatively plain type also appeared in an embellished form with a graceful crested head extension, in what is arguably a dragon form sharing close sculptural affinity with the Sanxingtela dragon mentioned below – even to the extent of a panel of cross-hatching work in relief on the forehead.

Although the burial sites of the majority of Hongshan jade finds do not indicate use of jade by the Hongshan people during their lives, it is difficult to justify a funerary explanation for one further example of Hongshan jade-working – a form of knuckleduster with three large holes capable of admitting fingers, to be held in a clenched fist. At each end of the piece is a lively pig-head terminal, demonstrating again the attachment shown for this economically important animal. A flat, narrow base pierced with four equidistant ox-nose looped holes forms the lower side of the implement. This would seem to indicate that it functioned as the handle of a lid or vessel rather than as a weapon. However, a piece of somewhat similar structure found in Anhui Province and identified with the Majiabin/

Liangzhu Culture has no separate finger holes and has one whole side ground to a sharp cutting edge – leaving its purpose as a weapon as the most persuasive interpretation (see Fig. 34).

Perhaps the most interesting creations, however, are the zoomorphic forms. These are headed by a remarkable jade artefact encountered in the Hongshan Culture that appears to have been developed at that time, though it was subjected to evolutionary changes until as late as the Shang Dynasty in 1300 BC – by which time its basic shape of a tightly curled comma had become the written character for 'dragon'. This is the *zhulong* or 'pig dragon', a modern name that takes account of the pig-like propensities of the head of the piece, which has a retroussé snout, exaggerated double nostrils, staring eyes and big ears. These artefacts range in size from perhaps 1½ inches (4 cm) to 6 inches (15 cm) high. (See Fig. 22.)

Of particular significance in relation to jade is the number and arrangement of pig remains in tombs. Since time immemorial dragons have been revered in China – certainly since Neolithic times – and many scholars have made out good arguments that the *zhulong* of the Hongshan Culture is the origin of the dragon in China. The dragon, being a mythical beast, has always featured in the Chinese cosmos as a fitting harbinger of imperial fortune and bountiful harvest, and it may be that the *zhulong*, incorporating the tasty and nutritious connotations of pig meat, was used for harvest-related worship or sacrificial practice. Of particular interest also was the recovery of a broken earthenware version of this creature at the Niuheliang temple, suggesting a non-funerary function for at least the clay form of this creature. In one tomb, a pair of pig dragons was found laid back to back on the chest of the corpse.

There appear to be two basic body types of the *zhulong*: one has a smooth curl and the other has a larval-type segmentation. The fat, curling tail of each is further evidence that the dragon in China has a discernible affinity with the *zhulong* of Hongshan Culture, although it developed substantially through subsequent history.

Associated with the *zhulong* is another kind of dragon form structured as a large circle of round cross-section with a break at one side. The most famous was found in 1971 at Sanxingteta, Inner Mongolia. The upper section of the circle above this break forms the head of a dragon-like creature with pig-like nostrils, lying within the smooth form of the circle body but depicting brow, eyes and cross-hatched panels on each cheek and on the forehead. A long crest or mane of continuous fin-type form extends back from the head to curl out at a point one-third round the circular body. The form of this mane or crest has been compared with the mane of the wild boar which, coupled with the retroussé flat nose and double nostrils, again serves as convincing evidence of the association of the pig with the dragon's origin.

Zoomorphic jade carvings of an apparently secular and more practical kind are a very popular Hongshan jade creation. Numerous birds with spread wings have been found. Some have round eyes set on each side of a round head, possibly representing the pigeon or dove. Other bird forms of the same basic structure have distinct ears rising up from the back of the head in an owl-like fashion. The two types, although basically similar in their sculptural structure of a flattish medallion form, convey a very different emotional feeling – largely through the absence or presence of ears. Both types are generally drilled on the back with ox-nose-looped holes, indicating some sort of utilitarian suspension or attachment.

Lively terrapins, some with neck extended and some with neck drawn in, have been found, and also simple two-dimensional fish plate forms. However, perhaps the most significant of the secular animal forms are a number of fat,

FIG. 21

FIG. 21 **CLOUD PENDANT**
Hongshan Culture. Length: 3¾ in (9.3 cm). Of translucent moss-green nephrite, this pierced scroll pendant comprises a flat cloud form.

FIG. 22

FIG. 22 **ZHULONG (PIG DRAGON)**
Hongshan Culture. Length: 4⅛ in (10.5 cm). Translucent grey-green nephrite has been carved into a zhulong, *or pig dragon, with a plain, curling body.*

FIG. 23

FIG. 23 **CICADA**
Hongshan Culture. Length: 2¼ in (5.6 cm), width: 1 in (2.4 cm). The insect has a bulky square body with folded wings, a ridged forehead and large, well-rounded eyes. The stone is an opaque yellow tone with brown markings. This is a fine example of Hongshan carving.

tubular-bodied cicadas. (See Fig. 23.) The Chinese people have always revered this creature, whose life cycle involves a larva, that burrows into the soil to a great depth for two or three years of torpor before emerging alive, ready to split and reveal the pristine adult insect – the immaculate symbol of the cycle of rebirth.

The material for Hongshan jade-working is of a fine quality and ranges from a semi-translucent dark green through a translucent lemon yellow-green to a semi-translucent white. An opaque bean-curd white is also found. There is a full range of sculptural shapes, from a flat plate through to three-dimensional medallion forms (such as the birds mentioned above) and full three-dimensional sculptured forms represented by the pig dragons, the cicadas and the full ring dragon forms.

Hole-making in the Hongshan Culture threw up one very distinctive formation – the ox-nose loop hole with twin teardrop-shaped orifices leading diagonally into each other with reducing depth bore. This formation is not found in other Neolithic jades. On the internal walls of deeper holes are often found a form of helical or circular scoring of what appears in some cases almost as a screw line.

The workmanship of Hongshan jade is simple but fine. The edges of pieces are often polished into sharp blades. Very strong and meticulous forms are carefully finished throughout and ridge lines are simply executed. Broad grooves are carefully formed. There is a marked general absence of patterning or incised work upon the body of a piece, but it is well to note the important exception to this represented by the diamond cross-hatching patches on the cheeks and forehead of the Niuheliang circle dragon. Animal heads of Hongshan pieces have many pig-like characteristics and the funerary importance bestowed upon that animal is evident.

FIG. 24

FIG. 24 **DRAGON- OR PHOENIX-HEAD ROD**
Hongshan Culture. Length: 4⅛ in (10.4 cm). In the form of a dragon or phoenix head, this rare rod is carved in low relief. The head is crested, the mouth is pierced and a small circular hole is drilled through at the end of the extended neck. Its stone is a yellow-green tone, with some areas of brown on the crest and neck.

FIG. 25

FIG. 25 **DRAGON**
Hongshan Culture. Height: 10¼ in (26 cm). A curling dragon with a bird's head terminal to the crest, the stone a dark green tone with lighter markings.

FIG. 26 **CHISEL**
Banpo Culture. Length: 3⅜ in (8.5 cm). This chisel is of plain notched form; the stone is a pale white tone with brown markings.

FIG. 26

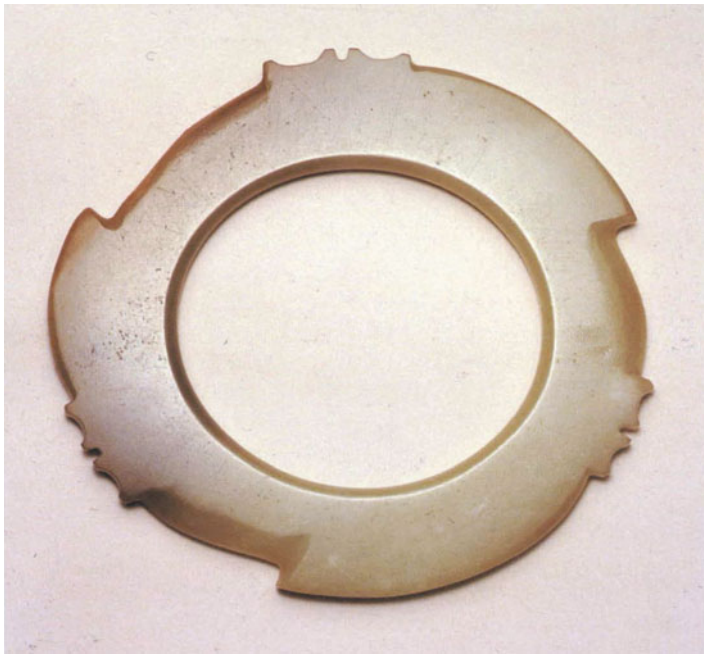


FIG. 27

FIG. 27 **DISC**
Longshan Culture. Diameter: 4½ in (11.3 cm). Three deep notches and three sets of serrations on the arcs below the notches are featured. The stone is a pale green tone.

In the Qinghai and Gansu Provinces of the upper Yellow River, the Shilingxia, Majiayao, Banshan and Machang cultures have as yet yielded too few jades to be able to draw conclusions as to jade-working in these areas.

Shaanxi Province, Middle and Lower Middle Yellow River Valley

YANGSHAO CULTURE, 4800–3000 BC

Jade was not a commonly used raw material in the Yangshao Culture, which can be divided into three sub-cultures.

Banpo Culture, 4800–4200 BC

The Banpo division of the Yangshao Culture is found alongside the banks of the Yellow River, centred on Xi'an, longtime dynastic capital of China and now the provincial capital of Shaanxi Province. The Banpo site excavated is in the suburbs of Xi'an.

The Banpo Culture well knew about house construction and formed dwellings through digging round pits about 3 ft (91 cm) deep and 12 ft (3.6 m) or more across. The sides of the hole formed the walls of the house, which was then roofed with a conical thatch structure.

The jade-like artefacts in the Banpo Culture are few and take the form of chisels (see Fig. 26) and axes as weapons or tools. For personal ornament a type of golf-tee-shaped hairpin was produced, together with earrings formed as a *jue,* or slit disc. Pendants in the form of a *huang,* or flat-form arch, have also been found. No obvious ritual, ceremonial or zoomorphic forms of jade artefact have been found.

The quality of workmanship and design generally is rough and plain, with the accent upon solidity and with the difficulty of working the material clearly evident – quite distinguishable from the apparent ease with which the

Hongshan and Liangzhu people worked stones of the same hardness and with tools of no more sophistication.

Holes formed by the Banpo people were essentially single-cone drillings formed by intrusion into the matrix from one side.

Miaodigou Culture, 3900–3500 BC

The Miaodigou people occupied the same general area as the Banpo people. Their jade artefacts were distributed in haphazard form and axes, adzes and knives are found. Personal ornament was satisfied by a stiletto type of hairpin, finger rings, *jue* slit-disc earrings, *huang* arched pendants and a form of heart-shaped pendant. As with the Banpo Culture, there is no evidence of jade performing a ritual or ceremonial function and zoomorphic forms have not yet been found. In workmanship and design the pieces found are rough and plain, with scant attention to fine detail. Dimensional planes are in the form of blocks and oblong body forms such as chisels.

Qinwangzhai Culture, 3400–3000 BC

The Qinwangzhai Culture occupied the same basic area as the other two Yangshao cultures. Jade artefacts took the form of axes, adzes and knives as tools and weapons, while personal ornament constituted stiletto hairpins, finger rings, *jue* slit-disc earrings and heart-shaped pendants. As in the Miaodigou Culture, finds of jade artefacts from Qinwangzhai are not plentiful and fruitful study awaits substantially richer finds in future.

Lower Yellow River Valley, Shandong Province, Northern Jiangsu Province and Huai River Basin

BEIXIN CULTURE, C.5500–4400 BC

There is no evidence yet of worked jade artefacts from this identified culture and excavated stone artefacts are still too rare to be able to draw conclusions and to found theories.

DAWENKOU CULTURE, C.4500–2300 BC

The village of Dawenkou is situated on the Dawen River near Tai'an in Shandong Province, through which flows the lowest reach of the Yellow River. Surviving clay models of houses found in archaeological excavation help to date finds and to show that dwellings in Dawenkou stood squarely on the surface of the earth with no need for construction of an internal pit.

Dawenkou artefacts have been found in scattered sites, generally in the lower ground below the 600 ft (182 m) contour. The forms of jades found range from tools of adze and chisel through to weapons of the *dao* square-ended knife blade.

Personal ornaments are finger rings, a heart-shaped pendant, a long awl-shaped pendant or hairpin, and bracelets or bangles. These bangles are of a surprising delicacy of form and in that regard very different from the much more massive type found in the Liangzhu Culture (see Fig. 5).

Also found in this category are *jue* slit-ring earrings and a *huang* arched pendant. One unexplained form is a type of 'V'-grooved bridge-shaped fitting of a longitudinal shape, its flat base pierced with a small number of equidistant holes, perhaps for attachment. There is also a type of sharp-edged disc with a central perforation which is bordered by an everted undercut ring feature. This type has been ascribed by some authorities to the Lower Yellow River area.

A celebrated form of human head is a flat, round plaque with a crude and massive eye incised on each side and a short, squared nose extending from one edge.

No clearly identified ritual or ceremonial jades have been found for Dawenkou. There is, however, a well-known group of three jade *bi* and one high-sided bracelet ring in the Freer Collection in Washington, D.C. These show minute and faint but often well-drawn incised designs of spread-wing flying shapes and profiles of elegant standing birds that are reasonably clearly of the thrush or Misselidae family (see Fig. 4). Some observers have associated them with the swallow but the profile of the swallow has an entirely different silhouette. These jades are incised with a crescent moon sometimes in conjunction with a globe form enfaced with an incised line complex, rather like a ball of string in appearance and which is usually taken to represent the sun. Unfortunately, none of these pieces comes from a controlled excavation and no such excavation of any other Neolithic site in China has yet turned up a similar piece. These pieces are sometimes ascribed these days to the Liangzhu Culture but without satisfactory reason; the incised symbolism and its very reticent rendering are not yet archaeologically recorded at all as Liangzhu characteristics.

Though they are not identical, these designs can arguably be gathered into a physically homogeneous group that owes little to pure design or decoration for its own sake. They can be dated by direct comparison to similar incised designs that appear on several large earthenware ritual vessels of the Dawenkou Culture excavated from datable sites in Shandong Province in the years between 1970 and 1980. A number of scholars have tried to analyze these incised symbols and, though a full explanation has yet to be arrived at, an indication of orthographic interpretation seems increasingly possible.

FIG. 28

FIG. 28 **COLLARED DISC**
Neolithic. Diameter: 3¾ in (9.7 cm). The central collar of this disc is in everted relief, the ring tapering to its edge. It was found in the Yellow River area. The stone is a mutton-fat tone with brown markings.

The workmanship of Dawenkou jades is simple but extremely painstaking and good, showing substantial emphasis on art over the craft and utility of earlier jade forms – particularly of axe blades. Very refined, thin blades were made and smoothed to a high degree of gloss, with carefully and immaculately finished holes.

Both cone- and dome-form holes are very meticulously finished. Axe and *dao* knife edge forms have hollow-ground lunette blade ends and many pieces bear along their sides the carefully polished but retained remnant of a keel-form sawing platform (see Fig. 12). The cutting edge of the blade itself is either a straight line or a very gentle offset curve – an important distinction from the poised balance of the symmetrically curved cutting edge of the Liangzhu Culture axe.

Hole forming seems mostly to have been by way of two-sided bevelling and, to a lesser extent, by pressured revolving of a blunt-ended hemispherical grinding or drilling head. One characteristic confined to this culture seems to have been the opposed dome-shaped and cone-shaped hole formula (see Fig. 14).

The material for Dawenkou jades is normally a translucent grass green, and the texture is nephritic. Further colours are opaque green-black and opaque creamy brown. Translucent white, opaque pea green and opaque moss green are also found.

Subject to some possible exceptions mentioned below, the dimensional planes of Dawenkou jades are generally flat with very little all-round sculptural form.

Three tombs dated to middle Dawenkou Culture (about 2500 BC) were excavated in 1985 at Lingjiatun village, Hanshan County, Anhui Province, and several very significant jades without easily ascertained parallels were found. Apart from fairly standard forms of *huang*, *zhuo* bracelet, axe and *bi*, there were three flat-form slender human figures with lobe earrings and striped flat hats; both hands were held together on the chest with open fingers pointing upward. They were 3¾ inches (9.6 cm) high and ⅞ inch (2.2 cm) wide. There was also an astrological form of flat square plate with perimeter bore holes. This plate was found sandwiched between two pieces of jade that are formed respectively as the top and bottom parts of a tortoise shell – an arrangement that will itself need considerable further study. The clearly astrological abstraction of the incised circle and ray designs on the square plate and the human figure representations have no currently known parallels in Neolithic Chinese jade. The importance of the tortoise shell in the development and practice of the later Shang oracle bone divination should be borne in mind.

HUATING CULTURE, 3800–3000 BC

In northern Jiangsu Province is Huating village, which is the site of the designated Huating Culture that rises from traceable beginnings in the Dawenkou Culture period and extends into a group of burials dated to 3000 BC. They contained a wealth of jade artefacts with marked similarity to those of the mainstream Liangzhu Culture at Lake Tai region and Yuhang. This argues for some cultural or perhaps political connection or intercourse between Dawenkou in Shandong Province and Liangzhu in Jiangsu and Zhejiang Provinces in those times, with pig burial also a shared feature.

SHANDONG LONGSHAN CULTURE, 2800–1900 BC

The Shandong Longshan Culture shares numerous affinities with the Dawenkou Culture, to which it bears the relationship of worthy successor. There are affiliated Longshan Cultures in Henan and on the middle Yangtze River.

The distribution of Longshan Culture sites in Shandong is essentially upon small hill ranges. The isolation of this culture from those of adjacent areas of China is readily

apparent from the dynamic but delicate originality of its design features of raised line and incised line work.

Here we find jade tools such as axes and adzes and small sharp scraper blades (see Fig. 33). The weapon form is represented by the *dao* square-ended knife blade with a margin of several single cone holes drilled equidistantly along the spine of the piece away from the cutting edge of the blade. The axe and *dao* knife blade edge both continue to exhibit the fine hollow-ground lunette form, which originated with Dawenkou Culture and is not found after the end of the Longshan period or in any other jade-working.

During this culture we see the first appearance of the *xuanji* centre hole flat disc with deep notched perimeter extensions. The *zhang* (see Fig. 31) also appears for the first time, with a broad concave-bladed structure wholly impractical for applied use. Both forms can properly be considered to have ritual or ceremonial purposes whose exact identity and meaning are still a fertile ground for unsubstantiated academic theorizing.

There are two other principal applications of one design inspiration in Longshan jade. These are bird interpretations, and it is most likely that both forms were developed for a ritual or religious purpose rather than for secular usage.

The first type is a representation of an eagle, which is depicted by the softest and most reticent of raised lines in a soaring upward movement with beak and head extended and swept-back wings held out and down as though being pushed back by pressure of passing air streams. This form has been found as a faint but firm raised line relief decoration upon the span of heavy chisel-like flat blades, sometimes rising through feathery fronds and sometimes placed above a narrow belt of richly ornamented raised line work of curling and fluidly arranged mask-form motifs. The form often occurs together with a long-haired human head in profile and has also been found as a raised line-work component on an open-work plaque, clutching in its giant talons a formation of human heads with striated hats, beards and earrings. The same faint raised line work is evident in a dark green chisel of the same type found in Liangcheng Zhen, depicting at the end of both faces a very stylized mythical monster mask.

This rearing eagle form is a magical one of a typical design unique to Longshan. There is a well-published ring or bracelet form in the Musée Cernuschi in Paris (see Fig. 1), where the rearing eagle rises in the same softly raised line work out of an open-work flange extending from around the perimeter of the ring.

One feature found on pieces that bear a similar perimeter flange in open-work and are thus possibly assignable at first sight to the Longshan Culture is a vigorous form of 'stringball' raised line design of curling spirals and triangles.

FIG. 29

FIG. 29 **DEMONIC-MASK PLAQUE**
Longshan Culture. Length: 1½ in (3.9 cm). Strongly defined details characterize this plaque, which is in the form of a demonic mask. Full cheeks, elliptical eyes and rounded pupils feature over an open mouth. The stone is a green tone with brown markings.

FIG. 30

FIG. 30 **ANIMAL-HEAD CYLINDER**
Longshan Culture. Height: 2¼ in (5.7 cm). Four zoomorphic heads in high relief are carved above two relief lines on the side of this plain-formed cylinder. The stone is a light green tone with brown markings.

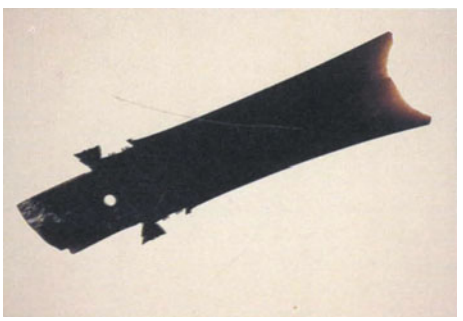


FIG. 31

FIG. 31 **ZHANG**
Longshan Culture. In the collection of the Minneapolis Institute of Art, this zhang *has a concave blade.*

FIG. 32 **EAGLE ROD**
Longshan Culture. Length: 3 in (7.8 cm). Modelled as a bird with folded wings, this tapering rod is of a brown tone jade with markings. The surface is finely incised, and the bird's talons are well detailed.

FIG. 33 **SCRAPER BLADE**
Longshan Culture. Length: 1¼ in (3.4 cm), width: 1 in (2.4 cm). This small scraper blade is carved of translucent pale green nephrite with brown suffusion. Its sharp edge is bevelled.

On these, the nature and spacing of the open-work holes, coupled with the sense of simultaneous freedom and discipline in the incised work, are extremely close to that of some trapezoidal pendants of Liangzhu Culture and are very much in that culture's idiom. They must accordingly be considered as a very arguable linkage between Shandong Longshan and Liangzhu in the same enigmatic way as the bird-incised *bi* of Dawenkou Culture type referred to above.

The second bird design type is of a short pen barrel rod surmounted at one end by an alert perching eagle, sometimes having raised-line pinion feathers folded behind its back and an exaggerated but simply rendered hooked bill, and sometimes with sharply defined spanner-head talons (see Fig. 32). This form is a sculptural one and is also unique to Longshan. The eagle head has an inverted 'V' ridge or keel at the crown of the skull. This shape is also found in the four very simplified lugs or handles set equidistantly around the circumference just below the rim of a, so far unique, example of a simple cylinder (see Fig. 30). This has a double encircling raised line near the foot and is attributable to the Longshan Culture.

The workmanship of Longshan jade is very meticulous and a fine, soft, gloss finish is achieved. The thin blades are very refined and some pieces demonstrate forms of 'stringball'-incised design motifs that are of great interest because of their very close affinity with the same style in the Liangzhu culture.

The materials used for Longshan jades are nephritic and range from opaque olive-grey through opaque lentil brown to translucent white, golden-brown and lime green. The dimensional plane of Longshan jades is flat – either blade or plaque. Three-dimensional sculpted forms have not to date been found in Longshan Culture, except for the small folded wing eagle totems mentioned above and with the possible further exception of certain human mask plaques or fittings from unrecorded sources (see Fig. 29), whose accurate placing into the Longshan Culture remains a matter of stylistic conjecture, though tantalizing archaeological progress toward conclusive attribution is being made.

Upper and Middle Yangtze River, Sichuan, Hubei and the Central Plain

DAIXI CULTURE, 4000–3000 BC

The Daixi site is at Wushan, Sichuan, in west central China – at the same time the most populous and one of the most mountainous provinces in the country.

Axes and adzes as tools and weapon forms such as the

FIG. 34 **HANDLE**
Majiabin Culture. Length: 5 in (12.5 cm). The bowed front of this handle features fluted ends. The stone is of translucent light green tone with calcified opaque white areas.

FIG. 34

square-ended *dao* knife are found in Neolithic jade. Also found are personal ornaments: *jue* slit-disc earrings and the *huang* flat-bar pendant with 45° ends and biconical holes. There is no real evidence of more sophisticated forms such as ritual or ceremonial jade except for a single find in 1959 of an oval plaque of 2⅜ inches (6 cm) in height, 1⅜ inches (3.6 cm) in width and ½ inch (1 cm) thick, considered by some to rank as jade and others as jade stone (see Fig. 8). It has a human face carved in relief on both the front and the back. The faces are different but each has a straight nose, open eyes and a mouth like an 'O' shape in a somewhat surprised gape. The raised perimeter rim is polished and so are certain parts of the relief carving such as the cheeks. This piece was taken from a tomb and was clearly therefore a funerary object with a hole for stringing for suspension. The tomb was that of a child, which renders even more difficult a logical explanation of the interment of this particular piece – although it may demonstrate that ceremony on a lavish level was accorded even to some children of the Daixi Culture.

The workmanship of Daixi Culture jade is careful but not distinguished. The material is nephritic, ranging from light translucent green to semi-translucent white. The dimensional planes are of a flat plaque form and holes are biconical drilled from each side.

QINGLONGQUAN III CULTURE, 2600–1600 BC

Starting from a point securely in Neolithic times, this culture extends well into the Bronze Age of the Shang Dynasty through the presently vague transitional period of c. 1900 BC.

The general culture area is the north bank of the Yangtze River, just below the enormous Gezhouba Dam at the western extremity of the Five Gorges. The Yangtze River port Shashi is only a short distance from the walled city of Jingzhou, capital of the Chu State in the Warring States period of 580 to 220 BC. Between here and the nearby tributary of the Hanjiang River, which flows into the Yangtze at Wuhan, remarkable jade-working finds of the Qinglongquan III Culture have been made. These finds are notable both for their sculptural quality and for their scientific datability to the Neolithic era. The workmanship is confident and strong and the sculptural qualities are mature and three-dimensional.

One piece is a human head broken at the neck from some larger body of material. The form is cylindrical, with an inverted crescent headgear, well-modelled brows, raised line border eyes, inverted garlic-head nose and an oval raised line mouth with tongue showing. At each side of the head is a large ear with a circular drum earring possibly suspended from, or possibly pierced through, the lobe.

There is also a tiger head formed as a flat square plate with well-contoured ears at each top corner and broad-grooved brows bisecting the face at right angles to the long vertical nose. This now clearly Neolithic piece has a very strong affinity with the Bronze Age development of the *taotie* mask decorative feature in Shang and Zhou times.

Another very significant piece is a mask form open-work plaque arranged equally around a central axis. It is of a type normally ascribed by scholars to Shandong Longshan style, and bears a particular similarity to a piece in the

Fuller Collection of the Seattle Art Museum, which is dated and ascribed to Longshan Culture.

Also found were ring-form pendants and flat-form squared cicadas with simple concavely curved bodies and broad-grooved transverse details, and pierced with head and tail axial holes, probably for suspension. These pieces are made in material of calcified opaque white and of semi-translucent grey-green. The holes are well bored and of the uniform bore hole type.

Lower Yangtze River Basin, Lake Tai and East Central China (Ningshao Plain)

HEMUDU CULTURE, 5000–4800 BC

The little town of Hemudu is at Yuyao in Zhejiang Province to the east of Hangzhou. Its small size belies its enormous importance for jade, which derives from the fact that the jade artefacts found there in excavation in 1973 are the earliest jade-working yet found in China.

The Hemudu Culture is also extremely important for its lively incised representations of animals and birds on pottery, ivory and bone. In particular, the bone artefacts incised with designs of single and addorsed (back to back) pairs of birds are rendered in a surreal character much more associated with ritual or ceremonial use than with any purely artistic or utilitarian function. The Hemudu Culture people also knew the technical processes of lacquer-making. Yet despite this active artistic ability in certain materials, no jade artefact adorned in this way has yet been found.

Jade artefacts are present in the personal ornament category such as hairpins, beads, tubes and *jue* slit-disc earrings and *huang* arched pendants. The workmanship is fairly rough and sometimes only part-finished and surfaces are plain and devoid of embellishment. Jade material is light greenish-white and translucent lemon yellow. The dimensional planes are in the flat form appropriate to discs and beads, and holes are drilled in a conical form from each side of a piece.

MAJIABIN CULTURE, 5000–3900 BC

The Majiabin Culture is based around Lake Tai in Jiangsu Province. The main sculptural forms in this culture are carvings on bone and the shaping of earthenware. Jade

FIG. 35

FIG. 35 **BEADS**
Liangzhu Culture. The stone is an opaque beancurd white tone.

FIG. 36 **HUANG**
Songze Culture. Length: 5 in (12.7 cm). Of plain curving form, the huang *is pierced at both ends for suspension; the stone is an opaque white tone.*

FIG. 36

FIG. 37

FIG. 37 **PENDANT**
Liangzhu Culture. Length: 2½ in (6.5 cm). Animal masks and freely incised lines feature on this obelisk-formed pendant, whose stone is a translucent yellow-green tone.

sculpture has not yet been identified with certainty and the only certain jades from controlled excavation are the *jue* slit-disc earring, *huang* arched pendants and bracelets.

However, in excavating a small pond (known to the local inhabitants since time immemorial as the Jade Stone Pond) at Xiaoxian in Anhui Province, a number of jade, turquoise and pottery artefacts were found. From the pottery objects a Majiabin Culture origin is indicated but the jade forms exhibit certain standard Liangzhu jade characteristics, with one important exception – an open-handled flat piece with an axial central opening large enough to admit a fist and with one side sharpened as a blade edge (see Fig. 34). This form has no equivalent in the Liangzhu Culture jades found to date and forms an argument for placing the date of the Xiaoxian finds at a late Majiabin to Liangzhu transition of about 3500 BC.

SONGZE CULTURE, 3800–2900 BC

At Qingpu in Jiangsu Province is the site of Songze, whose yields from dated archaeological excavation show a great leap forward in the working of jade. By this time, the *jue* slit disc is a standard feature in tombs, *zhuo* bracelets on the wrists of the corpse are not uncommon and there is a high proficiency in the making of tubular beads. It is possible to trace the development of the *jue* slit disc from a round bead that is cleft down the side by a double saw cut to form a full opening. The *jue* slit disc has been found on the ear position of both male and female skeletons.

A further innovation is the *bi* disc, which appears here for the first time in Chinese jade-working. Another form, the *han,* or pierced plectrum plate, is also found for the first time in the Songze Culture, where it was placed in the mouth of the deceased. The placing of a jade cicada in the mouth of a deceased person was also a very standard feature of a Han Dynasty funerary arrangement, when it seems to have undergone a renaissance following a disappearance for 3000 years after the end of the Songze Culture.

The *huang* of the Songze Culture is particularly well formed and balanced, taking a high gloss or burnish (see Fig. 36). The type is found in several varieties, ranging from a half horseshoe with biconical perforated ends to a much thicker flat form of hoop with one straight edge broken by a median indentation flanked by two small biconically drilled holes. Arguments have been put forward for a zoomorphic intent for some Songze pieces, but from our present stage of knowledge these are not convincing and the items may in fact be of impressionist or ritual design. The *zhuo* or bracelet as a personal ornament is also found in the Songze Culture.

The workmanship of Songze jade is characterized by a very refined soft gloss finish and the material is usually a brittle semi-opaque white of a simpler crystalline form and also a translucent yellow-pink colour. The dimensional plane of Songze jade carvings is flat for *huang*, usually with a lenticular cross-section.

The hole formation of Songze Culture jade is that of a constricted dome form and of double bevel-form, bored, in each case, from opposing faces.

LIANGZHU CULTURE, 3400–2250 BC

The development of Liangzhu Culture was spaced over a period of some 1300 years, which is divided into an early and late period. The culture area is a large one, extending from the environs of Lake Tai in Jiangsu Province north of the Yangtze River and from there west to the Nanjing area on the Yangtze River and east to Shanghai and its important suburban Liangzhu settlement of Fuquanshan. To the south, the area extends to Hangzhou, the provincial capital of Zhejiang Province, and the extremely important nearby sites of the eponymous village of Liangzhu and what may perhaps be regarded as the Royal Cemetery of Fanshan at Yuhang town, 15½ miles (25 km) from Hangzhou.

This basin area is an extremely rich and level plain intersected by many small, slow-moving rivers and an intricate system of canals. The climate ranges from the snow of the winter through an early spring to a summer of extremely hot and humid days and nights. These conditions are ideal for fruitful temperate agriculture and it is no surprise that the remarkable people who inhabited this region in Liangzhu cultural times were able to develop wealth, leisure, a spirit of inquiry and the philosophy to produce the most amazing and sophisticated artefacts in jade of the entire Neolithic era.

The burials of Liangzhu take the form of quite shallow tombs sunk into the flat tops of large purpose-built burial mounds. If a purpose-built burial mound is not constructed a low hill will sometimes form the site which accounts, in either case, for the word *shan*, meaning hill, as a feature in the name of each burial site. Finds vary from a few to hundreds of objects in each tomb. From numerous tombs undisturbed since the time of burial, we know the careful arrangement of burial objects in the tomb; this, however, varies from area to area, although a homogeneity of funerary objects can be discerned in all areas of the Liangzhu region, indicating an ordained prescription clearly laid down by a religious or ritual precept. Certain tombs show a specific use of red stain or powder in certain positions and in many, but not all, tombs there is evidence of burning, sometimes of the tomb and its entire contents and sometimes of some of the artefacts contained within it.

Arrangement in specific graves sees certain pieces placed above the skull. Some *bi* have been found on the chest and stomach. Round the waist and the stomach area have been found *cong* and the belt-hook or buckle – which can accordingly be presumed to be from some kind of belt or garment fastening.

In what seems to be an apparently select small group of tombs, *yue*-axes have been found on one side of the body as if in a marching position with the jade haft terminal in the left hand, and the blade sloped upon the left shoulder with the upper-end jade finial above. *Bi*, axes and pottery have been found around the feet. In a number of tombs stone *yue*-axes were found, indicating a choice of utilitarian function for softer, less valuable material.

The great value of the jade material can be clearly judged from the fact that many pieces found are made of the remnants of manufacture of another piece, or from broken pieces of finished artefacts where the fragments are taken and utilized for a smaller, but not always more refined, purpose.

Numerous many-layered *cong* have been found in a single grave, placed in a structured manner along the length of the body. Jade artefacts have been placed inside earthenware containers beside the body, and jade pieces are often the largest group type of burial objects in a tomb.

The people of Liangzhu were usually buried with a number of pottery objects. Sometimes lacquered objects are found and sometimes ivory and stone. Not every burial contains jade and it is considered that, bearing in mind the immense importance that the production of jade seems to have occupied in Liangzhu society, the absence or presence of jade in a tomb must be relative to the social status of the occupant.

It is appropriate to examine briefly the various kinds of jade artefacts found in Liangzhu tombs.

For tools and weapons the *yue*-axe and battle axe, respectively, have both been found. These pieces are thinly wrought, tapering blade heads, usually with a single double-bevel hole in a horizontally median position near the end of the *tang* away from the blade-cutting edge. The upper edge of the *tang* across the width of the blade is not well finished and squared as in Dawenkou and Longshan culture *yue*-axe blades. It is left as a somewhat tenuous and vulnerable feature, which represents a humanizing counterpoise in the face of so much perfect technical virtuosity.

As has been mentioned above, the cutting edge of the Liangzhu Culture axe has a pillowed camber to the blade and a symmetrically poised curved line – softening the contour compared to the hardness of the straight or almost straight line of the Dawenkou and Longshan culture axe blade edges. One piece has been found with traces of a reddish diagonal line representing the remnant of a rouge-impregnated cord passing through the double-bevel hole to connect to a haft or handle.

A large number of personal ornament forms have been found. Round ball and cylinder beads, miniature *cong* beads, *jue* slit-disc earrings, *guan* tubular beads and *zhu* round beads are found (see Fig. 35), as are cylinder pendants, hole-pierced buttons and thick ring bangles.

The most singular and innovative pendant shape can be likened to something between a sailmaker's awl and an Egyptian obelisk. One extremity ends in a fairly blunt point and the other in an extension of reduced diameter that often, but not always, is delicately pierced with a biconical bore hole analogous with the rear-end thread hole of an awl. These pieces can be four-faced with a square cross-section or round with a circular cross-section, and either type can be plain along its shank or with one or more registers of god or animal masks (see Fig. 37). These have been excavated in bunches of between three to nine pieces in varying lengths. They have been found on the upper area of the skull, which may mean they were a symbolic feather representation on a headdress of the kind worn by the god-like being depicted on the lunette pendants and on the trapezoid pendants mentioned below. These pieces vary in

FIG. 38

FIG. 38 **CONG**
Liangzhu Culture. Height: 2 in (4.9 cm). Of plain form, this cong *has incised angled corners; its stone is a grey-green tone.*

FIG. 39

FIG. 39 **CONG**
Liangzhu Culture. Human and animal masks are incised on the angled corners of this squat-formed, cylindrical-centred cong. *The stone is a white tone with grey markings.*

FIG. 40

FIG. 40 **PLAQUE**
Liangzhu Culture. Length: 2⅜ in (6 cm). Of plain form, this plaque has one end in the form of a pig's head. The whole piece is incised with a complex design and pierced for suspension. The stone is an opaque beancurd-white tone.

length between 1⅜ and 7⅞ inches (3 and 20 cm). There is also a variant form in which the reduced diameter extension is not pierced but fits into a very carefully made jade cylindrical cap. In one burial this item was found in the hand of the deceased.

There are two kinds of suspended broad-form flat ornament. The first of these is a trapezoid shape with the shorter side form as a flange or tenon, usually pierced with three holes. It is clear that the flange was made to be inserted into an orifice in some form of receptacle and it appears from some excavated sites that this may have been a piece of wood. The trapezoid is normally a solid and flat form with an unbroken surface, although in a few examples it is cut through in open-work designs (see Fig. 41). One rare type is formed very much in appearance as a pig with retroussé snout and large oval-shaped concave eyes and a domed skull in profile (see Fig. 40). Some scholars have considered this item to be a pendant but from the position occupied by other such pieces in some tombs it may have been set into some kind of separate wooden totem along with small jade inlay pieces.

The other popular broad-form pendant type is that of the lunette form *huang*, which, at its most basic, is a half-moon plate with a gentle blade edge around the perimeter of the hemisphere, the straight centre side having a small median indentation. These pieces can be plain or carved in relief with large-eyed faces. In some tombs sets of four of these pieces, very finely worked, have been found at the top of the skull, placed equidistantly around the head. Each has three sew-hole channels drilled into the plain rear face, indicating their use on a headdress or hat.

In addition to these personal forms is a singular group of objects that can only have a religious or ritual function. By far the most important of these is the *cong*.

This cylindrical form enclosed by a square-sided box definitely appears to have its origin in the Liangzhu Culture.

FIG. 41

FIG. 41 **PLAQUE**
Liangzhu Culture. Length: 3½ in (8.7 cm). The opaque white stone of this rare angular plaque is pierced and worked into forms of humanoid figures wearing sunray headdresses. Incised lines provide further details.

FIG. 42

FIG. 42 **BI DISC**
Liangzhu Culture. Diameter: 7¼ in (18 cm). The opaque white tone of this plain bi, *with extensive creamy orange markings, is particularly attractive.*

FIG. 43

FIG. 43 **MASK PLAQUE**
Liangzhu Culture. Length: 2 in (4.75 cm). Pierced for suspension and decorated with finely incised masks, this arch-shaped plaque has strong sculptural qualities.

For the next 2000 years it was to remain perhaps the most important shape in Chinese jade. Except for the stone examples of the Shixia Culture, the *cong* is made only from jade. It seems that the *cong* was always buried with male corpses whose age was not material, as it is found in tombs of men of all ages. Most *cong*, however, are taken from bigger tombs of greater importance with larger numbers of burial artefacts. In some tombs there is also evidence of human sacrifice.

In a burial at Zhanglingshan, Wuxian, Jiangsu Province, there was found a single, rather heavy bracelet that bore around its circumference a series of four equidistant angle masks of an animal character, each separated by a blank, unworked area. These animal masks were worked around the outer perimeter of the piece on a single layer or register. The burial site of this piece has been dated to 3000 BC and accordingly represents the oldest *cong* so far discovered in China. On this basis, it is legitimate to regard this *cong* as the prototype for the form and there is a good argument for this form representing a transition from the simple jade bangle for the wrist to the much more highly sophisticated form made exclusively to satisfy a ritual demand.

In evolving from this basic *cong*, the object took the 'box-enclosing cylinder' form; the animal masks became arranged as bisected corner angle features, and the space between or behind each mask became a very precisely engineered vertical plain channel or groove midway along each side of the box. From this common base, there was a further evolution of the *cong* in two different directions in the Liangzhu period.

The first direction was in the form of a short type that was wider than it was high (see Fig. 39). This type was normally divided into two horizontal registers or layers with animal masks at each corner of the piece. Frequently, the upper register mask will feature a pair of round incised eyes and the lower register mask will have a pair of oval, saucer-shaped eyes.

The second direction was a tall type that had a greater height than width and usually had a number of registers

or layers that were always a uniform type of animal face with a simple incised eye. This type has been found in some tombs in considerable numbers arranged along the length of the body. Some of the second type extend up to 12 inches (30 cm) or more in length (see Fig. 7). In this type, one end is wider than the other and it has now been established that to take proper visual advantage of the animal faces on each register or layer of the *cong*, the broader end must be uppermost.

Both these types are a gradual development during the Liangzhu period and it is proper to view them as representing different burial requirements of religion or ceremony.

Of all Liangzhu jades the *cong* reflects the greatest ingenuity and excellence of work – perhaps in acknowledgement of a superior status of artefact. One *cong* found at Fanshan is particularly important in its incised representation of a humanoid figure with an inverted trapezoid-shaped head, feather or sun-ray headdress and small eyes, and small horizontal nicks halfway up each side to represent the corner of the canthus. The humanoid is surmounting and enfolding with long arms the much larger oval-eyed head of a creature with clawed feet drawn together beneath its mouth. The apparent superior position of the small incised form of eye over the large oval eye form has engendered the very plausible theory that the upper mask register in a two-layer *cong* represents a humanoid god in a commanding position over a mythical beast represented by the oval eye mask form in the lower register. Bearing in mind, however, the rare pig-like form of the pendant or attachment with oval concave eyes mentioned above, it would be precipitate to exclude the possibility of a pig identity, at least in origin, for this beast face on the *cong* lower register.

The inverted trapezoid shape of this incised face is reflected also in the trapezoidal, flanged pendants mentioned above – some of them also featuring the same trapezoid-shaped head figure with long arms, and sometimes pierced through with open-work.

We can only speculate upon the detailed application of the *cong* as a ritual object. It has become fashionable, however, to query the authoritative edict in the Zhou Li writings of 2000 years later in the Zhou Dynasty period of the Warring States that the yellow *cong* was for worshipping the earth and the *bi* was for worshipping the sky.

The other major ritual jade development of the Liangzhu Culture is the large *bi* disc. The Liangzhu jade-worker made a speciality of producing jade *bi* of an entirely plain and undecorated nature, which are sometimes very large (see Fig. 42). So far as we know, no other Neolithic culture produced *bi* discs of the same huge diameter. As mentioned in the section on Dawenkou Culture, certain *bi* with the Dawenkou-type bird and symbols for sun and moon have been ascribed to the Liangzhu Culture. Not even the most lavish archaeological excavation site of the Liangzhu Culture, however, has yet yielded a single one of these bird-incised or symbolized *bi*. The appropriate conclusion to draw would seem to be that they are not Liangzhu artefacts but rather made by a culture with some sort of trade link or relationship with the Liangzhu Culture. In view of its parallel development in time, it is thought that the Shandong Longshan Culture may be the most appropriate but its immediate predecessor, the Dawenkou Culture itself, must not be ignored as a possibility. Accordingly, on the present archaeological evidence, all Liangzhu *bi* are plain. The majority of these pieces are found round the feet of the deceased but some are placed underneath the body.

Another fantastic form are the trident shapes of finial with oval-eyed mask designs in light relief. These are normally found on the upper part of the skull and usually feature a hollow tubular projection that could have been a receptacle or anchor for feathers (see Figs. 9 and 45). They are often decorated with very elaborate incised 'stringball' designs.

This original design and high quality of workmanship can be associated with the very striking and sometimes elaborate axe-handle finials (see Fig. 58). These are made of jade and can be positively attributed to an axe-handle finial function by their excavated position in relation to the axe head. Between head and finial was found an axial arrangement of minute inlay pieces, strongly suggesting that they were once inset into a wooden handle that has long since perished.

Very small pieces of jade, described in some reports as the size of sesame seeds, with their outer side convex and inner side flat, have been found in other formations. They clearly comprise an inlay in some base matrix material that has long since decayed to nothing. Traces of these matrices indicate that they were formed in some cases from lacquer, in some cases from wood and in others from ivory.

Lastly, there is a very talented demonstration of zoomorphic animals of a secular type. These include a form of spread-wing flying bird with goggle eyes (see Fig. 44). They sometimes have an elaborate 'stringball' form of incised design, which is also used more generally and which has been suggested by one scholar to represent feathers when used on avian forms and fur or hair on animal forms.

Other zoomorphic types are a flattened form of fish, a simple turtle with its head forward and crawling extended feet, a flat cicada and a flat profile piece of a perching bird.

The workmanship of Liangzhu jade is extremely accomplished and refined. In the great majority of pieces the surfaces of all pieces, from the largest *bi* to the smallest

FIG. 44

FIG. 44 **BIRD PLAQUE**
Liangzhu Culture. This small jade in the form of a bird whose wings spread to its sides succeeds dramatically with its exaggerated aerodynamic form. The plaque is a grey-green tone, and the bird's eyes are

FIG. 45

FIG. 45 **TRIDENT**
Liangzhu Culture. Length: 2½ in (6.3 cm). A well-weathered and beautifully coloured opaque grey-green stone is carved into a triple-pronged plaque with animal-form masks. The pierced base suggests its possible use as a finial or staff terminal.

FIG. 46

FIG. 46 **STONE CONGS**
Shixia Culture. Height of tallest: 5½ in (13.8 cm), width: 2½ in (6.6 cm). The smaller cong *features a series of layered registers of human-face, corner-angled masks.*

sesame chips, are worked and burnished to a high gloss very much like that on the common soy bean curd or *doufu* so popular in China as a cheap and nutritious source of protein. There is very finely incised detail of curves, curls and points and minutely separated parallel lines, ridges or striations. In some instances four or five parallel lines can be found in a band no more than 1 mm wide. The humanoid representations in these incised works form some of the earliest figure-drawing in Chinese art. There is also a limited appearance of excellent 'raised line' work. This is represented by a continuous apical watershed forming the barrier between two broad, concave furrows.

In contemplating the origin of the *taotie* mask of Shang and Zhou art it is appropriate to consider the trapezoidal form of Liangzhu pendant with its ferocious monster mask and incised fangs, in connection with the corner-angle masks to be found on the lower register of the jade *cong*. If the corner angle mask is flattened out and teeth added as vertical projections downward from the mouth, the connection with the *taotie* development later is very persuasive.

There is little or no evidence of wear on any edges or surfaces of Liangzhu burial jades. Axe blades sweep in unchipped curves and glossy flat surfaces are quite unscratched, with a pristine and quite meticulously looked-after appearance. This can be seen to confirm a ritual use for funerary purposes only.

Some examples exist of pierced open-work and a bas-relief feature can be found – especially on the saucer-shaped oval animal eyes on the lower register of the two-level *cong*. Given the subtlety of emphasis possible in this relief work, it is curious that it was apparently never extended three-dimensional sculpture in the Liangzhu Culture.

Some pieces exhibit curved, indented swing-saw cutting marks that are not polished out of the finished piece.

The material for Liangzhu jades ranges through a semi-translucent green or yellow colour, a yellow with tea-coloured spots, an opaque bean-curd white, a grey-black with fibrous texture, an opaque grey-green and an opaque dark green. In most circumstances the material is a genuine nephritic substance.

The dimensional planes of Liangzhu jade-carving range from three-dimensional *cong* to flat bead and flat pendant forms. There are both round and square section awl-shaped pendants, ranging in length from 1¼ to 12 inches (3 to 30 cm). There are flat zoomorphic forms but no piece has yet been found to demonstrate a true dimensional sculptural achievement. No archaeological find is yet recorded of any sculptural full round representation of the human form and only upon certain pieces does a humanoid representation appear in incised work. The normal dimensional profile is low and flat, but with an advanced aerodynamic sensitivity in the flying bird shape.

The hole type in Liangzhu jade carving is normally a biconical type drilled together from opposing faces. Sometimes there is a helical scoring on the walls of deeper holes.

South Coastal Provinces and Guangdong

SHIXIA CULTURE, 2700–2500 BC

The Shixia Culture is currently known only from the one

site excavated in northern Guangdong Province near Hong Kong. The original site area is a 35,880 sq yd (30,000 sq m) site on the top of a hillock. The basic types of stone artefact found at Shixia sites indicate settled agricultural communities with recognized religious or ceremonial observances.

Jade artefacts are not common enough to establish any formal hypothesis and the importance of the Shixia Culture in our consideration of Neolithic jade-working is the very clear adoption by the Shixia Culture of Liangzhu unique forms. Of particular interest and importance in this connection are several *cong* that have been excavated; these are in both of the basic Liangzhu forms with one or more registers of cross-corner animal masks on precisely Liangzhu lines (see Fig. 46).

They date from approximately 2500 BC – contemporary with the late Liangzhu period – but there is no evidence available to us today as to whether or not there was communication between the lower Yangtze River basin and northern Guangdong Province, which are divided by many ranges of inhospitable mountains.

Further archaeological discoveries may supplement and change the above picture. An archaeological report in late 1990 described the find of two Liangzhu *cong* with animal masks and two *huang*, 13 ft (4 m) deep in a bank outside the southeastern Guangdong coastal town of Tinkeng in Haifeng County. The four pieces were well made of polished light green jade, and found with no other artefacts. Their relatively high quality and distinctive material may indicate manufacture in the Liangzhu area. If so, then very dramatic possibilities of extensive trade links in later Neolithic south China are waiting to be revealed.

The workmanship of Shixia *cong* is cruder than that found on the very similar objects of the Liangzhu Culture. They are made from light grey silicaceous stone. There is one very important distinction from the Liangzhu *cong* – the Shixia *cong* are extremely worn, as if they had had very long use in life. As noted above, Liangzhu jade *cong* are all of pristine quality and the explanation for this fascinating and obviously meaningful difference must await further research.

On other pieces, there is a high polish on some items, as found in the Liangzhu Culture jade. It seems from findings in Shixia tombs that stone was worked either for funerary/religious use, or for a utilitarian use in the case of axes and adzes.

Erlitou Culture Jades

A popular expression in Chinese is *san dai*, which translates as 'the Three Dynasties'. This expression is normally used to refer in general terms to a period of great antiquity encompassing the beginnings of history. The Three Dynasties are the Xia, the Shang and the Zhou.

FIG. 47 **MASK OF A HUMAN FACE**
Neolithic. Height: 1⅞ in (4.7 cm), width: 2¼ in (5.8 cm). This boldly carved face is in the collection of the British Museum.

The final fall of all Zhou political control in China ended at the hand of the great emperor Qin Shi Huangdi, who came to power by force of conquest in 226 BC as the founder of the short-lived Qin Dynasty. He unified the various factions over a large part of the territory that is now China and imposed a uniform system of writing and of weights and measures.

The oldest of the Three Dynasties is the Xia Dynasty, which is wreathed in much more mystical and shadowy origins. There are in fact many scholars who doubt that the Xia Dynasty as such existed at all. There is general agreement that the period traditionally ascribed to the Xia Dynasty ends with the historically recorded rise of the Shang Dynasty in about 1700 BC.

We know that the Neolithic period of jade-working ended gradually in the period somewhere between 2000 BC and 1700 BC – the time that saw the beginnings of bronze casting in China, which wrought enormous practical, economic and social changes in the entire activity of the people. No longer was it necessary to rely on stone for tools or weapons. Available sources of easily extracted components led to a revolution in the development of efficient methods of smelting and casting bronze.

Through this period, however, jade-working flourished and, if anything, threw down deeper roots. Clearly the very basic importance of jade, which had been established in the minds and practices of the otherwise disparate late Neolithic cultures, was too impacted for displacement by the new material of bronze. In fact, the working of jade can be argued to have been made much easier by the advent of bronze and it is possible to trace the beginnings of more

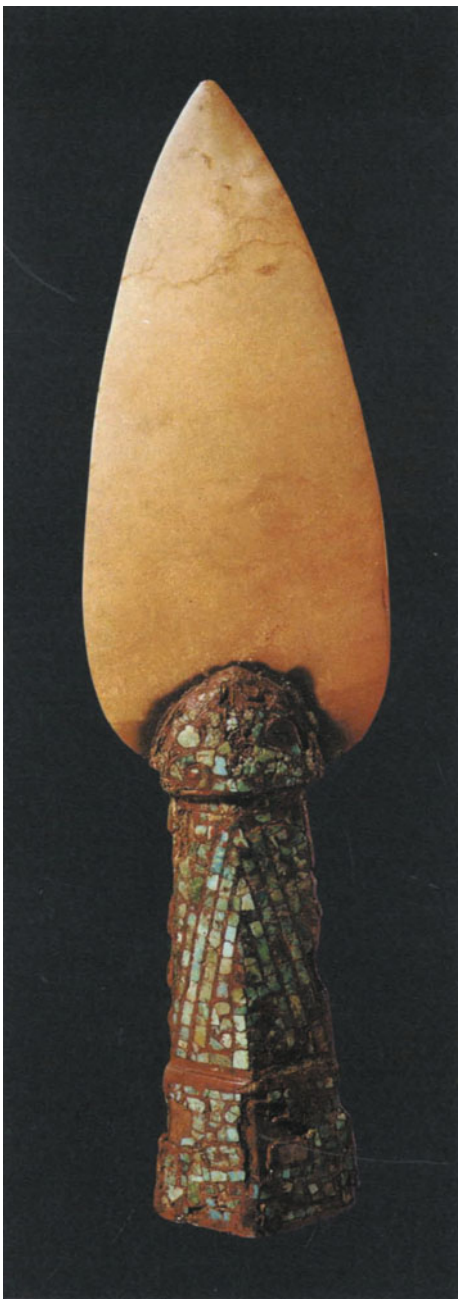


FIG. 48

FIG. 48 **SPEARHEAD**
Shang Dynasty. Length: 3⅞ in (9.7 cm). The jade spearhead is set in a bronze mount inlaid with turquoise; the piece is in the collection of the British Museum.

technically sophisticated jade-working and design from this time.

In view of the difficulty archaeologists have had in establishing a satisfactory existence for the Xia Dynasty, it is necessary to relate cultural advance in China from the end of the Neolithic period to a culture that represents the end of the old order and the assembly and introduction of the new at a time before the Shang Dynasty had come to power. This cultural period is called Erlitou, after the place of the principal site, and is thought to extend from approximately 1900 BC to somewhat after the true commencement of the Shang Dynasty in about 1700 BC.

Remarkable finds of jade have been made at what is now modern day Zhengzhou, the provincial capital of Henan Province on a bend of the Yellow River south of Shaanxi and Shandong provinces. The basic information about the Erlitou Culture, however, has come from excavation of what was a substantial settlement at the definitive principal Erlitou Culture site at Erlitou Yanshi Xian in Henan Province, situated about 62 miles (100 km) west of Zhengzhou. These finds can be clearly shown to represent the inheritance of the Liangzhu and Shandong Longshan cultures. At the same time they demonstrate the future course of development by consolidating the widespread Neolithic cultural streams to nurture the genesis of a fully Chinese cultural character – which resulted in a remarkable period of absorptive creativity at the inception of the Shang Dynasty.

From this time the development of applied art in jade paralleled the development of bronze as a new and luxurious material. Established jade forms such as the *dao* and *ge* began to exhibit surface decoration of incised line striations on long blades and projections from the sides of axe blades, from the angled twin ends of the *dao* knife blade, from the *tang* of the jade *ge* and, in a much more elaborate way, from the hilt of the *zhang*. The breadth of the squared blade edge developed away from the lunette-shaped hollow-grinding of Dawenkou/Longshan and took on a gradual cambered form.

Jade was still very important in terms of funerary ritual; magnificent and elegant jade blades, which could easily have been made of the new luxurious bronze material, have been excavated at Erlitou. These jades are not the product of an innovative simplicity – they are clearly the natural progression of a civilizing imperative with the already very old and distinguished roots we have examined above. In their sophistication they contrast very clearly and interestingly with the still crude and primitive contemporary artefacts in bronze. There was a quantum leap at this time in the technological means of jade production; there is evidence on excavated jades of this period that they were worked with a precision rotary movement not previously

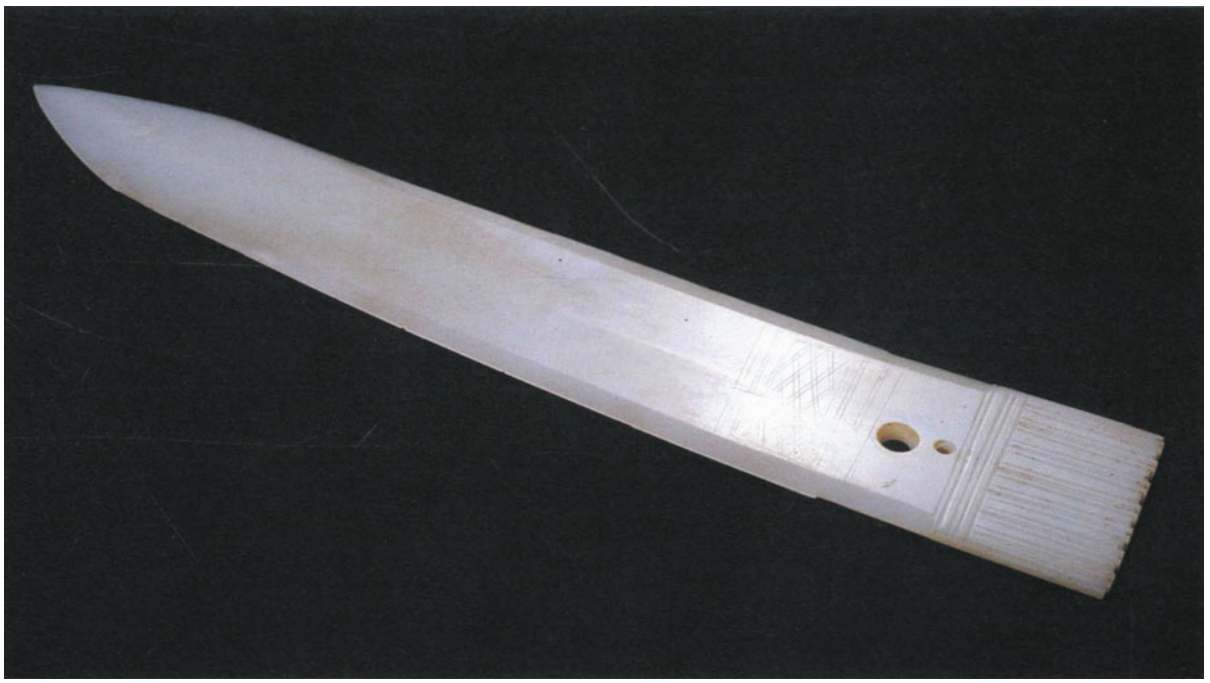


FIG. 49 **GE BLADE**
Erlitou Culture. Length: 1½ in (3.7 cm), width: 2 in (6.5 cm). Translucent soft white nephrite is here carved with a central keel along the line of the blade from the tang *to the tip. The* tang *terminates with a butt of seven double-walled channels extending from a belt of four transverse ribs, above one small and one large hole drilled through from one side. Below the holes and the top of the blade is a patch of diamond double-line crosshatching.*

FIG. 49

possible without the use of bronze grinding wheels.

A classic Erlitou handle in columnar form from Yanshi exhibits a sectioned structure of separate bands or registers of different decoration (see Fig. 10). The two principal registers show a cross-corner angle structure of zoomorphic faces in the direct Liangzhu tradition, but this time the eye has a diamond-shaped canthus instead of the oval forms of Liangzhu, and it is executed in raised line detail in place of the Liangzhu incised concave bas-relief. Intermediate registers on the same piece take the appearance of exterior cladding in a structure of broad leaf forms, each with an everted spiked tip on the upper end. This is a form that developed into a standard in the Shang Dynasty, but the Yanshi piece from the Erlitou period is the only one known to exhibit the zoomorphic face registers and also to combine them with the leaf form.

So far, excavation of the Erlitou Culture has not revealed the *cong* form, which is very remarkable given the paramount importance accorded to it in the Liangzhu Culture and its continued use, though on a diminished basis, in the Shang and Zhou dynasties.

Erlitou jade workmanship is characterized by very large blade forms worked with fine incised diamond-hatched lines and long striations (see Fig. 49). The material ranges from opaque moss green to semi-translucent off-white and it is presumed that local sources supplied it. The dimensional planes so far ascertained are flat forms with occasional squared rod types such as the handle discussed above. Erlitou holes are of the simple cone-shaped type.

FIG. 50

FIG. 50 **SILHOUETTE DRAGON PENDANT**
Shang Dynasty. Length: 1⅛ in (3 cm). This coiled, bottle-horn dragon form, pierced in the centre, is carved from opaque grey-green nephrite. The surface of the body is decorated with finely incised spiral or 'C'-shaped motifs.

HONGSHAN JADES – THE ORIGINS OF THE DRAGON

SUN SHOUDAO AND GUO DASHUR

FIG. 51

FIG. 51 **PLAQUE** *Hongshan Culture. This plaque is composed of curves. An identical example is in the Lee Kong Chian Art Museum of the National University of Singapore.*

An examination of the styles and technology of excavated Hongshan pieces shows their common properties and their differences from Shang and Zhou jades.

First, there is the question of the form of the pieces. The main shapes are the curling cloud-shaped pendant, the horseshoe-shaped band, beast shapes, two adjoining *bi*-rings and three adjoining *bi*-rings. These forms are not seen among Shang and Zhou jades. And although dragons, tigers, turtles, birds and fish are found in both Shang and Zhou and Hongshan jades, the specific form, craftsmanship and style are quite different in the latter; the most prominent characteristic of Hongshan jades is that the craftsmen strove to attain symmetry and a 'spiritual' feel.

Secondly, Hongshan jades are notable in that they are plain and without decoration: the carved linear patterns on the turtles and birds are there to represent each part of the form, and the jades are free from the extremely decorative patterns found on Shang and Zhou jades. Holes were carved mainly by boring from both sides, or by making a lateral hole on the back of the piece only. This was the general method used for making holes during the Neolithic period, and evidence of the Shang and Zhou method of tubular drilling is rarely seen. The edges of the majority of jades are ground to a sharp blade-like finish. The surfaces are ground more, and the shallow lines on the surface, sometimes barely visible, have a particular decorative beauty. This kind of jade craftsmanship, both in the technique and particular expression, is seldom seen on Shang or Zhou jades.

The distribution of these jade pieces is another factor in dating them correctly. The jades have been found in collective sites along the Laoha River and Daling River, such as those found in Linzi County, north of the Xilamulun River, in Balinyou Banner, in Balinzuo Banner, in Aluke'erxin Banner, and along the Nuan River, west to

FIG. 52 *Hongshan tomb site with jade artefacts laid* in situ *around the skeleton.*

FIG. 52

FIG. 53 **TUBE OR BAND** *Hongshan Culture. Of greenish-yellow jade, this object is either an elliptical tube or horsehoof-shaped band.*

FIG. 53

Weichang County in Hebei. The distribution coincides with the main body of Hongshan Culture, exceeding by a long way the distribution of the lower levels of Xiajiadian Culture, which has never been seen north of Xilamulun River or along the Nuan River.

Thirdly, their stratigraphic relationship establishes these jades as Hongshan Culture. The archaeological layers at the Hutougou burial site and at Sanguan Dianzi, Dongshanzui and Niuheliang, all underwent repeated tests and verification. All burial jades and singly collected jades were found in the layer of Hongshan Culture.

Looking at the features of these ancient pieces, their distribution and their stratigraphic relationship, therefore, it is possible to confirm that the jades found west of the Liao River, including dragon-, bird- and beast-shaped jades, belong neither to the Shang or Zhou periods, nor to the lower level of Xiajiadian Culture, but to the Hongshan Culture. This raises a series of issues, one of which is the origin of the dragon shape of some of the jades.

The Origin of the Dragon

The dragon is often seen as a spirit reflecting the ideology of the slave-owning and feudal landowning class, such as the royal families. Legend has it that in primitive times Ban Gu and Nuwa, the three emperors and the five kings, were all connected with the dragon, yet we must rely on archaeological discovery to prove the origin of this legend.

During Shang and Zhou times the dragon was already an established form with variations. If we go further back in time to Erlitou Culture and Xiajiadian Lower Level Culture, we see that the form of the dragon was even then quite mature. (Two pieces of pottery bearing the dragon pattern were found at Erlitou, where the form of the dragon pattern is quite developed. Also, dragon patterns have been found on painted pottery from tombs of the Xiajiadian Lower Level Culture, similar to those found on the Shang Dynasty bronzes.) The academic world has already begun to search for traces of the dragon in even earlier remains from the Neolithic period. Now, with the discovery of Hongshan Culture dragon-shaped and related beast-shaped jades, we see for the first time the verification by irrefutable archaeological material that the origin of the dragon lies in primitive society.

From what kind of animal mythology was the dragon formed? Throughout history the academic world has had diverse opinions on this, with some saying that it is related to the lizard, or to the crocodile, that it is a combination of many animals with the snake as the main influence, or that the dragon head came from the horse's or the ox's head. Each of these theories has its own textual evidence. Yet

from the dragon-shaped and beast-shaped jades that have been recently discovered it is possible to see clearly that while the body of the dragon is borrowed from the snake, the head can be related to the animal most closely connected with man's daily life and production, the animal man knows best of all: the pig. For example, the head of the large dragon discovered at Sanxingtala has a round mouth and long lips, the sides of the face are flat, the nose is prominent and the two nostril holes are together at the front – all characteristics of the pig's head.

The long mane on the neck and spine of this dragon jade is also characteristic of the pig in China: *Li Ji – Qu Li.* 'In the rituals performed in the ancestral temples . . . the pig is called the straight mane.' Guo Pu's *Maps of the Classic of Mountains and Seas* said about a kind of pig: 'The hairs are like awls, and amongst them are arrows'. There are also records of snakes having manes, 'just like a pig's'. The ancients paid great attention to the mane when describing the form of a pig.

On beast-shaped jades, the similarly large head bears the same protruding lips and the characteristic placing of the nostrils, and the same broad, thick ears and hard, fat body, while above the lips and around the eyes are facial lines and wrinkles; the teeth may protrude outside the mouth. Of the six domestic animals, the pig fits the description best and, indeed, the characteristic head seen on beast-shaped jades is more obviously a pig's head than that of the dragon-shaped jades. The head and tail of the beast-shaped jades join together, similar to the stone rings of the Neolithic period, yet the head and tail of the dragon-shaped jade do not do this. In this respect, the latter is similar to the Shang and Zhou dragons. Thus, the rough shaping and craftsmanship of the beast-shaped jades may well directly relate to the development of the dragon-shaped jades, while the head is a highly generalized and patterned form of the pig head. Although the dragon continued to adopt new elements and develop further after the Neolithic period, some dragon heads still bore the characteristics of the pig. Examples of this are the jade items with pigs' heads from the Shang tombs at Yinxu.

A further indication of the pig being the inspiration for the dragon is the jade decoration bearing two pig heads discovered at Sanguan Dianzi. This is very lifelike, and shows that both realistic and mythological representations of pigs were being used in the jade art of that time. The pig played a prominent role in primitive agricultural China; among the Hongshan Culture remains at Dongshanzui a large number of pig bones were found. The dragon, then, was in its earliest form not a purely fantastic creation, but a form that primitive farmers created from their daily life and production. Similarly, the stone plough that appeared in the Hongshan Culture represents quite advanced methods of primitive agriculture at the time.

However, the very generalized art forms of the dragon-shaped and beast-shaped jades, with the addition of the coiled snake-like body, are obviously mythological. The worship of dragons has been connected with sun worship, itself directly related to the worship of heaven (which influences agricultural fertility); the so-called 'cloud following the dragon', 'flying dragon in the sun' (*Zhou Yi*) and

FIG. 54 *Details of the evolution of the dragon from patterns on pottery shards to designs on jade artefacts, and its origins in the pig.*

FIG. 54

'dragon makes rain' (*Zhou Li – Kao Gong Ji*), all of which reflect the relation between the dragon, agricultural, and consequently climatic, matters. Historical records and archaeological materials have proved that the pig was frequently used in sacrifice. This is partly because the pig was so closely connected with man's life and agricultural production, but also because the ancients saw the pig as a 'water animal' (Zheng Xuan's annotation to the *Mao Shi* book of songs contains the references: 'the property of a pig is water' and 'the pig is a water animal'). In sacrificial activities surrounding prayer for rain or for protection against flood, the ancients naturally chose the pig as the medium between man and spirit. As a result, stories appeared about pigs that became spirits, one of these being the spirit of thunder and rain. Thus the form of the real-life pig naturally developed into that of the supernatural dragon.

The manufacture of beast-shaped and dragon-shaped jades was already tending towards standardization. More than 10 beast-shaped jades have been found within a distribution area of nearly 4000 sq miles (10,000 sq km) and apart from the slightest of details, they are surprisingly similar, from the overall image to the more detailed carved parts. Seven of these are large pieces, 5½–6 inches (14–15 cm) high, and the three smaller pieces are 2¾–3 inches (7–7.5 cm) high – exactly half the height of the large pieces. The curling cloud-shaped jade pendants share the same basic forms. It is evident that the design and manufacture of these kinds of jades was not random, but in accordance with strict rules and the conditions of a definite conceptualized form.

The stone slab tombs with jades found at Sanguan Dianzi and Hutougou both stand in the central part of the burial site, and on tomb no. 1 at Hutougou there are nearly all the dimensions of a stone circle. In the small tombs, however, there may be just one jade ring or no burial items at all. It is likely that the connection between the development of the dragon and primitive religious beliefs is that related spiritual items would become symbols of power, to be held only by eminent persons. They were thus used according to rank, and with the practice of using burial jades already taking form, we see the early stages of 'ritual'. It is obvious that the use of jade for burials and sacrifices was a major ideological factor of Hongshan Culture, and it is also a characteristic of the cultural remains of many places during a period about 5000 years ago, when in China the Neolithic period was developing towards the Bronze Age. Such rituals are one of the important signs that primitive society was beginning to evolve into a society with class structure and emergent rich clans.

To sum up, it can be postulated that the conception and emergence of the dragon implies that the dawning of China's ancient civilization had already arrived.

FIG. 55 **ZHULONG (PIG DRAGONS)**
Hongshan Culture. The bodies of both zhulong *are in the form of 'C' shapes.*

FIG. 55

FIG. 56

FIG. 56 **TWO TURTLES**
Hongshan Culture.

FIG. 57

FIG. 57 **MASK OF HUMAN FACE**
Hongshan Culture. A pottery mask showing jade eyes in situ.

RICHESSE AND RITUAL – THE IMPETUS OF LIANGZHU JADES

MO YONGKANG

FIG. 58

FIG. 58 **AXE-HANDLE FINIAL**
Liangzhu Culture.
Length: 3½ in (8.6 cm).
The opaque beancurd-white stone is pierced and finely incised with a line design.

Liangzhu jade can be classified into three types according to function:

1 Ritual jades: *cong*, *yue*-axe, *gui*-tablet, *bi*-ring, knobs for the tops of maces, inverted rhomboid-shaped jades, boat-shaped jades, trident-shaped jades. These most probably had ritual functions.

2 Pendants and decorations: some small, thin jade plaques discovered at Fuquan Mountain were probably hung from garments. At Fanshan tomb some jade decorative pieces were found with a red colouring: these would have been used on robes or headwear, perhaps worn in daily life but more likely linked to ritual occasions.

3 Jade used for inlay or as part of other items: for example, the jade *yue*-axe found at Fanshan, which has a handle inlaid with tiny pieces of jade and jade decoration at the top.

These jade items would suggest that jade production at that time was concentrated on ritual objects and pendants. The jade items were not merely an expression of wealth but were an important representation of the spiritual life of the people.

As far as the craftsmanship of the jades is concerned, the best pieces are the *cong* and *yue*-axe, followed by the boat-shaped jades, inverted rhomboid shapes and tripod-shaped jades. The *huang*-half ring was also of a very high standard; it was an important piece hung on the breast. There are some awl-shaped items of excellent quality, and a large amount of jade tubes and beads with plain surfaces are well polished. These items are for ritual purpose and the craftsmanship of these is better than that of the pendants in daily use, which shows the difference in the social functions of the jade items.

The jade *bi*-rings, however, also used in rituals, are usually of a lower quality of craftsmanship. All the Liangzhu jade *bi*-rings seen so far are plain, and are often found in quantity in the tombs. The surfaces are often not even flat, the edges are damaged and not strictly round, the

thicknesses vary and the holes in the centres of the *bi*-rings often show evidence of rough drilling. Nonetheless, among these large quantities of *bi*-rings there are one or two of high-quality jade and craftsmanship, with a high polish. These are obviously different from the majority of the *bi*-rings and would probably have been used by the deceased during his lifetime, whereas most of the *bi*-rings found were probably casually worked for ritual ceremony.

In contrast to the *bi*-rings, the *cong*, although also found in large quantity in tombs, were finely carved from quality materials in a variety of sizes, decorations and shapes, indicating that they were probably obtained by the deceased at different times during his life. The best craftsmanship and raw material of all the jade pieces are found on the *cong*; this high standard is evidence that the *cong* was a jade item with greater ritual significance than the *bi*-ring.

The carvings and motifs found on the jades of Liangzhu Culture are also characteristic. Jades from the Majiabang and Songze cultures, both pre-dating Liangzhu Culture, bear no carved patterns or motifs. On the Liangzhu jades, apart from the carving of birds, fish, turtles and other animals, the main carving techniques are intaglio and relief, and the images are smoothly and skilfully carved, giving a three-dimensional effect. A number of jade items show carved open-work, and the central part is often quite striking. The craftsmen would use block relief to carve the main form, then carve an intricate decorative pattern (sometimes known as cloud and thunder *yunlei* pattern) on the edges and on parts of the relief image, so that there would appear to be three levels of carving. The intaglio lines were carved extremely finely, with eight or nine lines within 1/16 inch (2 mm), indistinguishable to the eye, in a special technique

FIG. 59

FIG. 59 **CYLINDRICAL-SHAPED JADE**
Liangzhu Culture. Height: 1⅝ in (4.2 cm). Excavated from Fanshan, Liangzhu. Such cylindrical jades usually had a cover attached. Both the cylindrical piece and the cover had a hole in the centre, which allowed them to be threaded together. The mask carved on the surface of the body is quite rare.

FIG. 60

FIG. 60 **MASK**
Liangzhu Culture. Height: 2½ in (6.2 cm), width: 3¼ in (8.3 cm). The typical double-mask motif of the Liangzhu Culture is in relief with finely incised details. Found in a Fanshan tomb at the foot of a body, this is one of the finest examples of Liangzhu jade.

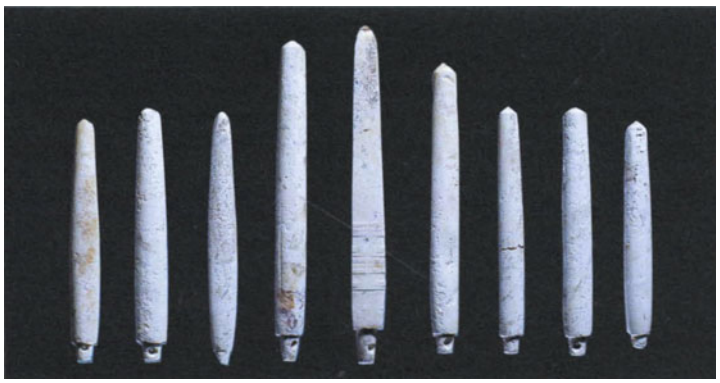


FIG. 61

FIG. 61 **AWL-SHAPED JADES**
Liangzhu Culture. Lengths: 2¾-4 in (7.1-10.2 cm). Found in a tomb in Fanshan and now in the Institute of Archaeology, Zhejiang Province, these white jades were found around the head of a body. The longest jade is carved with a simplified spiritual mask. The others are round, plain and without carving. This type of jade is commonly found in Liangzhu tombs.

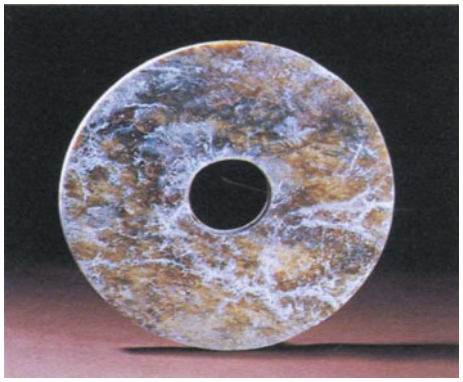


FIG. 62

FIG. 62 **BI**
Liangzhu Culture. Outer diameter: 7¼ in (18 cm), inner diameter: 2 in (4.8 cm). The jade bi, *of which this is a yellow example, is one of the representative objects of the Liangzhu Culture. More of them have been discovered than jade* cong; *most are plain, and usually several are found in one tomb.*

known as 'micro-carving'. It is difficult to imagine the kind of tools and techniques they must have used at that time to create this effect.

The animal face motif on Liangzhu jades is one of particular interest. The upper part of the image is rectangular, like a large forehead or headpiece, with two round eyes beneath, the pupils of which are surrounded by fine decorative patterns, emphasizing and brightening the eyes. Joining the eyes is a broad ridge with an equally broad T-shaped nose emerging from beneath it. Below the nose is an elongated rectangular mouth, with sharp teeth in the centre. The eyes, nose and mouth are all carved in relief, so that the image is vividly portrayed. This animal face motif has similarities with the traditional *taotie* motif. Behind the raised facial carving is another carving, this time the figure of a man. Here very fine incised lines are carved on the surface of the jade. From the centre to the base of the rectangular upper part of the image is a smaller inverted rhomboid-shaped face, again with eyes, nose and mouth, and the rest of the larger rectangular upper part is carved as hair sticking out behind a headband. The two arms are spread out, with the elbows pointing outward and the hands toward the body. The hands are splayed, with the thumbs pointing upward and the fingertips touching the relief carved eyes of the first motif, so that the eyes appear as the chest of the figure. The legs are spread in a similar way, reminiscent of a frog, with the clawed feet meeting at the centre at the base of the motif. The body is entirely covered with decorative pattern, only visible under a magnifying glass. The image combines relief carving with finely incised lines in the background, which not only indicates the superb craftsmanship but also the spiritual importance attached to it; at the same time that we can see the entire human figure we are also aware of a separation of the soul from the body, which was a basic understanding of people of early times and the basis of primitive religion. For this reason, it is believed that the motif is the image of a spirit worshipped in the Liangzhu Culture.

The best representations of the image are found on the *yue*-axe (site no. 100) and large *cong* (site no. 98) excavated from Fanshan. Simplified versions of this image have also been found, with only the eyes and mouth, but without the forehead and other features. Sometimes teeth are carved on to the mouth, and the forehead is simply represented by two parallel lines above the eyes; there are other simplified variations. The image is carved in one of two perspectives: one is a frontal view where the image is carved flat on the jade, the other is when the image is carved in two planes around a corner. The frontal view is naturally found on the flatter objects, such as the *huang*-ring, semi-circular ring, inverted rhomboid shape and *yue*-axe. The corner image is found mostly on the *cong* and boat-shaped jades. The best example of the divided image is found on a jade item from Fanshan (site no. M16:4).

In some cases the distinctive form and design of the jades from Liangzhu Culture have been used to give a name to some jade items of which the function is uncertain – for example, the semi-circular items, which were mostly found by the side of the deceased's head, usually in groups of four pieces, arranged in a circle with the rounded edge in the ground and the flat edge facing upward, are described by Western scholars as 'D'-shaped. This is because the shape is reminiscent of the rectangular arrangement of D-shaped jades found around the head of animal-motif jades. It suggests a certain style of headdress where the hair is kept off the face by a head-band. Other examples are the awl-shaped jades and the tripod-shaped jades (a three-pronged shape, the Chinese character for this jade means 'mountain'), which are also found around the head of the deceased. However, the awl-shaped pieces were found pointing directly toward the head, suggesting their function was not as simple as, say, a hairpin. The most interesting pieces are the inverted rhomboid shapes and the boat-shaped jades, which were earlier described very generally as 'pendants'. In fact if the inverted rhomboid shape were divided, two boat-shaped pieces would result. The function of these two forms seems to be revealed in the motif itself: they probably form a headpiece, such as that found in the upper part of the animal face motif. There are holes on the forms which would allow them to be joined and then fixed to the head, one at each side and one at the front. It is possible that there existed at that time sculptures of spirits, probably made of wood or other perishable materials, which were part of the headpiece but have not survived. In a

FIG. 63

FIG. 63 **CYLINDRICAL-SHAPED JADE**
Liangzhu Culture. Height: 4 in (10.5 cm), diameter: 1½ in (4 cm). Found in Fanshan together with a large jade cong *and jade* yue*-axe, this white jade piece is encircled by 12 single carvings of two types of mask. The carvings are both relief and intaglio, and required a high level of skill. The piece is in the collection of the Institute of Archaeology, Zhejiang Province.*

FIG. 64 **CONG**
Liangzhu Culture. Height: 2¾ in (6.8 cm), width: 3⅜ in (8.5 cm), inner diameter: 2½ in (6.2 cm). This dark jade example is divided into different sections, each covered with a spiritual figure-animal mask.

FIG. 64

FIG. 65

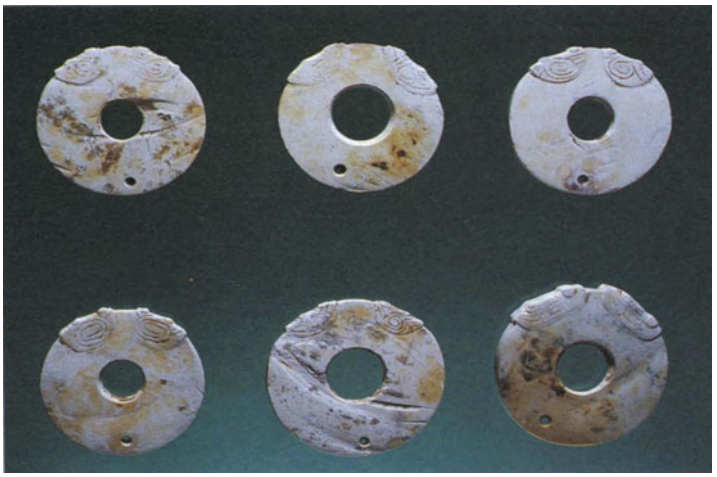


FIG. 66

FIG. 65 **HUAN**
Liangzhu Culture. Width: 5 in (12.7 cm). Excavated from Yaoshan, this white jade features advanced open-work carving. The front view shows an animal mask, whereas the side features a dragon with two heads.

FIG. 66 **SIX BI-SHAPED PENDANTS**
Liangzhu Culture. Outer diameter: 2 in (4.8 cm). Carved in relief with a dragon-head pattern and geometric details finely incised, each of these six white jade pieces has a tiny perforation.

FIG. 67 **SHAPED JADE**
Liangzhu Culture. Height: 1¾ in (4.5 cm). This piece of white jade was found at the foot of a body in a tomb at Yaoshan, Liangzhu; it is now in the Institute of Archaeology, Zhejiang Province. The jade's function is unclear.

tomb at Sidun red pigment and many small jade pieces about ½ inch (1.3 cm) long, ¼ inch (5 mm) wide, 1/32-1/16 inch (1.5-2 mm) thick were found; these were flat circular pieces, covered with an adhesive substance, which would reinforce the notion that they were once attached to a sculpted image.

The animal face motif is also seen on the *yue*-axe, *huang*-ring and *cong*. The *cong* is of particular interest here, as it seems almost inseparable from the animal face motif, and this would suggest that the jade *cong* of the Liangzhu Culture must have been closely related to this spirit.

An interesting phenomenon is that the *cong* is usually found in tombs, upside down, with the eyes below the mouth. Some of the *cong* are larger at one end, and these are found with the larger end in the earth of the tomb and the smaller end facing upwards. The development of the *cong* from its original cylindrical plain form with animal motifs suggests that it originated from a primitive kind of totem pole.

In conclusion, the jades from the Liangzhu Culture have close connections with early religion. The craftsmanship and carving techniques are already fairly advanced and most pieces seem to have been made by the same craftsmen, suggesting that a group of specialist jade-workers emerged at that time.

FIG. 67

FIG. 1

FIG. 1 **RITUAL *BI*** *Warring States. Diameter: 8½ in (21.7 cm). A* bi *disc in translucent honey-coloured nephrite, with a bevelled border and field carved with long-tailed tadpole roundels in relief. The central hole is carved with an open-work dragon rearing around a smaller* bi *disc. Two massive and elegant dragons prowl around the perimeter.*

CHAPTER 3

POST-NEOLITHIC TO HAN CHINESE JADES

Shang to Zhou Period

ANGUS FORSYTH

ESTABLISHING A BASE TIME PERIOD

FIG. 2

FIG. 2 *Map showing approximate borders of the Shang, Western Zhou and Eastern Zhou dynasties.*

This period of 1400 years witnessed the meteoric rise of bronze from the relative obscurity of the Erlitou period to the vital position it occupied by the time of the Shang/Yin period. In its assumption of a central role in ritual and funerary function, it would not be surprising if it had gradually but totally eclipsed jade; the latter material might have exited from the socio-ritual stage as a normal part of the evolution of cultural perceptions responsive to economic realities of production. That this did not happen is an astounding testament to the depth of the impact that jade had by this time made on Chinese society at all levels so that the acceptance of its superior position – albeit now shared with the new material bronze – was clearly a wholly unconscious and unquestioning one that was never subsequently to face any serious challenge. Indeed, the longer the life of the respect and affection exhibited toward jade, the stronger and the more inalienable jade's position became.

To the art historian, bronze has the immense value of an easily worked and moulded accommodation of detail in what has now been shown to be an easily datable progression, whether by way of the inscriptions that were often placed on bronze vessels or even by thermoluminescence testing of ceramic mould core material left behind by the piece mould-cast process. It therefore represents an extremely important stylistic yardstick and mirror for jade dating.

It is in fact possible to perceive bronze as assuming an innovative role in terms of design. The intractable jade medium quickly became the beneficiary of applied design creation worked out by the bronze casters. The symbiotic development of jade and bronze is accordingly a generally explicable one in which the cultural development of each can be explained.

Bronze, used as weapons, was the means of military and therefore political control of an area. Furthermore, it signified a popular appreciation of great value because it involved highly specialized artisans in an expensive and invigilated production process. This accordingly saw the development, in addition to the well-established jade-working sector, of a new second phalanx of skilled artisans producing at great national and community expense a class of articles in bronze for ritual purposes and for reasons of social necessity as opposed to luxury. The jade-

working community was now no longer on a pinnacle of splendid isolation.

In reviewing the practical development of the jade-worker's art through this long period – comprising in its origins a number of early centuries of which very little contemporary written record has survived – it is important to be aware of the developing social and economic conditions of peoples and of states so that, in the evolving relationship of one to the other, the central pillars of unchanging constancy in taste can be the more easily identified. Accordingly, it is necessary to consider the unfolding picture of the progress of civilization in China, highlighted as appropriate with the involvement of bronze in that progress, as a background to the evolution of jade-working in the following clearly divisible sections from 1600 BC to 221 BC.

By the time of the Warring States period at the end of the time span treated in this chapter, we can see the splendid apogee of the development of bronze, which was followed during the ensuing Han Dynasty by a relatively rapid fall from its position of central grace and the consequent isolation and exposure once more of jade, enabling it again to develop without serious opposition in the very vanguard of the cultural dynamic of the times, but under its own initiative. It was not until the Song Dynasty (AD 960–1278), when the brilliant simplicity of monochrome ceramic glazes became a major intellectual attraction, that any sort of alternative intellectualized artefact arose.

FIG. 3

FIG. 3 **TIGER-BIRD**
Shang Dynasty. Height: 3 in (7.5 cm). This zoomorphic tiger-bird creature is carved in the round, having a tiger's head, folded wings and tiger feet. The whole has a rather blockish form.

FIG. 4 **TIGER**
A tiger sculpted in the round in a crouching position, its mouth open and eyes deeply incised; its head is turned sideways, and is held in its paw. The jade has a greenish-yellow tone with light brown areas.

FIG. 4

PRINCIPAL JADE-USING CULTURES
IN THE SHANG TO ZHOU PERIOD
c. 1600-221 BC

Shang Dynasty	
Erligang Period	1600-1400 BC
Yin (Xiotun) Period	1400-1100 BC
Western Zhou Dynasty	1100-771 BC
Eastern Zhou Dynasty	
Spring and Autumn Annals	770-481 BC
Warring States	480-220 BC
Qin Dynasty	221-207 BC

FIG. 5 **DECORATED *CONG***
Post-Neolithic. The decoration is divided into four registers, with a vertical line in the centre of each of the four sides. Circles sit either side of these central lines, forming a pattern of eight circles on each face.

FIG. 5

SHANG DYNASTY

FIG. 6

FIG. 6 NOTCHED AXE BLADE
Erlitou period. Length: 2⅜ in (11.8 cm). A flat axe with side notches: the cutting edge is slightly curved, and the perforations are conical. The blade is of opaque nephrite, and has a grey-brown tone.

Erligang Period

This period witnessed a gradual geographical encroachment of the Shang people and their influence, which extended ultimately from the Henan heartland north to Mongolia, west to Gansu and the upper middle Yellow River, south to the Yangtze River valley at the Pan Long Cheng Site in modern Hubei Province and east to the sea. The capital was Zhengzhou, in modern Henan Province.

There was domestication of the water buffalo and irrigated wetland rice cultivation. At the highest social level wine, and systematic grain production from which to brew it, became important. Wine was used for banquets, in ritual offerings and in association with ritual large-scale human and animal sacrifice.

This was a period of city dwelling – archaeologists have excavated huge rammed-earth constructions of city bastion walls and public areas. This durable and effective permanent plinth engineering was pioneered in Erlitou times. The concept and practice of money appeared in the form of cowrie shells. Grain production records were kept and accounts recorded of military operations. Gifts were given by the emperor to favourite senior vassals. In practical progress we can see the origin of bronze weapons and of writing on durable media such as oracle bones and bronze vessels. In the late Erligang/early Anyang period, the chariot appeared as an aid to war and hunting became an extremely popular pursuit that undoubtedly helped to sharpen the development of proficiency with weapons.

There was clear initiation of the development of ancestor worship and its formal precepts and observances, of the recognition and worship of a panoply of gods, of a decimal system of public measurement and of an organized calendar. These innovations helped to constitute the development of a very well structured society. Ceramics, carved bone artefacts (some from human bones) and bronze

founding workshops have been excavated at Zhengzhou.

In this period there was marked development of the *taotie* mask for use on libatory bronze vessels. This mask motif is one of the most famous, influential and enduring Chinese decorative motifs, bearing the horns of an ox, the ears of an elephant, the talons of a bird, the eye of a man and the crest of a dragon. At the earlier stage of the period the eyes of the *taotie* mask are represented by plain semi-spherical bulges set centrally and separating as incised inner and outer canthus. By the end of the period the mask had developed a central diamond-shaped panel on its forehead.

Animal form motifs predominate in all art forms. The upright pointed cicada panel developed as a serialized decorative feature around the circumference of a vessel, in a return of artistic acknowledgement to the apparent rebirth cycle of this insect, seen earlier in Neolithic times.

Zoomorphic clay pieces excavated at Zhengzhou are sculpturally very crude, in considerable contrast to the fineness of raised-line relief moulded work on black pottery Zhengzhou vessels.

By far the most important and revolutionary artistic development was the application of bronze to weapons for general use and the production of ritual vessels as a signifier of aristocratic status. This, of course, was accompanied by a much greater technical proficiency in bronze casting than in Erlitou times.

Bronzes basically continued to be formed by piece-moulding techniques. Piece-moulding always leaves a seam where the different moulded pieces are joined together to form a single piece, such as a vessel. This disadvantage was turned to advantage in that, through an inspired development, the decoration on bronzes was ordered into zones bounded by the seams. The extended and angled hook motif appeared and was soon absorbed into the jade-worker's repertoire.

The notched edge was a new development in jade carving. It was perhaps derived from the *zhang* and *dao* hilt guard extensions of Erlitou, themselves drawing from the Longshan prototypes discussed in the chapter on Neolithic jades. The notched butt type of *ge* blade developed and notches became a common decorative feature on the sides of axe blades (see Fig. 6) – but notches have not been found in the butt of the axe blade. There is no clearly appreciable reason for this notch development and one can only speculate as to whether ornament was the initiative or whether, alternatively or additionally, there may have been a utilitarian purpose such as provision of a tying anchor to stabilize the blade when attached to a handle.

There are often images of woven matrix imprinted on to the smooth jade *ge* blade surface – presumably the remnant of a cloth or perhaps basketwork or woven reed matting in which the piece was buried. The practice of breaking a *ge* jade blade into two or three pieces and placing them together with sacrificial bones in a special small pit beneath the corpse originated in this period.

In 1986, archaeologists excavated two sites at Sanxingdui, Guanghan, Sichuan Province. These have been dated to the late Erligang or early Yin period of the Shang Dynasty and they contained remarkably sophisticated artefacts that exhibited very advanced bronze casting. One of the sites was a burial pit copiously endowed with striking bronze masks and a bizarre human figure, all of giant proportions and buried in circumstances clearly indicating deliberate burning before interment. They are so outside contemporary design development of bronze in eastern China at the time that they have been ascribed to an as yet unresearched minority culture. However, large and simple but finely formed and curved jade *ge* blades of a typical metropolitan early Shang type, some with a bird-head silhouette at the blade tip, were also among the artefacts found – although generally snapped and broken and showing the signs of 'chicken bone' physical colour change and carbonized scarring, which are only wrought in nephrite by exposure to great heat.

It seems arguable that by this period an appreciation of the jades of past ages had developed. This may perhaps be seen as the beginning of collecting in China. What becomes clear and remains true throughout the subsequent development of Chinese history is that personal possessions buried with deceased persons included jades of periods and cultures totally estranged in time and temper from those of the deceased.

Yin (Xiaotun) Period

A complex urban organizational structure continued to develop in the Yin period (1400 BC to 1100 BC), with substantial city formations of rammed-earth rampart walls and open public forum spaces and the construction of big palaces and temples. There are wooden public buildings with pitch roofs atop rammed-earth platforms. The capital was at Anyang (modern-day Xiaotun) in modern Henan Province.

Very substantial single-celled tomb chambers were constructed with wooden walls and rammed-earth approach ramps for interment purposes, and they furnish telling evidence of an ability to organize large forces of construction workers. There are also signs of imported cultural objects and practices and some scholars argue very persuasively for at least some foreign contact. Bronze casting became much more sophisticated with a greatly increased range of vessel types and shapes, wine vessels being by far the predominant type. Elaborate wild animal hunts were indulged

in as sport and many oracle bone prayers relate to hunting augury. A total reliance developed upon spirit pronouncements for all great and small matters – even weather forecasts – and the interpretation of spirit responses through the heat cracking of the oracle bones bearing the messages. A very important control role came to be played by the king as intermediary between the spirit world and his human subjects.

There was also a widespread practice of often large-scale human sacrifice. This seems to have been called for by the recorded predilection for wine, flesh and blood. Sacrificial victims are recorded on oracle bones as being foreigners from minority tribes west of the Shang/Yin metropolitan territory. Bone artefacts were made from human bones.

The Fu Hao Tomb No. 5 excavated in 1976 at Anyang, which produced a staggering cornucopia of 755 jades together with many bronzes and other artefacts, had 16 sacrificial victims in the tomb itself. Fu Hao was the historically recorded wife of Wu Ding, one of the Yin kings. Quite apart from any other significance, this tomb, with its time capsule of superb jades and associated hoard of bronzes, constitutes a vital dating and stylistic benchmark for the study and understanding of jade-working development.

Many agricultural implements continued to be stone and bone hoes and picks but these were giving way to bronze forms, for which large numbers of actual moulds have been found.

There was a basic social structure of three key components: *zhaomu* – the king and immediate dynastic clan members; *zhongfa* – the much wider, many-tiered group structure of the royal family, common lineage by descent from a single claimed ancestor; *fengjian* – a branching structure of provincial new lineages commenced by royal relatives as breakaway factions creating their own small and distinct urban communities.

Bronze occupied a very basic dual role in this formal structure in its twin applications of ritual and weaponry – both of which were of fundamental importance.

In bronze casting the piece-mould seam began to be pulled out and extended into a crenellated flange, and it seems that these crenellations or notches may in fact have been a strong influence on the contemporary further development of the notched edge in jade-carving. The Fu Hao tomb yielded a large jade vessel of deep bowl form (see Fig.10) with exterior crenellated vertical flange extensions acting as dividers between panels of zigzag registers of thunder-cloud motifs.

Casting techniques were developed to a new peak of refinement. The *lei wen* or thundercloud pattern was cast with very fine line raised details. The basic models of popular animal and bird forms were provided by real animals

FIG. 7

FIG. 7 **FLAT COILED DRAGON**
Shang Dynasty. Width: 4⅝ in (6.1 cm). This flat coiled dragon has a notched, crested back, and is shaped in the form of a 'C'. It is believed that these objects were originally produced as mortuary earrings.

FIG. 8

FIG. 8 **'SARDINE CAN-OPENER MAN'**
Shang/Yin Dynasty. Length: 2¾ in (7 cm). This famous jade is known as the sardine can-opener man because of his shape. The kneeling man has a roll-form head-dress, his palms on his knees, and a bifurcated bird or fish tail extending behind the left thigh. The piece is worked all over with a false raised line design. It was found, along with over 700 jade items, in an excavation of the tomb of Lady Fu Hao's tomb in Anyang in 1976.

FIG. 9

FIG. 9 **NEPHRITE PLAQUE**
Shang Dynasty. Length: 2⅛ in (5.3 cm). This full-face plaque is worked with a taotie *mask or dragon face with a pair of bottle-shaped horns. The stone is a translucent green nephrite with traces of red pigment, and there is a circular drilled hole.*

FIG. 10 **FU HAO BOWL**
Shang Dynasty. Height: 5 in (12.5 cm). This deep bowl has vertical bronze-derived flanges and is decorated with an interlocking line design. The stone is opaque green nephrite.

FIG. 10

but also by a very plentiful allusion to mythological animals such as dragons and quasi-snake-like forms. Animal groups in relief are depicted on bronze vessels and can be observed on the foot rim of the only jade vessel found to date from the Fu Hao tomb and, more plentifully distributed, on a similar marble one from the same source.

There was a limited but striking use of marble as a medium to carve vessels and also large zoomorphic sculptural forms of owls, buffalo and leopards. Monumental examples were excavated by the Academia Sinica at Anyang in the 1930s and they were also found in the Fu Hao tomb. The backs of some of these massively sculpted, stable zoomorphic pieces are each hollowed away into squared upright grooves or channels that could have taken a shaped wooden pole – and may indicate their use as a weighty base for some other thing such as a pennant or standard.

The small jades found in the Fu Hao burial were both in the coffin itself and in the centre of the burial chamber among the lacquer remains of the coffin – destroyed by waterlogging over the centuries.

In the opinion of Yang Boda, a distinguished co-author of this book, findings of the Palace Museum in Beijing support the view that this period saw the first use in China of the nephrite of Khotan (Hetian). This certainly emphasizes the considerable geographical influence of the Shang state or the importance of regional trade – or both.

The use of an incised shield-shaped decorative device developed in both jade and bronze, appearing in contiguous end to end form of separate registers (bands of varying decoration) and also of a diamond- or lozenge-shaped incised and relief-carved device.

In jade the Neolithic pig-dragon form developed further along the lines of the delicately coiled Longshan painted pottery shape. The crenellated flange began to extend as a crest or mane from around its curved back, and its body sported decorative triangular and lozenge motifs in false raised line carving (see Fig. 7). A short upturned nose extension made its appearance. The ears metamorphosed into a suppressed Indian club or squat bottle shape (also very common in bronze vessel handles and appliques), becoming known as the bottle-horn dragon form (see Fig. 9).

Three-dimensional human figurines and animals made a well-developed appearance with no very clear sculptural antecedent except for the pig-dragon form described above. They were depicted in strong and squat forms with very vigorous feeling and exhibit a part-clumsy chunkiness that purveys a poetry more of strength and power than of aesthetic beauty (see Fig. 8).

The considerable energy and time necessary for these three-dimensional sculptures may well be reflective of the powerful, confident society of the Yin period, with the general surge of mass sculpture in the round arguably showing the new tendency of jade to follow bronze prototypes such as the well-known elephant and bird and tiger vessel forms. However, these animal and bird sculptured forms in jade show a surprising primitivism of execution. Their surfaces lack an evenly levelled and executed polish. Their legs are all straight forms with rounded exterior surfaces – usually with designs in false raised line execution. The inside leg surfaces are at squared right angles to each other, suggesting that the three-dimensional shape was formed by right-angled sawing or drilling transversely across the entire block to remove a large bulk of material. The resulting right-angled corners remain, demonstrating a notable inability – or perhaps disinclination – to finish the job by rounding off – something that the Hongshan Neolithic jade-worker could certainly do.

The following animal forms are found: elephant, rhinoceros (see Fig. 12), buffalo, bear, tiger, dragon, alligator, tortoise, horse, salamander, fish with a 'chisel' or 'screwdriver' tail, fat bodies and, sometimes, round open mouths (see Fig. 11), cormorant, owl, cicada, silkworm and grasshopper.

In addition to the three-dimensional figures, both animal and human subjects were rendered in a flat plaque form of work. There is one celebrated piece from the Fu Hao tomb of a flat-form human figure carved on both sides; one side depicts a male and the reverse a female. There are others arranged through basic incising on both sides of the flat *huang* shape.

The following geometric and pseudo-utilitarian forms appear in Shang/Yin jades (not all, however, being represented in the Fu Hao tomb): *bi* discs, plain axes, notched axes, *bi*-shaped axes with notches, chisels, both plain and notched-back *ge* blades, *cong* and combs.

Detailed execution of jade-working was, rather surprisingly, rough. It is not clear why this should be so, given the fact that at this time jade-working was a very mature craft with millennia of high-quality achievement already behind it, and given also the availability of metal assistance. The fact is, though, that the jade finishes of many Neolithic cultures are far better and more meticulous. The roughness

FIG. 11

FIG. 11 **FAT OPEN-MOUTHED FISH**
Shang/Yin Dynasty. This well-fed, curved fish is carved in the round and features an open mouth aperture: the details of the round eyes and fins are well incised. The stone is opaque beige nephrite, which is highly burnished.

FIG. 12 **RHINOCEROS**
Shang/Yin Dynasty. This small sculpture of a rhinoceros is carved in the round: the four short legs are straight, while the head is heavy and slopes down from the erect ears, with the weight of the large horn above sensitive protruding lips. The stone is an opaque white and grey nephrite.

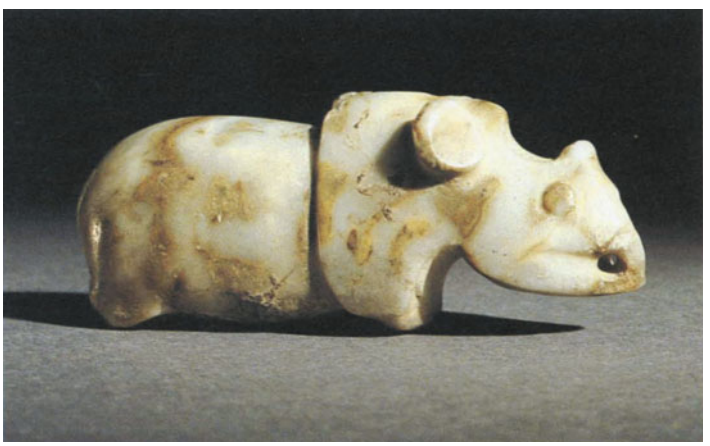


FIG. 12

– and a corresponding sense of spontaneity – may accordingly be sculpturally deliberate or may represent a lessening of the standards of perfection of Neolithic jade.

There was a typical development (or retrogression) of progressive deterioration of the raised line form by eroding a bevelled trench each side of a line. This procedure results in an appearance of strong raised ridges almost comparable to *cloisons* – in fact, a false raised line. This was a lazier method of achieving a raised line effect, but good raised line work still continued to be produced in parallel.

This raised line in the Yin period usually formed a straight axis, branching and terminating in a right-angled hook which doubled back on itself so as to form three sides of a square or a coil. This could be, and was, cleverly introduced at any point either to emphasize a feature or to finish one off in an overall scheme.

The representation of the *taotie* mask has also now gone through a radical change of detail, in that the central hemispherical boss feature of the iris of the eye still stands proud from the surface but is now drilled with a central hole as if some artist wished to endow a pupil on to the somewhat unseeing appearance of the earlier form.

Jade *bi* discs have been found in the foundations of buildings at Anyang; they were possibly an invocation of auspicious fortune for the future of the structure. Flat-form jades cut to careful geometric forms were also plentiful though not to the exclusion of three-dimensional forms. Another development in this period seems to have been the collared disc form with a right-angled flange rising from the immediate inner perimeter around the central hole (see Fig. 13).

In his book *Chinese Carved Jades* (1968), S. Howard Hansford refers to the collared discs excavated at Gua Cha, Kelantan, Malaya, in 1953. These collared rings were found as bracelets on the right forearm of the skeleton. There were two rings – one marble and one nephrite – and they were presumably imported from China. Similar pieces from Yunnan Province in southwest China have since been recorded.

There was development of the purely ceremonial status of some jade weapons; it seems reasonably clear that these were objects of reverence or funerary magnificence rather than for any sort of practical application. A form of long and slender handles appeared. The purpose of these is unknown but this writer suggests a use as a fan handle, to which spreading feathers or palm fronds would not have been difficult to attach. Some of these exhibit an everted type of vegetal growth possibly analogous to the unfurling tip of a young palm leaf.

We now find jade *ge* with the extended *tang* fitted with bronze flat handles in bird-head shape, often inlaid with turquoise. This type, adopting the large hook-beaked

FIG. 13 **COLLARED DISC**
Shang/Yin Dynasty. Width: 3⅜ in (8.7 cm). The disc has a large central hole, from the inner edge of which arises a right-angled collar. The stone is an opaque light caramel nephrite.

FIG. 13

extension at 45° to the basic longitudinal or vertical axis of the piece, as found in the three-dimensional bird sculptures, is also made entirely in jade – quite commonly as a miniature alternative that is useless in practical terms but is of exquisitely simple design and execution of high quality.

Flat bird forms develop in the *huang* shape with deeply crenellated and hair-striated cresting. Whether these are of a slightly later date or not is unclear but this *huang*-shape format was also applied to a crested humanoid in significant numbers. Both became extremely popular in jade, representing an excellent opportunity for development of the notching or crenellation already noted.

Because of the prolific variety of forms and types in the Fu Hao tomb, the present thinking revolves around the possibility that Fu Hao was something of an antique jade collector and that a number of her pieces are in fact of a much earlier date. This increasingly appears to be the only sensible rationalization of the very different types of excellent jades all found in the same burial.

It is important to note that, as in the Liangzhu Culture, jade material was always valuable and offcuts and broken pieces were commonly not wasted but were fashioned into another form.

WESTERN ZHOU DYNASTY

FIG. 14 **GROOVE-INCISED *HUANG***
Western Zhou period. Diameter 3¼ in (8.3 cm). This huang, *in translucent greenish-white nephrite, is incised with a pair of tiger/dragon animal forms in careful groove line-work. At either end, close to the inverted notches, are single perforations.*

FIG. 14

The much reduced scale of human sacrifice in the tombs is a significant pointer to the changed attitudes of this period. Furthermore, with the notable exception of huge tombs of court nobles of early Zhou at Xincun, Xun Xian, Henan Province, there is generally a smaller scale of tomb than in Yin times.

The geographical area with which the period is principally concerned was southern Shaanxi, Shanxi, Henan, Hebei and Shandong provinces, but its influence extended as far as Jiangsu in the south, where western Zhou bronze vessel forms have been excavated. The capital was at Xi'an, Shaanxi Province.

Insofar as the king still exercised central power the entire Western Zhou period was an extension and continuation of the Shang, but now the imperial mandate of heaven philosophy, in which physical power was invested in the king but he was subject to the dictates of heaven in exercising it, was initiated and formalized. This was associated with a closer observance of imperial communication with the people and one can perceive the seeds of development of the civil service which, from Confucian times in the early Eastern Zhou period, was to become a force of such stabilizing rigidity in China until the republican revolution of 1911.

For reasons that are not entirely clear there was also a basic change in social mores and practices; from the earliest Western Zhou times, there are bronze inscriptions condemning the Yin mass drinking habits as debauched and artificial. One measurable consequence was that bronze drinking vessels shrank rapidly in numerical proportion to vessels for food. Many bronzes were now made by the aristocracy for their ancestral temples rather than in observance of the ritual ethics formerly demanded by Yin society.

There was a great development and increased use of bird designs on bronze, and also looser formations of patterns than under the Yin. The *taotie* animal mask feature degrades and breaks down into very simplified and abstracted representational forms. There is an increasing trend toward complexity of design without detracting at the same time from the overall simplicity and directness of the message. This is accompanied by a proficiency of execution on all exterior surfaces of a bronze piece (almost engendering the feeling that an undecorated surface was anathema to early Western Zhou bronze casters – and, indeed, to their patrons).

Most bronze inscriptions now record that bronzes were made for a specific commemorative or sacrificial purpose and not, as under the Yin, at least in part as works of art.

The manufacture of bronze weapons grew more prolific and difficult to control, thus weakening the central authority of the king and paving the way for the breakdown of power that ultimately ushered in the ensuing period of the Warring States. We see too the rise of the family unit in society, consisting of grandparents, sons and daughters,

and grandchildren all living together in the same compound. This was the origin of the patriarchal society that was espoused by Confucius in the fifth century BC and formed the central pillar of Chinese society to the present day.

In the middle Western Zhou period, from 1000 to 900 BC, bronze ritual vessels became simple and direct in form. Bronze percussive musical instruments appeared, and sets of graduated *zhong* bells of bronze suspended on purpose-built wooden frames.

At this time a very important and revolutionary concept appeared in the basic surface design of bronze. This was that, although piece-moulding was still the method used in bronze casting, the piece-mould seams and the use of the flange as a decorative element began to be ignored, as were the series of walls between tightly constrained design panels. The result was that a continuity of pattern could be arranged right around the neck, shoulder or belly of a bronze vessel – an innovation that radically and permanently altered the entire appearance of the bronze-worker's creation. The resulting design freedom in all works of art was not ignored by the jade worker as we shall see. For some reason not yet clear, there is an absence of marble carving throughout the period.

The period terminated on the death of Emperor You in 771 BC. One of his sons, mounting the vacated throne as a popular puppet nominee of the victors, presided over the move of the capital city east to Luoyang.

Throughout the Zhou Dynasty, the surface embellishment of jade developed with gently increasing sophistication from the rough and ready finish of the Anyang/Yin period to the high demands and technical accomplishment of the Warring States period. Broadly incised lines show a sureness of direction and a wonderful, somehow soft, quality of overall finish quite unknown in the Shang Dynasty. The squared form of right-angled hook meander reduced and simplified itself to a single freestanding upright hook with a right-angled blade from whose corner a single short barb extended to the opposite side. These hooks would usually form a series in a single band or register on one side of a central line. There is, however, one published figure of a flat bird with a freestanding tail and barb illustrating exactly this movement; it was excavated in 1976 from an early Western Zhou burial in Shaanxi Province.

We basically see, however, an abandonment by the jade-worker of the three-dimensional sculpture form of the Shang/Yin period and its replacement by flat zoomorphic plaque forms (see Fig. 16). There was a developing austerity and simplicity of both concept and execution. On the whole, surface decoration of carved jades shies away from rococo floridity or minute detail in execution. The designs in this period were always executed in a technically competent and vital manner, their liveliness

FIG. 15

FIG. 15 **PLAQUE**
Early Western Zhou period. Length: 7/8 in (2.2 cm). This square, thin plaque is in translucent green-white nephrite. It has a small central hole, a formed border, an incised line and double-line design of hooks, and the outlined head of a crested bird with a round incised eye. The bird's beak curves around the central hole.

FIG. 16

FIG. 16 **TIGER PLAQUE**
Western Zhou period. Height: 3 5/8 in (9.3 cm). A plaque-form bottle-horned tiger in translucent green nephrite. Its back runs over powerful shoulders and loins, while its thick tail curls round on itself to form a double-hole.

FIG. 17

FIG. 17 **MAN WITH HEAD-DRESS**
Western Zhou period. Height: 3 in (7.7 cm). A standing human figure carved in the round. The man is wearing a waisted erect head-dress which has incised crowsfoot motifs; it has two side ear flaps.

FIG. 18

FIG. 18 **PLAQUES**
A pair of plaques in translucent golden-brown nephrite. Each is worked as a coiled, two-headed dragon, set back-to-back with a human figure.

FIG. 19

FIG. 19 **HUMAN FIGURE**
A plaque in the form of a human figure, wearing an elaborate head-dress or frame of paired dragon heads, and a belted, flared smock or kaftan with a central panel between the legs.

FIG. 20

FIG. 20 **BIRD HANDLE**
Western Zhou period. Length: 10¼ in (26 cm). This substantial handle form in translucent green-white nephrite is incised along its length with a complex double-line grooved-hook design. It is surmounted with a standing crested bird with folded wings, the tail of which extends vertically behind.

counterbalancing the seeming complexity of detail. A soft but even gloss was the preferred finish, as opposed to the very high gloss that became popular in the Warring States period. When excavated, these zoomorphic plaques are actually upon the body of the deceased.

There is an appearance of broad 'U'-shaped groove-incised false raised line-type work on flat pendants – sometimes very large and sometimes in the *huang* form – that represent standing crested birds with big open spanner-head talons. In the diamond-eyed dragon forms also produced, the short upturned nose extension seen in Yin becomes a more pronounced curled-up nose which, toward the end of the period, is executed both in incised line grooving and in registers of raised line-work and bevelled ridge-work dragon heads – which also featured the novel element of a long curved tongue hanging down from the tip of the mouth. The curled-up nose dragon forms were often rendered with clawed feet in the open spanner-head form. There is also a series of elongated, rather substantial handles, *huang* pendants (see Fig. 14) and flat rectangular plaques, all groove-incised with the standing crested bird design whose strong legs again exhibit the open spanner-head form of clawed feet.

At the start of the period we see a very substantially reduced three-dimensional jade representation of human or zoomorphic forms, though now showing a greater delicacy and lightness than the Shang/Yin forms. These forms also now begin to appear in bronze. Later production was basically confined to flattened plaque types, often of some elaboration and with the human figure either as the central and dominant feature or in a clearly symbolic association with the dragon. They, together with birds and animals, are often featured in a *huang* shape. Notable exceptions are the representations of silkworms that are exclusively three-dimensional and often extremely well formed, giving rise to speculation as to why such skills were not also applied to more exalted members of the animal kingdom or to man. The following forms are all found: serrated discs, *cong, ge* blade with bird head (with a raised disc-form eye), notched axes, *bi,* human figure, birds (with a raised disc-form eye), tiger, fish (with tapered flat-form bodies and with raised disc-form eye), stag and doe (the former sometimes with branching antlers of a wonderful poise and delicacy), silkworms, rabbits (both flat form and also in a three-dimensional, drilled bead form and both forms with raised disc-form eye), cormorant, cormorant with fish in claw, cicadas, bottle-horn dragons (two-legged plaque type), handles (standing bird relief), *huang* (standing bird relief), *huang* (human figure/bas-relief), *jue* slit disc, 'S'-shaped dragon plaques, three *huang* forming a ring, masks (both human and *taotie*), small roundels and squares with bird-head relief design.

EASTERN ZHOU DYNASTY

FIG. 21 **COVERED VESSEL** *Eastern Zhou. 4 1/8 in (10.5 cm) × 4 1/2 in (11.3 cm). A covered* lien *or pot in translucent honey-coloured nephrite with a loose ring knop. A gilt bronze-fitted rim has three equidistant crested birds and a twisted rope-form ring. At one side is a single handle with an everted 'kick'; on the other is a small ring extension. The container is carved with two registers of raised dots in high relief, and is supported on short feet.*

FIG. 21

Spring and Autumn Annals

770-481 BC

The period is named after the 'Springs and Autumns' of the annals of the state of Lu, although they in fact extend only from 722 to 481 BC.

It ushers in a reversion to Shang/Yin preferences over the more modest requirement of Western Zhou. There was a development of huge wooden structured box tombs – some important ones having multiple rooms and even domestic bed furnishings. In a break with the past, some of these huge tombs are constructed within city walls and not, as heretofore, in special cemetery areas outside. We see the first tentative development of textured surfaces in jade pieces, moving away from the cool simplicity of the Western Zhou jade plaque.

The already diminished central control of the emperor was much further weakened as former vassal lords established their own suzerainty over petty states, each with some of the trappings of national power such as bronze weaponry skills. Although the Zhou emperor continued to rule at Luoyang, the capital, and to be accorded a sort of nominal allegiance until the third century BC, one can perceive this reign as a dynastic fiction cloaking the reality of what was very much a cluster of small states with sovereign autonomy.

At first there were many small city-states with very small capital cities contending against each other in all areas of endeavour. This meant accordingly the development of many small societies with organized agriculture, city dwelling practices and metal-working skills for weapons. Every one of these small states evinced the two basic hallmarks of statehood: unified self-centred political affiliation and territorial loyalty. This spread of political power over an increasingly wide area much reduced the traditional distinction between the geographically central originators and the more peripheral 'barbarian' states and peoples.

The fairly powerful state of Zheng (c. 700 BC) in Henan

Province on the Yellow River emerged by bringing smaller local states together to contend with the Chu state to the south on the central Yangtze River, with a capital at Jingzhou. The Chu gradually expanded north through the Spring and Autumn period and eventually defeated Zheng at the end of the seventh century BC.

During the sixth century BC the Jin state of southern Shanxi became aggressive and was courted by the Chu state as an ally against Zheng. The Jin and Chu states then fell into discord and each grouped smaller states around to support their respective views.

The Spring and Autumn period was undeniably a brutal one. Human sacrifice was made to celebrate victory in war. The royal fee simple land-holding system, where the land was held apart from the monarch, broke down and was replaced by the gradual development of a concept of private property in land and devolution by will to heirs. This was simultaneous with the continued development and strengthening of the three-generation family unit all living together in the same compound and the reinforcing of ancestor worship and its consequent emphasis on filial piety.

Taxes on private landowners were introduced. The private landowners became landlords, renting their acres to private farmers for agricultural production. This combination was very successful and brought about a new dissemination of created wealth and a corresponding initiative of handicraft production as a convenience or a luxury to alleviate the rigours of a monotonous daily round.

Fine clay grave ceramics in imitation of ritual bronzes began to be made in great numbers. The great expense of bronze production began to render the clay burial artefacts an economic and easily obtained alternative.

With the loss of central control by the emperor, most bronzes were commissioned by feudal lords and their own circles of officials. The result was the springing up of smaller and smaller regional bronze workshops – largely as a socially necessary demonstration of the independence and autonomy of each power centre. This resulted in a remarkable increase in the fine quality of execution of bronzes – very fine line mould-casting of great detail appeared together with the possibility of part-moulding to join pieces together in order to make a composite whole. This was also helped by the much greater skill in alloying bronze metal components, making for a more easily worked, purer material to take finer moulded detail.

There was a repetitive treatment of bronze in late Western Zhou designs, but a very popular and lavish development was the creation of decorative patterns of one metal inlaid into another by technological means that are still not wholly clear. This practice is thought to have been adopted into China from the steppe peoples of the Ordos Region with whom various Chinese states were developing increasing contact at this time. Gold and/or silver were inlaid in exotic patterns into a bronze body and bronzes assumed a new secular initiative as works of art in their own right. In direct consequence the bronze founder's skills began to be applied to satisfy a growing demand for luxurious articles of personal adornment such as belt buckles and belt-hooks. It was a short step to considering the incorporation of jade, a readily available material, into these artefacts, and composite forms incorporating both bronze and jade did appear in due course.

Toward the end of the Spring and Autumn period the lost wax-moulding method made its first appearance. This made possible extraordinary detail of three-dimensional and tracery work moulding, so the refinement of bronze production reached new heights of excellence. This period also saw the first widespread use of cast iron for tools, and for agricultural implements such as plough shares and weapons from c. 500 BC onward – and this effectively marks the end of the Bronze Age as such. The crossbow was introduced in the sixth century BC and became most effective in warfare.

Near the end of the period there was a new development of three-dimensional human figurines in bronze art and these were repeated – though rarely – in jade. There are some interesting examples in a naive style of human figures in plaque form, naked to the waist and with a flaring full-length chequerboard-patterned skirt and a little horned or crescent-shaped headdress.

Jin gave way at the end of the period to the newly emergent states of Wu and Yue in the lower Yangtze/Zhejiang area. At this time the *cong* continued to be produced in jade, though in an increasingly weak and feeble manner – very much as if the original dynamic impetus behind its creation had run completely out of steam.

Also produced were small plaques for sewing together with gold, silver or bronze wire to make jade suits – the plaques were usually square or rectangular, but round ones do exist. They were carved with 'C' scroll-incised designs (see Fig. 24). It seems that the design was first carved on the main thin sheet piece and then discs or rectangles were cut out in such a way that their edges interrupted the design. The same technique was used with central drill holes for attachment. The designs were both squared 'C' scrolls with patches of fine hair striation, and dragon-head designs in low relief. These latter designs were becoming more vestigal but still had recognizable features of snout and tongue lolling out of the open mouth (see Fig. 23). The *taotie* mask, which, as we have seen, underwent a sort of dissolution under Western Zhou, now found a strong second wind and revived into some exquisite representations in this period – usually for items of

FIG. 22

FIG. 22 **SWORD POMMEL**
Warring States period. Length: 1¾ in (4.5 cm). A sword pommel in translucent greyish-white nephrite. It is formed as a thick taper-sided disc with a bevelled perimeter border which encloses a gently sloping field studded with ordered lines of short-tailed tadpole forms in high relief. These in turn enclose a raised central boss with a deeply carved scroll cloud or fungus device, with intermediate hook, spiral and cross-hatch designs.

FIG. 23 **DRAGON-HEAD *BI***
Spring and Autumn period. Diameter: 1¾ in (5 cm). A bi *disc with a central perforation. The inner and outer bevelled borders enclose a field of dissolving dragon heads, each showing a lolling tongue.*

FIG. 23

FIG. 24

FIG. 24 **'C'-SCROLL SEWING PLAQUES**
Western Zhou period. Diameter: each 1⅛ in (2.8 cm). These three round plaques are in translucent white nephrite, and shaped in bas-relief with dragon-head or grooved-hook designs. Each of the plaques has six evenly spaced perforations.

FIG. 25

FIG. 25 ***TAOTIE* MASK**
Spring and Autumn period. Height: 1¾ in (4.4 cm). This angled, thin, highly burnished taotie *mask is carved in translucent off-white nephrite.*

FIG. 26

FIG. 26 **FIGHTING-ANIMAL PLAQUE**
Western Zhou period. Height: 2⅞ in (7.3 cm). Width: 6½ in (16.4 cm). An open-work plaque in opaque dark green nephrite with a surrounding border of large serried tear-drops. The border encloses a scene of a desperate struggle: two tigers are sinking their teeth into a convoluted dragon, whose furiously thrashing body entwines through its assailants.

FIG. 27

FIG. 27 **DRAGON PLAQUE**
Warring States. A plaque in the form of a curling dragon, its body with scrolls in low relief, the stone of a mottled grey tone.

personal ornament that often display small perimeter holes, probably for sewing on to a garment.

There was a rapid evolution from the late Western Zhou treatment of dragon heads in raised line-work. The various features of the dragon head were emphasized and expanded upon so that those features themselves assumed independent importance. Continued development of their potential saw the appearance of a tightly billowed and contained high-relief feature commonly known as the 'C' scroll, whose arrangement in various meandering bundles with graded contour on the jade surface adopted its own momentum and almost entirely displaced the recognizable dragon-head formation whence it had sprung. Animal representations were suggested by hair striations upon the billow movements and by small interspersed panels of rope-twist form and of scales. The overall effect of this work at this period is one of an almost reticent softness and quietness – which was soon to give way to brilliance and gloss in the ensuing period of the Warring States.

The *huang* form develops as a double-ended dragon head with serrated edge all round, the dragons' mouths pierced by suspension holes. These *huang* were often carved on one side only, leaving the back plain. They and other pieces featured brilliantly executed designs of 'C' scrolls, hair striations and, more rarely, scales (see Fig. 28).

Through the westward connections already mentioned we can now see jade artefacts in the animal style made for, or at least influenced by, the Ordos peoples of the Mongolian and Siberian steppes. Ordos animal-style jades are very rare and mostly in plaque form, like the well-known Ordos bronze plaques (see Fig. 26), though at least one three-dimensional stag is known. All depict faithfully, if primitively, the aura of strength and primal bloodshed among wild animals that is one of the principal and frequent hallmarks of Ordos art.

Warring States

This period was marked by the emergence of a number of stronger independent countries but particularly Qi in the northeast, Qin in the northwest and Chu in the south. The period name describes the fighting among these three – and numerous other and smaller states – throughout this time.

Very large capital cities now developed, some with hundreds of thousands of residents. Even allowing for a traditional tendency to exaggerate, what were certainly enormous armies were put into the field with efficiently organized cavalry forces generally supplementing the use of the chariot.

The convention of piling up a mound over a burial

place dates from this period. This may have something to do with continued exposure through trade, culture or conquest to the burial customs of the steppe people of the Ordos region to the northwest, who made a regular practice of it. This practice reached its ultimate apogee in the enormous, and still unexcavated, mound over the tomb of the Qin emperor Shi Huangdi and continued thereafter up to relatively recent times as witnessed by the Ming emperors' tombs near Beijing.

There was intensive agriculture and the generation of enormous wealth, which brought into existence a leisured class who appreciated luxury and music. A wide system of public roads appeared, greatly facilitating communication. As a result ideas spread with increasing ease from one state or creative centre to another.

Interregional trade and commerce developed well with the new communications, and bronze and gold currency was introduced in place of the cowrie shell, which had endured since Shang times.

In the fifth century BC the state of Jin subdivided into three new states of Zhao, Wei and Han, which simply increased the forces of heterogeneous competition and contention that were such a fertile ground for artistic innovation in concurrent circumstances of wealth and consumption. Around 300 BC there began a gradual rise of the state of Qin which, in 221 BC, was eventually to prove victorious over all the others as the Qin dynasty under Shi Huangdi.

The sixth and fifth centuries BC saw the developing incorporation of representational and three-dimensional style in the surface decoration of bronzes. The main dynamic of bronze casting became very intricate open-work featuring writhing bodies of dragons interlaced with each other in fantastic curls, permitting numerous interpretations of animal masks and faces to be perceived.

Lost wax bronze casting became very popular and was much developed in this period in order to create the very complex interstitial designs which had become all the rage; very highly developed use of this is seen in bronze pieces from the tomb of Marquis of Zeng at Sui Xian, Hubei Province. Corresponding changes in jade-working appeared. Although the obvious limitations on carving the raw jade material inhibited the extreme 'ball of snakes' writhing mass of dragon bodies available to the bronze worker, the demand for an equivalent quality to bronze, coupled with the new ideas of animal representation, saw jade-working bring a near three-dimensional character out of the hitherto flat surfaces that had been ornamented only with incised line-work.

The densely packed raised curl or 'tadpole' design introduced in bronze at this time was replicated in jade. A whole field of surface would be filled with a haphazard or ordered arrangement of long-tailed coiled creatures of

FIG. 28

FIG. 29

FIG. 28 **DOUBLE DRAGON-HEAD *HUANG*** *Spring and Autumn period. Diameter: 2¼ in (5.6 cm). A white double-dragon-head* huang *with pillow plaque form, decorated with a field of additional billowing double-dragon-head, cloud and scale designs.*

FIG. 29 *A detail of low-relief work on jade of the Warring States period.*

FIG. 30 **JADE CONG**
A jade cong *with two cicadas on either side in relief.*

FIG. 30

FIG. 31 **SLENDER DRAGON PLAQUES**
A pair of unusual plaques in opaque golden-green nephrite.

FIG. 31

FIG. 32

absolute fineness of execution (see Fig. 29). An alternative design was a connected network of incised hook-forms, each featuring a small round terminal boss in relief. The serpent form in bronze relief open-work was translated in jade into delicate open-work plaques formed by the serpent's own body passing around, over and under itself. Sometimes the serpent held a small, spread-eagled human figure firmly in its jaws. Flat, sinuous dragon plaque pendants appear with tadpole relief design (see Fig. 31); these are often rendered in pairs and are occasionally very large.

Flat open-work forms of complex dragon, phoenix and snake in interlocking but symmetrical movement, often lightly incised with curlicue panels of fine cross-hatching, were also popular. In a further development of the sculptural dragon theme the sinuous bodies of mature and immature dragons would play and curve with each other and also into and out of the level jade surface upon which they sported. This type of work was now applied even to the hitherto unadorned flat surfaces of the *cong* form (see Fig. 30) – an attention it had not received since the Liangzhu Culture more than 2000 years earlier. The open spanner-head form of clawed foot, first seen during early Western Zhou, continued and adopted a more refined delicacy of outline without sacrificing the basic shape. Very thin slices of jade material were rendered into such open-work designs.

Western Zhou jade *huang* and plaques had been executed in such a way that the incised patterns and designs continued with an intended naturalness up to the very edge of the flat worked surface but never so as to form a feature of the edge itself. In the Warring States period a new discipline was imposed by the appearance of distinct perimeter borders that bevel sharply down, inward from the edge (see Fig. 33). These borders do not invariably line the entire perimeter of a piece but are often subject to

FIG. 32 **FIGURE**
Warring States. Ribbon-form human figure with clawed feet, in translucent white nephrite. An arm held aloft, the figure wears a flowing vegetal-form billowing robe. The piece is pierced with simple hole perforations and with open-work carving.

FIG. 33 **OPEN-WORK PLAQUE**
Warring States period. Length: 2 7/8 in (7.3 cm). Width: 3/4 in (1.8 cm). An open-work plaque form in translucent honey-coloured nephrite with an overall high gloss finish on both faces. It is fashioned as an elongated dragon or tiger figure with alert ears, short wings and a striated median tail band.

FIG. 33

FIG. 34

FIG. 34 **LINKED *BI* DISCS** *Spring and Autumn period. Length: 8¼ in (21.2 cm). Four linked* bi *discs formed in grey-white nephrite with dark flecks suffused with brown in places – the series is carved from a single piece of material. Each* bi *disc has a bevelled exterior and interior border and a field carved with long-tail tadpole forms in relief. Between the two centre* bi *discs is an open-work arrangement of curving* chi-*dragons.*

strategic design breaks where they cleverly disappear so that the containment they create seems to be rendered more informal.

Then, in what appears at first sight to be a total reversal of intent but was in fact an embellishment upon the now accepted bevelled border convention, there was a dramatic innovation that freed the jade-worker from confinement within the boundaries of a given shape. The zoomorphic or botanic elements of a decorative motif burst the stern perimeter limitations which had for centuries been imposed on them since the demise of the jade crenellated flange and bird crest of the Shang/Yin period. Now the austerity of the *bi* as a stark disc with a central perforation was relieved by figures of open-work dragons climbing around within the central aperture and either extending over, or standing erect and proud upon, the level squared surface of the outer edge, with or without an association of scrolling vegetal forms. The entire effect was one of combining order and freedom. In another rare innovation composite carvings of several linked pieces, all carved from the same stone, now made an appearance (see Fig. 34) but remained limited in numbers, presumably because of the very much greater than usual difficulty of manufacture.

In addition to the above innovations of form, jade-workers responded to the extreme sumptuousness of inlaid gold and silver bronze work with an increased excellence of relief execution and high brilliance. The 'C' scroll work of the Spring and Autumn period metamorphosed gently from the soft feeling that we have seen to one of brilliant hardness and clarity. The highest level of gloss was not beyond the technical skills of the Warring States lapidary and he responded magnificently to the demand for superb glittering finishes that became a symbol of the times.

Presumably by popular demand, jade elements were also incorporated as manifestations of extreme luxury into gilt-bronze or gold decorative artefacts such as belt-hooks – either as a series of plain surface or *taotie* mask jade panels along the shank of the hook or as elongated inset plaques in curving dragon form, either with or without 'C' scroll relief work. Less commonly, elaborate belt-hooks were made of several jade pieces linked or fastened together to form a whole. Belt-hooks of jade alone followed sinuous curves of elegant delicacy that branched axially away from the central anchoring stud.

A flat curved band form of pendant with lateral dragon and phoenix excrescences appeared. On its flat body it would normally feature tadpole or 'C' scroll relief work and branching terminals with parallel striations and squared cut-off ends. These pieces normally had a large central perforation. Sometimes the animal excrescence element of this design would be 'hived off' to form a separate piece with a curved and spiked profile in a shape traditionally dubbed as a 'knot picker'.

The last major innovation of jade use for personal adornment during the Warring States period was the introduction of jade sword furniture of the highest quality. This comprised four standard pieces, as follows:

THE POMMEL

This was inserted on to the upper end of the sword handle. It was always a circular disc and the flat upper face was usually, but not always, decorated. This normally took the form of a central boss of a whirling starfish design with intermediate patches of finely worked cross-hatching, ringed with an open field usually studded with tadpole curls (see Fig. 22). Alternatively, the central boss can be surrounded, or even covered, with open-work three-dimensional dragon bodies. Another form lacks the central

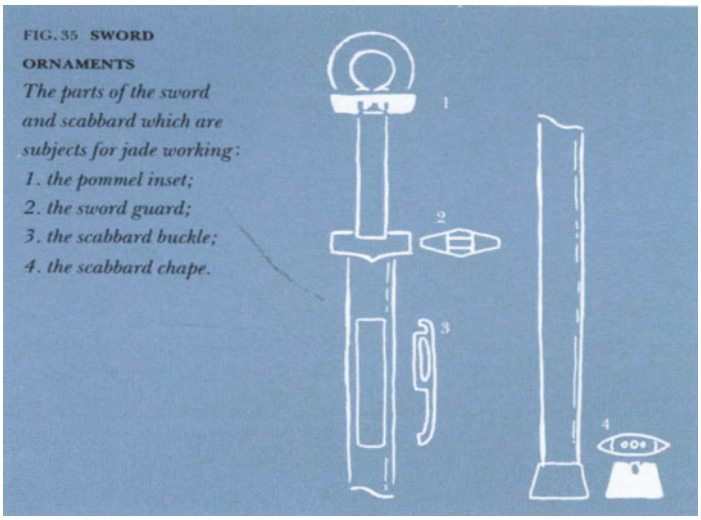


FIG. 35 **SWORD ORNAMENTS**
The parts of the sword and scabbard which are subjects for jade working:
1. the pommel inset;
2. the sword guard;
3. the scabbard buckle;
4. the scabbard chape.

FIG. 35

boss and simply features a four- or five-petal open flower in relief.

THE HILT

This object slides down the bronze handle spindle to rest up against the upper termination of the blade. It was used on both bronze and iron blades and in the latter case rust frequently caused the iron to swell over the centuries and to crack open the jade hilt. The decoration on the hilt is normally a *taotie* face in bright cut relief arranged equally across the span of the piece.

THE CHAPE

This was the finial at the end of the scabbard. Like the scabbard, it was always of a lenticular cross-section and it permitted entry of a male extension peg from the scabbard end into a special female shaft bored for the purpose into the lenticular cross-section face. By virtue of its lenticular cross-section, the chape always had two *bi*-cambered faces sloping down to an edge that was sometimes finely squared off or sometimes left sharp. These faces were always worked with decorative design in Warring States times and were most frequently enclosed by a bevelled perimeter border though later, in the Han Dynasty, they were often left plain. As with the scabbard slide, decoration was of more than one type and the following summary can be made:

a) Incised and part-hollowed spade block and curl-form relief work (see Fig. 36);

b) Tightly formed curled tadpoles, with or without tails and on a plain field;

c) High- or low-relief single or double dragons, often extending over the geometrical border of the piece. In some of these forms the extreme end of the chape, away from the scabbard attachment face, has a stepped form so that the end face is on two levels, of which advantage is taken by overlapping three-dimensional curled dragon forms.

THE SCABBARD SLIDE

This object is attached to the scabbard and is the means by which the scabbard is attached to the belt of the user, which passes through the slide. There are two basic forms of decoration of the rectangular panel forming the top face of the scabbard slide:

a) An arrangement of low-relief 'C' scrolls within longitudinal bevelled borders, bordered at the short end by a low-relief *taotie* mask that always has long striated eyebrows (see Fig. 37).

b) A formation in high or low relief of a crawling dragon, sometimes with a second, smaller, dragon across one end of the rectangular panel. In the exuberance already noted, the body of the dragon and vegetal excrescences can be found overspilling the geometric contours of the platform surface; even, in one so far unique example, featuring a monkey playfully seated astride the edge (see Fig. 38).

Sometimes the scabbard slide is formed from a reworked chape, showing a consistent acknowledgement of the value of the jade raw material and an unwillingness to waste the pieces of an already broken artefact.

The jade-worker's summit of achievement, and a convincing demonstration of his refusal to be bettered by feats in the bronze foundry, are the jade vessels that make their appearance for the first time since the Shang/Yin period. These Warring States vessels are a magnificent tour de force of the jade-worker's art, with finely hollowed bowls, thin walls and immaculately formed and finished footrims. They are emblazoned with seeming ease on the exterior with incised line, 'C' scroll relief billows or rope-twist finials. There is no clear indication that these delicate things had any actual use and the likelihood is that they served to appease a craving for luxury and visual impact and thus crowned one of the golden ages of jade and, indeed, of all Chinese art.

As we have seen, this period was one of almost total mastery over the jade medium. It was possible to produce – apparently without great technical difficulty – perfect curves, knobs, borders and bevels down to the smallest detail. Very thin slices could be worked with the utmost fineness of relief. The pinnacle of execution achieved was such that no further innovations of technique were to be necessary until the introduction of carborundum abrasives in the 19th century AD and the electrically operated drill in the 20th century.

We also see in this period the new development of formalized, three-dimensional human figures, usually with large heads and geometrically severe lines for long robes; some have elaborate open-work headdresses. The figures

are small but well-conceived and have either high- or low-gloss finishes (see Fig. 32). The human figure also appears in very finely executed flat dancer pendants, which seem to have featured as the central member of a composite pectoral formation suspended from a necklace across the chest.

Another successful three-dimensional form was the cicada. With a brilliant shine on gossamer wings and bulging, alert eyes, the insect bore an appearance of agility and life almost inconceivable in such a hard and difficult stone.

In these examples it is possible to perceive the germ of a re-emergence of representational art in jade – a trend that was soon to engulf the taste for pure luxury in its own right and take the centre stage in jade art in a broad movement basically undisturbed down to modern times.

Further forms from the Warring States period include the *bi* disc, sometimes with tadpole curl design in relief – usually with a distinct tail – but also sometimes featuring a field of zoomorphic design. This usually featured dragons, but sometimes the Black Tortoise of the North, the Red Phoenix of the South, the White Tiger of the West and the Green Dragon of the East appear, as with a slightly later piece from the Han Dynasty in the Victoria and Albert Museum. The *bi* disc is sometimes in relief and sometimes in open-work and is found in combined pendant use as part of a composite pectoral form, and also as an enclosing fastener for two halves of a textile sash passed round the body of the deceased or a container such as a burial casket.

The personal ornament category developed to embrace the dragon and phoenix pendants, usually in white jade of most refined workmanship, twisted rope-form grooved rings – usually flattened contour – and appliqué pieces such as dragon shapes for placing on lacquer or on textiles.

Qin Dynasty

221-207 BC

This period represents an entire break in dynastic progression and was constituted by the very short reign of the great Shi Huangdi. He is buried near Xi'an, in Shaanxi Province (the capital was at Xianyang in the same province). His reign saw the cataclysmic unification for the first time of what is modern-day China and of the introduction of writing, weights and measures, and bureaucratic administration, coupled with the mandatory burning of all books of law and philosophy of other states.

The period was not long enough to perceive development of any discernible style in jade but it will be very interesting to see what jade was interred with the emperor in his huge burial tumulus when it is excavated one day. In all probability jade works of his reign closely followed the styles of the late Warring States, because such styles are found in the early years of the next dynasty – Han.

FIG. 36

FIG. 36 **SCABBARD CHAPE**
Warring States period. Height: 1 5/16 in (3.3 cm). Width: 2 3/16 in (5.5 cm). A scabbard chape carved and incised on both sides with half taotie *mask designs, with the upper reduced* taotie *mask surrounded by squared hook-form motifs.*

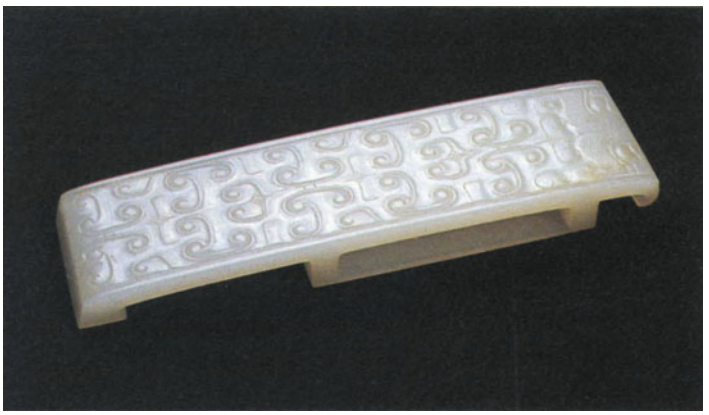


FIG. 37

FIG. 38

FIG. 37 **SCABBARD SLIDE**
Warring States period. Length: 3 3/4 in (9.5 cm). A scabbard slide in very translucent pure white nephrite with one slight patch of calcification. The overall cutting is sharp, with a very high polish on the top side. The field is formed of regular relief and incised pairs of 'C' shaped volutes: it bears a taotie *mask with bushy curving eyebrows at the shorter extension.*

FIG. 38 **MONKEY SCABBARD SLIDE**
Warring States period. Length: 1 3/8 in (6.5 cm). This scabbard slide is worked in opaque cream-white nephrite. Carved onto its face is a curving-bodied young chi-*dragon, and a small monkey is seated astride the edge in a crouching position.*

FIG. 1

FIG. 1 ***BI* WITH *TAOTIE* DESIGN**

Han Dynasty. Diameter: 7⅝ in (19.4 cm). This bi *has a well-modelled form: it is a good green stone with some strong russet markings, and is worked with an outer band of interlaced* taotie *designs around the internal grain-patterned band. There are some areas of ancient wear and distress on the edges and outer band.*

CHAPTER 4

HAN TO SONG CHINESE JADES

The Western Han to Southern Song Period

BRIAN S. McELNEY

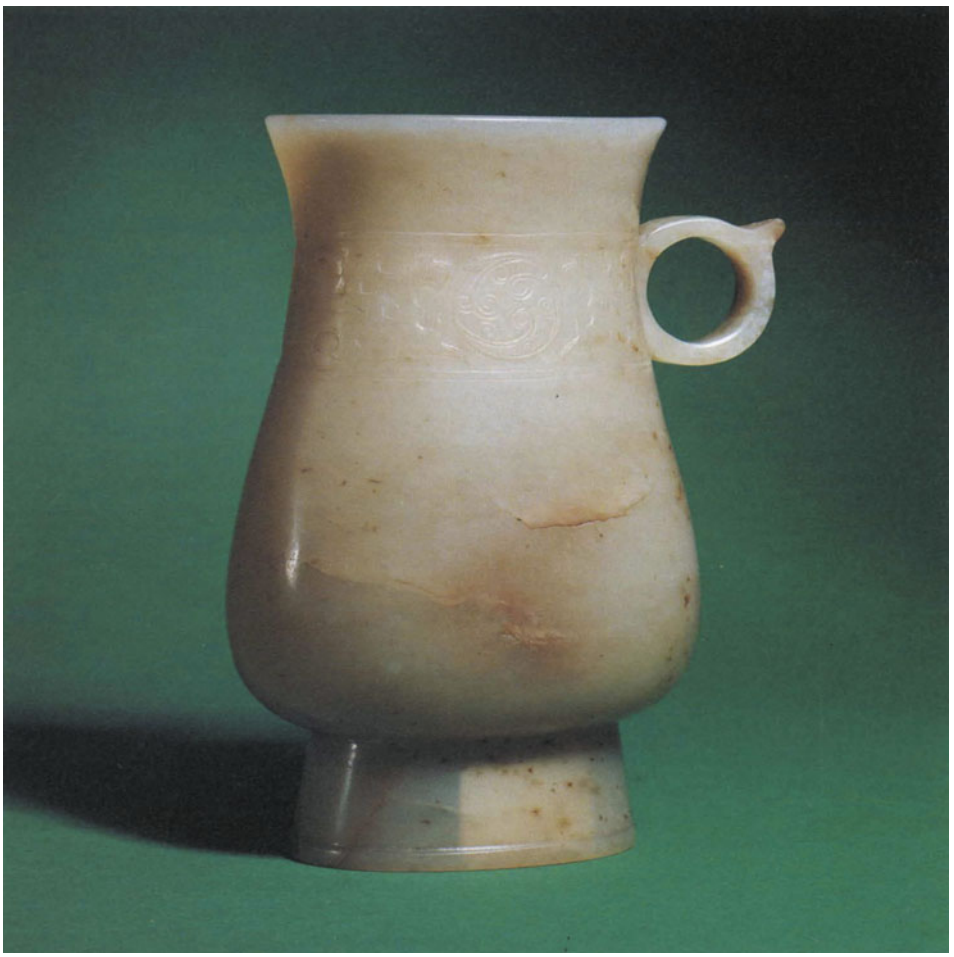


FIG. 2

FIG. 2 **RITUAL VESSEL**
Song Dynasty. Height: 6 in (15.3 cm). This rare jade ritual vessel is of archaic form, with an everted lip rim over a tall baluster body. It has a single, circular, flanged handle. The neck is carved in shallow relief with a band of stylized gui*-dragons either side of a yin yang symbol. The vessel has a single, splayed foot, and is worked in a stone of pale celadon with russet striations.*

FIG. 3 **CIRCULAR CUP (OPPOSITE)**
Northern Song Dynasty. Height: 2¾ in (7 cm). This deep, 'U'-shaped cup is worked in buff, off-white jade with russet markings. The base has a small, circular, shallow indentation, but no foot-rim.

With the exception of the Han Dynasty, from which there are quite a number of archaeological jades from documented excavations, there are very few jades from such sources for most of the long Han to Song period (206 BC to AD 1279). The traditional Chinese source of nephrite was the region around Khotan (Hetian) and its neighbour Yarkand, far to the west of Chinese-controlled territory and during this period under the direct control of tribes who were frequently hostile to China. Further, the very nomadic nature of their existence brought these tribes into violent contact with their neighbours and, in consequence, the trade in jade was subject to frequent and lengthy interruptions as a result of disturbances along the trade routes leading from Khotan to China.

The oasis of Khotan (Hetian) is bordered by the White Jade River and the Black Jade River where they flow north from the Kunlun Mountains. The Yarkand River, to the west, also brings pebbles and cobbles of jade from the mountains toward the oasis of Yarkand. The rivers, in folklore, took their names from the predominant colour of the nephrite pebbles found. The different colours in nephrite result from trace elements in the basic material, nephrite in its purest unsullied form being white or lychee flesh in colour. Throughout the period under review the jades worked were almost invariably of small size. Indeed, right up until the late Ming Dynasty, when it seems the mother lodes of these jade pebbles in the Kunlun Mountains were extensively worked, jades came exclusively from such pebbles and cobbles of any size were a great rarity.

The tribe controlling the trade routes from the Khotan region to China at the commencement of the Han Dynasty was the Xiongnu. The Han Dynasty never subjugated the Xiongnu but by means of an expedition to Ferghana in 101 BC the Han came to dominate the Central Asian area and from then on tribute exchanges including trade in jade took place between the Chinese and the Xiongnu.

However, it was not until the surrender of the Xiongnu chiefs Rizhu (in 60 BC) and Huhahanye (in 52 BC) that the Han Dynasty's dominance over the western Central Asian regions became firmly established, with an administrative officer known as the Protector-General of the Western Frontier Regions being sent by the Han court to control the area. This led to a plentiful supply of jade becoming available in China but unfortunately the Han dominance of these western frontier regions was shortlived and ended during the civil war at the end of the Western Han. It was not until the Xiongnu split into the Northern and Southern Xiongnu in AD 48 that dominance was re-established, with the Southern Xiongnu surrendering to the Han and becoming one of the minority tribes within Han territory. The Northern Xiongnu withdrew to the northwest and continued to challenge the Han for dominance of the western regions but it seems that from approximately AD 73 until the end of the Eastern Han (AD 220) the trade routes to the Khotan region remained open. For much of the Han Dynasty, therefore, jade was in plentiful supply. Thereafter the collapse of Eastern Han caused a further prolonged interruption of the trade routes to the west and seems to have resulted in relatively little jade entering China during the Six Dynasties period.

Until the religious persecutions of AD 845, the Sui and Tang dynasties encouraged trade with the rest of Asia and enabled the Chinese market to be supplied with raw jade from Khotan. In view of this it is surprising that jades from Sui and Tang excavations are few in number. However we do know from historical sources that edicts were issued forbidding the use of inferior jades for funerary purposes. The former imperial concubine Yang Guifei is said to have slept on a jade bed, to have worn only jade ornaments and to have surrounded herself with jade, so fine-quality jade must have been in fairly large supply at this time (seventh century). It is probable that the edict reinforced a change in fashion that actively discouraged jade use in burials.

The disruption of trade as a result of the religious persecutions seems to have lasted until AD 951. Jades of a rather distinctive dull brownish-grey colour with reddish veins that appear to date to the late Tang Dynasty are probably from this period, as it is hard to imagine such dull, poor-quality jade being used at a time of easy availability of better-quality jade, as would have been the case before AD 845 and after AD 951.

James Watt, at the Detroit seminar on jade in February 1981, reported that the Song historical records mention that a glut of the best-quality white jade developed in AD 951 and, as a result, the price of such jade declined to about one-third of its former cost. This glut was apparently caused by the elimination of the middle men from the jade

FIG. 3

PRINCIPAL CULTURES IN THE HAN TO SONG PERIOD

206 BC-AD 1279

Han Dynasty	206 BC-AD 220
Western Han	206 BC-AD 8
Wang Meng	AD 9-24
Eastern Han	AD 25-220
Three Kingdoms and Six Dynasties	AD 221-589
Three Kingdoms	AD 221-265
Southern and Northern	AD 265-581
Eastern Jin	AD 317-420
Northern Wei	AD 386-534/5
Eastern Wei	AD 534/5-550
Northern Qi	AD 551-577
Sui Dynasty	AD 589-618
Tang Dynasty	AD 619-907
Five Dynasties	AD 908-960
Liao Dynasty	AD 916-1125
Song Dynasty	AD 960-1279
Northern Song	AD 960-1126
Southern Song	AD 1127-1279

trade and from the stable conditions that existed along the relevant trade routes at the time. It apparently persisted until about AD 1028 when the trade was completely disrupted by disturbances along the trade routes. It seems from these historical records that little jade came into China between that date and the year AD 1077, when it was recorded that the trade routes reopened. Even then, it seems that there was a considerable problem in getting white jade of quality, and that which initially came in when the trade routes reopened was described as having brown flecks in it. The cup illustrated in Fig. 3 seems to be an example from this period. The relative abundance of jade thereafter seems to have continued with only minor interruptions for the rest of the period covered by this chapter. There is a marvellous shallow bowl of lychee-flesh coloured jade in the National Palace Museum, Taipei (dated by inscription to AD 1021), which appears to be a good example from the period of glut; the fat-tailed sheep illustrated in Fig. 23 (also of lychee-flesh colour) seems another candidate for this period.

The main colours found in Han jades are black, yellowish-white, beige with brown flecks and greyish-green. Many dealers earlier this century used to refer to black jade as Han jade, and it is perfectly true that a lot of the jades that can be dated to the Han Dynasty have black in them (see Fig. 7 for an example). While some care should be taken not to blindly equate the colour of jade with any particular period, colour certainly can be a pointer to the date. In the mid-Ming Dynasty the gazetteers of the day even questioned the very existence of the Black Jade River, which seems to lead to the conclusion that the river may well have been fished out before the mid-Ming. This lends credence to the dating of most naturally black jades to before the mid-Ming; it should be borne in mind that from the Tang Dynasty on, the colour of certain jades was changed artificially.

The techniques used for carving jade remained almost unchanged from the Han Dynasty until the end of the 18th century. It is principally for this reason that jade is so hard to date. These techniques involved the grinding or wearing down of the jade by the use of wooden rotary drills, four-handled saws and wire coated with abrasives such as crushed garnets, quartz and corundum. From the Han to Song dynasties the nephrite used all seems to have come from the Khotan region.

It is appropriate to divide the jades that are the subject of this section into six categories and to discuss each category in turn. The categories are the following: (a) ritual jades (b) burial jades (c) personal ornaments, jewellery and seals (d) sword and scabbard fittings (e) human and animal sculptures and (f) articles of domestic use. Almost all the jades that have survived from this period have been found in tombs but actual documented excavations are rare.

FIG. 4 **HORSE'S HEAD**
Han Dynasty. Height: 5 in (14 cm). This celebrated piece is a magnificent example of jade sculpture; the prominent relief work and composition combine to give it a powerful presence. Its age has been debated for some considerable time, but its dating as Han has been reinforced by recent excavations in China of pottery, bronze and wood horses with comparable styling. Finding the subject interpreted like this in jade is extremely rare.

FIG. 4

Ritual Jades

Ritual jades, which had been comparatively common since Neolithic times, were still being produced in the Han Dynasty in traditional *bi, huang* and *cong* shapes, although the quality had already declined. The most common ritual jade still in use at that time was the *bi*. The rice pattern and nipples that had been worked on such *bi* for several centuries were still in use, but by the Han Dynasty these patterns had been reduced to rather perfunctory decoration. Indeed on some *bi* the nipple decoration was achieved by the wearing away of the background by straight lines, leaving a hexagonal nipple raised above the surface (see Fig. 8). On some of the more prestigious Han Dynasty *bi*, however, elaborate outer rings of decoration are found. By the end of the Han Dynasty the use of ritual jades seems to have virtually ceased, although the use of jade *bi* may have continued for some time thereafter. A jade *bi* is even recorded as having been recovered from a tomb of the 10th century AD, but this piece was probably a survivor from a much earlier period.

Burial Jades

As has already been explained, almost all jades from this period have come from burials but this category is intended to be confined to the jades that were specifically made in connection with the burial. Included therefore are the plain,

FIG. 5 **DANCING BEAR**
Han Dynasty. Height: 5/8 in (1.5 cm). A tiny circular plaque in the form of a curling bear, in a contemporary, distressed bronze mount. This rare and fine jade succeeds dramatically despite its minute size, containing detail and having a sculptural quality. The Han period saw an exciting flowering of such naturalism, and the bear was a popular subject in jade, bronze and pottery.

FIG. 5

FIG. 6 **STYLIZED PIG**
Eastern Han Dynasty. Length: 6 in (15 cm). A pig of slender form in the Han Eight Cut style. The surface is chiselled and sculpted with detail to the face, and the stone is a pale celadon green jade. These pigs are also sometimes found with perforations. They were made to place in the hands of the dead, in their tombs.

FIG. 7 **SWAY-BACK PIG**
Six Dynasties. Length: 2½ in (6.35 cm). The elements of the pig are well defined and emphasized, and the piece combines a strong sculptural pose with well-employed natural features. The stone is a cream-brown tone with black patches.

thin plaques of jade sewn together at the corners to form burial suits that are well known from Han Dynasty burials, and the jade plugs that were inserted in the body orifices such as the ears, nose and eyes. Some of these plugs were quite elaborately decorated but most are plain. In addition to the plaques and plugs two other items are included in this category, namely the cicada *tsan,* which was placed on the tongue of the deceased, and the jade pigs, *wa,* which were frequently placed in the hands or armpits.

By the time of the Han Dynasty there seems to have been a belief that jade was possessed of some magical property, which helped to preserve the body, and this was apparently the reason for the jade burial suits.

The thread used for sewing together the plaques to form the jade suit was made of gold only in the Western Han; in the Eastern Han, gold, gilded copper, silver or copper thread seem to have been used, depending upon the grade of noble being entombed. The plugging of the orifices was also apparently thought to prevent the soul from escaping from the body.

The fall of the Eastern Han and the succeeding time of troubles led to the abandonment of the use of jade suits and these are not found following the Han Dynasty, but jade pigs, which became common in the Eastern Han, continued in use as burial jades during the Six Dynasties period. This is clear from documented excavations and from literary sources such as the *Yan Shi Jia Xun*, where Yan Zhidui criticized the use of jade pigs by his family. However, the Six Dynasties jade pigs are increasingly substituted by pigs made of stone. These jade pigs (see the example illustrated in Fig. 7) tend to be smaller and somewhat more naturalistic than those of the Eastern Han (see Fig. 6). The placing of cicadas on the tongue, which had started in the Warring States period, also continued in use for some time but this

FIG. 6

FIG. 7

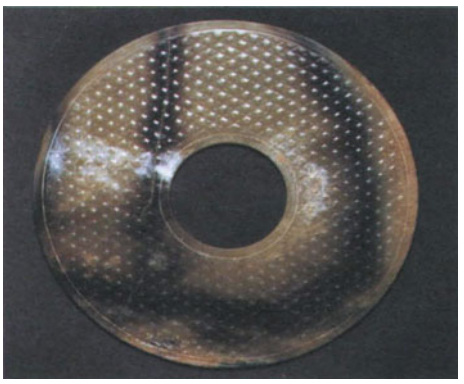


FIG. 8

FIG. 8 ***BI* IN PLAIN FORM**
Han Dynasty. Diameter: 6¾ in (17 cm). This bi, *from the Simon Kwan Collection, is a classic example of the type: in plain form, the surface worked with an overall raised nipple design. The stone has a green tone with markings.*

FIG. 9 **BIRD FINIAL**
Ming Dynasty or earlier. Width: 2⅜ in (6 cm). A finial in the form of a bird. The bird has a humanoid head with a diadem and humanoid arms and fists. The stone is a pale celadon green with grey and brown markings.

FIG. 9

FIG. 10

FIG. 11

FIG. 10 **COCKATOO PENDANT PLAQUE**
Northern Song/Liao Dynasties. Length: 3⅜ in (8.6 cm). A pendant pierced for suspension. The brown-flecked buff stone is decorated with two cockatoo-like birds with interlocking tails and short wings, and additionally features seven tubes embellished with back-to-back 'C' decoration. The reverse is worked with 'C' and 'S' scrolls.

FIG. 11 **PENDANT**
Song Dynasty. Length: 2⅛ in (5.4 cm). A fine pendant worked in the shape of a sinuous bifid mythical animal with bird-like head. The details are very finely incised; the piece is very much in the manner of earlier archaic examples but more sophisticated.

custom gradually seems to have died out in the Six Dynasties period, along with the use of jade pigs.

In the Eastern Han Dynasty these pigs and cicadas were made in a highly stylized manner that does not seem to have survived the dynasty. The style, called 'Han Eight Cut' or *Han badao*, is seldom used other than for cicadas (which, when carved in this style, are generally called *Sandar char* or 'Three Cut Cicada') and for pigs, except for the type of human amulets mentioned below. However, a rabbit also carved in this style is known. The most famous example of the *Han badao* style is the large horse head in the Victoria and Albert Museum in London (see Fig. 4).

Personal Ornaments, Jewellery and Seals

This wide category covers articles of personal use such as seals, garment- and belt-hooks, belt plaques, hat ornaments, garment-rings and jangles, comb-tops, earrings and similar objects. Jade or jade-inlaid belts and garment-hooks, garment-rings and bangles seem to have come into use in the Warring States period. Belt- and garment-hooks appear to have been introduced into China from the tribes of Central Asia and many fine Warring States examples exist. Garment-rings and pendants go back at least to the fifth century BC, when one philosopher is known to have criticized the *nouveau riche* of the time for going round 'clanking their jades'.

Such belt- and garment-hooks and garment-rings made of jade, or agate and jade-inlaid bronze, exist in considerable numbers dating from the Warring States period and Han Dynasty. The use of belt- and garment-hooks made of or inlaid with jade may have continued, but surprisingly an example from datable excavations of the Six Dynasties and Tang periods has not been found and it is possible they went out of fashion. What is certain, however, is that such hooks were made in considerable numbers in the Song and Yuan periods when hooks in designs similar to those found in the Han Dynasty are known. Literary sources from the Song Dynasty record the giving of a belt-hook with a realistic praying mantis head, which seems to be a new animal design of this period. Floral decoration of such hooks seems also to have been an innovation of the later period. Indeed, representations of floral and plant life in jade seldom occur before or in the Tang Dynasty save as subsidiary decoration and as a main decoration they seem to have been an innovation of the Liao and Song dynasties. The revival of the use of the old Han animal designs in the Song and Yuan dynasties makes the differentiation of the earlier belt- and garment-hooks from those of the Song and Yuan periods particularly difficult. Some of the earlier

hooks, however, are asymmetric, a feature which is not found in later periods. Hairpins and comb-tops are also known from the Tang and Song dynasties. Designs such as ducks, phoenixes, apsaras and human figures are found on such comb-tops.

Jade and agate belt plaques and various fittings, such as for the suspension of purses, appear to have first come into use in the Tang Dynasty (see Fig. 12), and by the late Tang it is known that the sumptuary decrees of the time were confining the use of jade belt plaques to the higher grades of mandarin. These regulations, as with most such laws, seem to be notable more in their breach. During the Tang Dynasty, and thereafter up to the 11th century, such plaques were solid and square or rectangular in shape, such as those found in the tomb of Wang Jian King of Former Shu who died in AD 918. These are decorated with sinuous distinctive dragons with a long snout and a leg crossing over the tail. A cast-iron statue of Wang Jian at Chengdu, dated a few years prior to his death, shows him wearing the belt with the plaques affixed to the back. Sets of similar plaques in jade and agate depicting Sassanian musicians are in the Metropolitan Museum of Art in New York and in the British Museum in London, respectively. By about the mid-11th century teardrop-shaped plaques were added to the repertoire. Such plaques are from then on sometimes carved in open-work, as shown by the discovery in a mid-Liao tomb excavation of an open-work plaque depicting two birds in flight with the tips of their wings almost touching the head ('saluting wings') in typical

FIG. 12 **THREE LOBED BELT-FITTINGS**
Tang Dynasty. A set of three lobed belt-fittings in pale green-white jade. The longest (2⅞ in/ 4.76 cm) is a belt tang *with a gilt bronze striding lion appliqué: it has a gilt bronze backing which still pins remnants of ancient fabric between itself and the jade. The other pieces are a pair, with slits which were probably for the suspension of a purse, each 1⅛ in (2.85 cm).*

FIG. 13 **BUTTERFLY-FORM PENDANT**
Tang Dynasty. This form is typical of the Tang period. This example, from the Simon Kwan Collection, is worked over with designs of parrot-like birds and pierced for suspension.

FIG. 12

FIG. 13

FIG. 14

FIG. 14 *Map showing the approximate boundaries of the cultural periods and dynasties of the Song era.*

late Tang style, the whole surrounded by a circular pearl-shaped border, the jade pearl shapes having a concave surface. This lychee-flesh-coloured plaque is now in the Palace Museum in Beijing. Jade belt fittings such as buckles, *tangs* to thread the belt, and rings from which to suspend purses or other appendages are known from Tang, Liao, Jin and Yuan finds.

Other types of personal ornament known from the Tang, Liao and Song periods include pendants such as the jade in fish shape known from literary sources to have been worn by Yang Guifei in the Tang Dynasty (seventh century), and a pendant with a bird design (Fig. 13) from the late Tang. A pendant with parrot-like birds with interlocking tails similar to those found on 10th-century ceramics, with wing tips almost touching the head similar to the Liao plaque referred to before, is shown in Fig. 10. This pendant has on its back a pattern of 'C' and 'S' scrolls, similar to patterns found on jades of the late Warring States period. This design is also commonly found on Song and Liao pieces copying old patterns.

Hat badges in the form of birds with human breasts and hands sometimes holding a mirror (a Manichaean origin has been suggested for this motif) are known from the Tang to the early Ming period. Elaborate finials with birds amid foliage, possibly for topping a hat, are known from the Liao, Song, Jin and Ming; the Song and Jin were particularly famous for this type of work and the Song in particular was renowned for the deliberate use of colours naturally present in the pebble to aid this design. The most common design seems to have involved ducks or geese flying through lotus. The northern dynasties Liao and Jin added to this basic design a small hawk attacking or preparing to attack the much larger waterfowl (see Fig. 16). This combination seems to have been emblematic of spring. While ducks or geese amid foliage continued as a popular design in the Yuan and Ming the hawk is not found in these later examples. Over the same time-span, plaques in open-work showing deer amid autumn trees are known, though less common. The orange skin of the pebble is used for the leaves of the trees, and this design seems to have been emblematic of autumn.

The type of open-work involved in these designs seems to have been an innovation of the Liao or Jin period. The relatively sudden appearance of such open-work probably resulted from improved techniques for carving jade, which must have been introduced at this time.

From the Song Dynasty on into the Ming, chignons for the hair are known (see Fig. 15). Their use after the Ming Dynasty would have been unlikely because of the obligation of all the Qing emperor's subjects to display a pigtail.

Occasionally jade was used for seals in the Han Dynasty. These were square in shape with an animal such as a *chi*-dragon or tortoise on top, though sometimes a plain arched handle is seen.

FIG. 15

FIG. 15 **HAIR ORNAMENT** *Five Dynasties/Northern Song. Length: 2¼ in (5.7 cm). The concave surface is worked with rounded ribs, and the sides are pierced to take a hairpin. James Watt states that such hair ornaments were widely used in the later Yuan and Ming periods as fashionable 'antique' revivals of the Song.*

FIG. 16 **FINIAL WITH BIRDS AND FOLIAGE** *Liao/Jin Dynasties. Length: 1⅞ in (4.75 cm). This reticulated finial, worked in white jade, features a scene of two geese or ducks sheltering in lotus while being attacked by a hawk. The piece is pierced in four places for attachment.*

FIG. 16

Sword and Scabbard Fittings

Sword and scabbard fittings comprise the sword pommel, the chape at the end of the scabbard, the sword guard at the top of the blade, the sword slide and its accompanying reverse fitting (the latter being sometimes referred to as a girdle-clasp) that were normally bound into the scabbard (usually made of wood or lacquer), and the circular ring that served as a toggle between the belt and the scabbard (see Figs. 17, 18, 19 and 20).

The use of jade for sword and scabbard fittings started in the Warring States period and continued throughout the Han Dynasty and into the succeeding Six Dynasties period. Many of these sword and scabbard fittings, particularly in the Han Dynasty, were beautifully carved.

The most important of these fittings and, with the pommel, also the most common, is the so-called sword slide, which is bound into the scabbard with the inner surface of its rectangular lower section level with the surface of the scabbard and the long tail section facing in the direction of the pommel. The flat bottom surface of the slide, which is sunk within the scabbard, is seldom polished more than superficially on the genuine slides and when placed on the level both ends of the slide should be elevated by at least the depth of the lower bar. There are frequently traces of iron or bronze and signs of considerable wear in the lower section. All of these factors point toward the authenticity of the slides. Sword slides have been extensively copied ever since Song times, but by this period their method of use does not seem to have been fully understood and the copies are normally revealed by lack of wear, the even polish on the top and bottom, or the extensions of the ends of the slides down to the level of the base of the bottom bar.

The sword guard, chape, toggle ring and the reverse fitting to the slide are the least commonly found of the sword and scabbard fittings. The pommels are normally circular jades with decoration on the top and a deep circular incision on their base for insertion on the top of the bronze sword, surrounded by several holes to allow for attachment of the pommel to the sword. The chape at the end of the scabbard normally consists of a roughly rectangular flat, thick jade piece tapering slightly toward the base with two incisions in the top for affixing to the scabbard end. The chape is generally decorated in low relief but in the Han sometimes has *chi*-dragons in high relief. The scabbard slides can also be highly decorated, particularly in the Han Dynasty, with *chi*-dragons being a frequent feature. The Warring States slides seem to have been less highly decorated. The reverse fitting or girdle clasp (bound into the scabbard in the same way as the slide and similarly less polished on the bottom), is not as prominently displayed and is seldom highly decorated; its position would also rule

FIG. 17

FIG. 18

FIG. 19

FIG. 17 **TOGGLE RING**
Outer diamter: 1⅝ in (4.24 cm). A plain, circular ring of greyish jade with brown flecks.

FIG. 18 **SWORD SCABBARD CHAPE**
Western Han Dynasty. Length: 2⅛ in (5.4 cm). Decorated on one side with a long-necked chi-*dragon with its body addorsed and a long spiralling tail; a small bear-like creature has one foot in the dragon's mouth.*

FIG. 19 **SWORD SCABBARD FITTING**
Western Han Dynasty. Length: 2⅛ in (5.4 cm). A reverse fitting for a sword scabbard of elongated 'D' section. It is decorated with an addorsed monster which has a taotie *at one end and a tail at the other.*

FIG. 20 **SWORD SLIDE**
Western Han Dynasty. Length: 2¾ in (7.1 cm). Decorated with two confronting chi-*dragons in high relief: the long end is unusually pierced to allow the suspension of further decorations.*

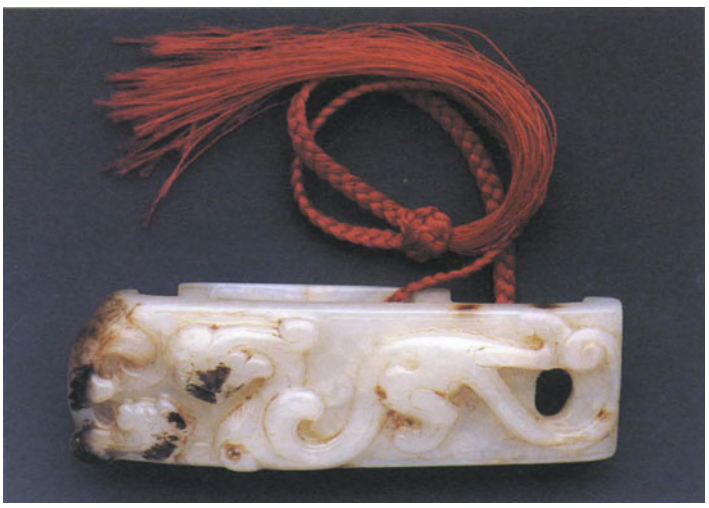


FIG. 20

out high relief ornamentation, which would tend to snag on the wearer's garments.

The favoured decoration of *chi*-dragons on such slides is quite distinctive during the Han Dynasty, with the *chi*-dragon frequently having the long neck in a spring-like coil. Great attention is always paid to ensuring that all the claws of the *chi*-dragons and other animals are shown either in high relief or indicated by incisions on the piece.

The toggle ring is, it seems, always plain, as in the example shown (Fig. 17). Similar rings, however, were used for centuries by monks as garment toggles and it is difficult to distinguish between them. The toggle rings seem to have more body than the flat thin rings worn by monks, probably their distinguishing characteristic.

The use of jade for scabbard and sword fittings continued into the Six Dynasties but with the shortage of jade in that period there seems to have been an increasing use of substitute materials such as gilt bronze. It is thought, however, that production of these types of sword and scabbard fittings did not continue into the Tang Dynasty. Apparently the type of bronze or iron sword with which these types of fittings were associated also went out of use at some time during the Six Dynasties period.

Human and Animal Sculpture

Animal sculptures in silhouette continued into the Han from previous periods but are not normally found thereafter except as copies of earlier pieces. Sculpture in the round (mostly of animals), which were rare in earlier periods, became comparatively common in the Han Dynasty and continued throughout the period covered by this chapter. There are several examples from controlled excavations of Han tombs that help to date many other jade objects. One of the characteristics of most of these Han Dynasty carvings is that the animals have totally flat undecorated bases and this feature, while not universal, seems to have persisted on many jade animal carvings right up until approximately the end of the Yuan period. From jade and bronze animals excavated we know that many of the animals dating from the Han period had long necks (frequently coiled and spring-like), very simple slashes for the ears, and gaping mouths and feet, characteristically all in one straight line or in two groupings of two feet each. The types of animals found seem to be generally bears with exaggerated manes, eagles, horses, lions, tigers and other felines, and mythical *chi*-dragons, *bixie* and *qilin*.

One of the characteristics of all these animals seems to be that there was a great emphasis in the Han Dynasty on the depiction of wild animals in all their ferocity with subjects such as fighting tigers, eagles and bears being typical. If all the feet or claws are not shown in high relief, then there will be incisions in the appropriate places. Another feature of the Han jade animal carvings is the very fine lines found on some animals to indicate hair. This is very distinctive and is found on the famous Western Han jade spirit figure riding a horse. This feature is to be seen on a number of other jade animals that also appear to date from the Han Dynasty, and is also found on bronze animals that could date from the same period or slightly later. This feature may therefore also continue in use on jade animals into the Six Dynasties period.

In the later Eastern Han the felines and mythical animals are sometimes carved in a menacing posture with one foot forward, as if just about to pounce. This distinctive posture became very popular in the Six Dynasties period as is demonstrated by the sculptures of mythical animals that line the spirit avenues leading to the tombs of some of the emperors and princes of the time in the area of Nanjing and Dunyang. The animal sculptures of this period generally seem to have wings or other projections protruding from their bodies. Unfortunately, from the late Northern Song period to the end of the Ming Dynasty there was a great interest in the jades of former periods, including the Han and the Six Dynasties periods, and with our present knowledge it is very difficult to separate the older animal pieces from the archaistic copies made during this later period. However, a certain rigidity and a tendency to skimp on the work are indications of the later period. By late Ming many of the copies had become quite crude.

The supply of the valuable jade raw material substantially increased from the Sui period on (with the exception of the periods AD 845–951 and AD 1028–1077 mentioned above) and animals carved in the round out of pebbles from Khotan became relatively common, continuing almost without interruption until the end of the Song Dynasty. The following points are relevant to animal sculpture:

1 Throughout most of this period (other than during the period from the mid-Northern Song to the end of the Ming, during which time the sculpture of mythical animals was revived in a deliberate attempt to revive old styles) most of the animals that were the subject of jade sculptures were taken from the natural world. The exceptions were dragons and phoenixes, which still continued to be produced in jade throughout the whole period. In the Song period, animals such as geese, ducks, bulls, horses, dogs, praying mantis, deer, rams and fat-tailed sheep were carved with great attention to getting the animals anatomically correct, extending even to the specific depiction of their sexual organs. These features would not have been the subject of explicit depiction in earlier periods, nor in later periods unless a deliberate copy of a Song original.

FIG. 21

FIG. 21 **HORSE**
Song/Ming Dynasties. Length: 1 9/16 in (4 cm). The figure is very small, but well-observed: it contains a great deal of sculptural strength for its size. The head is raised, as is its tail, and the mane and features are nicely defined and incised. The stone has a good mottled-grey and light tan tone.

FIG. 22

FIG. 22 **TIGER**
Western Han Dynasty. Width: 1 11/16 in (4.25 cm). A figure of a tiger or wild-cat in a recumbent posture, head raised, mouth open, and teeth bared. Its feet sit all in one line with the claws prominently shown, and the tail curls over its back. The stone has a dark, green-brown tone with black veins and patches.

FIG. 23

FIG. 23 **FAT-TAILED RAM**
Early Northern Song Dynasty. Length: 3 in (7.5 cm). The ram is in a recumbent pose with its head erect; its features are finely sculpted and detailed. The stone has a white lychee-flesh tone.

FIG. 24

FIG. 24 **PRAYING MANTIS**
Southern Song Dynasty. Length: 2 1/8 in (5.4 cm). A well-observed, realistically rendered figure of a female praying mantis worked in grey-brown jade with markings. The pose is recumbent, with the legs curled before the body.

FIG. 25

FIG. 25 **STAFF-FINIAL**
Song/Ming Dynasties. Length: 4 1/3 in (11 cm). The finial is in the form of a bird, the feathers and plumage nicely incised and defined. The stone has a green-yellow tone with reddish-brown markings. The bird was a very popular subject for Song and Ming jade workers.

FIG. 26

FIG. 27

FIG. 26 **HORSE**
Southern Song Dynasty. Length: 3 in (7.6 cm). A naturalistically modelled figure of a crouching or resting horse. The stone has a pale mutton-fat tone with brown markings.

FIG. 27 **CAMEL**
Tang Dynasty. Length: 2 3/4 in (7 cm). A crouching or resting Bactrian camel. Its head stretches forward on the ground over a plain flat base. The stone has a yellowish grey-green tone with brown markings.

2 In the Tang Dynasty, great emphasis was made on the depiction of the muscles of the animal concerned. This feature did continue into later periods, but is less pronounced. A further feature of the Tang Dynasty was the tendency to bend the legs of the animals to accommodate them into the shape of the pebble – for example, horses on their backs with the legs bent over. Early jade horses frequently show a knotted tail, a feature that first occurs in some of the horses in the pottery army attending the tomb of Qin Shi Huangdi (210 BC) and continues in Tang pottery horses and thereafter up to and including the Yuan Dynasty. The horses that form part of the spirit avenue leading to the tombs of the Southern Song kings near Nanjing also have a feature that occurs in jade – namely, that their heads are out of proportion. This is an important feature of the horses of the Southern Song period. Both the knotted tail and the small head are also a noticeable feature in Song and Yuan paintings. In contrast to the fighting animals of the Han, the Tang and Song animals were frequently depicted at rest with slumped heads.

3 Tang jade animals, in essence, mostly follow Tang animal sculptures found in other media such as bronze, gilt bronze, marble or ceramics, with such subjects as a dog scratching its ear, a horse biting its rear hoof and a deer with crested protrusion, being popular. Another Tang tendency seems to have been the bending of one of the front legs of the animals, as if the animal was in the process of getting up. Freestanding animals in jade, using as they would a much larger pebble, are almost unknown throughout the whole period. The only pieces known are the Western Han spirit figure on horseback and the spirit figure on chimera and boar now in the Sackler Collection in Washington, D.C.

4 Another feature of animals that appears to date from the Song period is the carving of the face in planes. A good example of this is on the Northern Song fat-tailed sheep (Fig. 23). This sheep first became popular as a food animal in the Tang period and its popularity continued into the Northern Song; the tail was apparently considered a delicacy.

Many animals that seem to be assignable to the period from the Tang to Yuan show a considerable amount of fine work. Their backs are strongly moulded with prominent vertebrae and manes; tails and tufts of hair are finely incised. The same features appear on bronze animals of the period.

Human figures, which are rare in Han jades, appear to follow ceramic or bronze models found in tombs. The mourner shown in Fig. 28 is of the same distinctive colour and type of stone as was used for the large and extensively published Western Han *taotie* mask knocker found in 1974 at Xingding, Shanxi Province. Another human figure

FIG. 28

FIG. 29

FIG. 28 **MOURNER**
Eastern Han Dynasty. Height: 3 in (7.6 cm). Figures are rare for this period: a pose such as this would more commonly be found on a ceramic object. The seated man is enveloped in a long robe, his hands held unusually and his face bearing a grimace. The stone has areas of ageing.

FIG. 29 **ASTRAGAL PENDANT**
Liao/Jin Dynasties. Length: 1 3/16 in (3 cm). An astragal is the natural form of an ankle joint. Such examples were used for gambling and for children's games, and have also been found in tombs in southern Siberia and inner Mongolia.

occasionally found in the Han Dynasty is a bearded old man with arms folded in a long-sleeved gown, simply carved with great economy in style similar to the 'Han Eight Cut' already discussed. While such figures, one of which is illustrated in Fig. 30, have been well known for many years, none has been recorded from controlled excavations until recently, when a fine example was found in the tomb of a king of Nanyue who died in the Western Han Dynasty. This type of figure should be strung from the head through the sleeves in an inverted 'Y' as shown in the piece illustrated and not through the body of the piece. Many copies of such figures have been made in the last hundred or so years, but generally they are wrongly perforated and strung right through the body from top to bottom. Other human figures of the Han Dynasty include dancers with long bustling trains or scarves.

There are a number of figures carved in the round dating from the Six Dynasties period. These have pronounced hips and breasts, and some have wings in the place of arms. From the Tang Dynasty on, there are grooms and tribute bearers generally dressed in distinctly foreign style, sometimes with cloaks, curly hair, earrings and coronets. From the Song period there are boys carrying lotus leaves. Such boy figures, called Mo-hou-lo, are apparently associated with the Qixi festival held on the seventh day of the seventh moon. This festival was popular in the Song and Yuan dynasties and Mo-hou-lo figures in jade are even mentioned in one of the popular stories of the Yuan period. Throughout the period covered by this chapter, however, jade representations of humans carved in the round were relatively uncommon.

Articles of Domestic Use

Throughout most, if not all, of Chinese history, jade has been considered inherently valuable. Accordingly the high nobles who could afford jade had everyday utensils made from it. Because of the relatively large size of the pebble that would be necessary to make such vessels and the consequent expense involved, jade vessels dating prior to the Ming have always been rare; vessels in bronze, lacquer or celadon ceramics imitating jade were more commonly found. However, dating from the Han period, jade vessels have been found in bronze, lacquer and pottery shapes such as earred cups and *lien*. The Han histories also record that pitch pipes for the tuning of musical instruments were made out of jade, although a decree in the 1st year of Wang Meng, 9 BC, banned the use of jade for this purpose. A pitch pipe which has a faint inscription dating it to 122 BC is known. From its yellowish-white colour with brown flecks, its writing style and in view of the said decree, this piece

FIG. 30 **OLD MAN**
Western Han Dynasty. Height: 3 in (7.6 cm). This pendant is in the form of a stylized, bearded old man: he wears a long-sleeved gown belted at the back. The whole is defined by incision and plain modelling. The stone has a pale white-green tone with orangey-brown markings.

FIG. 30

FIG. 31 **LOBED CUP**
Late Tang/Liao Dynasties. Length: 3¼ in (8.25 cm). Height: 1 in (2.5 cm). A lobed, footed cup, the design echoing metal forms from earlier periods. The bowl is plain, and the foot domed. The stone has a pale celadon green tone.

FIG. 31

probably does date from the Western Han. Sauce bowl-shaped containers from the Han and Song are also known and other shapes such as libation cups in jade in the form of three horizontal lobes as shown in Fig. 31 have been excavated from the foundations of a pagoda dated to the late Tang Dynasty. This latter shape is familiar from Tang and Liao silver and ceramics. In addition to the bowls, cups and vessels mentioned, saucers in the shape of bracketed lacquer pieces (probably ultimately derived from metal originals) are known from the Song period on.

Vases and other items made of jade in designs originating in the Warring States period or Han Dynasty also seem to have become popular in the later Song and Yuan periods, following the publication of many pictorial reports of antique objects. The manufacture of such archaistic pieces seems to have commenced in the late Northern Song period and to have continued almost without interruption until the late Ming. It can be extremely difficult to determine the correct period to which these archaistic pieces should be assigned. There are, however, some outstanding examples that are beautifully hollowed out, frequently with a *chi*-dragon biting the rim of the vessel and serving as the vessel's handle. A great deal of work has been done on these pieces,

FIG. 32

FIG. 32 **BIRD CUP**
Song Dynasty. Height: 1¼ in (3.25 cm). A fine vessel in the form of a bird, the whole well-hollowed, the outer surface well-detailed. The stone is of a pale white tone with russet markings. This form is based on a type of fourth-century bronze.

FIG. 33

FIG. 33 ***ZHI* VASE**
Song Dynasty. Height: 5¼ in (13.2 cm). This fine vase of archaic zhi *form has a flared mouth above a plain neck and pear-shaped body. The shoulder bears a band of interlaced* leiwen *(thunder pattern) design over a subtly defined pendant leaf band. The hollow base is plain, with a low relief head to the exterior. From a period in China's history when an interest in the past manifested itself both in the collection of pieces from previous eras, and in the incorporation of elements of archaic design into contemporary objects.*

FIG. 34 **BIRD WITH SPREADING TAIL**
Tang Dynasty. Length: 3 in (7.5 cm). This fine jade is well-proportioned, rounded, and worked: the additional decoration consists of archaistic scrolls. The stone has a beautiful mellow green tone with brown markings. The figure of a bird with abundant tail plumage was a popular subject for use on the reverse of Tang mirrors.

FIG. 34

which are thought to date to the Southern Song or Yuan periods. By the late Ming, these archaistic pieces become rather coarse and are poorly hollowed out. Fig. 32 shows a cup in the shape of a bird with its beak forming the handle of the cup; the hollowing-out of this piece is exceptionally good and the carving probably warrants a pre-Ming date. The type of vessel in question is typical of those being produced in bronze in the third or fourth century BC, but this particular vessel is likely to be of the late Southern Song or Yuan dynasties.

Vases such as arrow vases and plain vases in the shapes of Longquan celadons and bowls closely reproducing the shapes of Junyao bowls are known in jade of various colours. In particular a dark greenish colour with large brown or blackish patches and a brownish-grey or buff jade with black or brown flecks are known; these pieces must be roughly contemporary with their ceramic counterparts, namely 11th- to 14th-century.

Two other categories of jade should also be mentioned here. The first is the jade flowers that have been found in tombs from those areas of China under the sovereignty of the Jin Dynasty. The early flowers are comparatively plain and are normally of six-petalled shapes. This is in interesting contrast to ceramics, where three- and five-petalled shapes first appeared in the 10th century prior to the six-petalled shapes, the five-petalled form later reappearing in the Yuan Dynasty. This reversal confirms the relatively late arrival of such jade flowers on the artistic scene. These white jade flowers seem to have been used for garment decoration, in particular for veils. The use of such flowers continues into the Yuan Dynasty, from which period five-petalled flowers and six-petalled composite flower designs have been archaeologically excavated. In the succeeding Ming and Qing periods the early designs seem to become more elaborate as time goes on, with the addition of birds by the Ming and even butterflies and boys by the Qing. Also found in tombs dating to the Liao and Jin dynasties are astragals in jade. These were in the shape of single or double knucklebones of sheep and were probably used for some form of game, casting lots or divination.

FIG. 1

FIG. 1 **FEMALE IMMORTAL** *17th/18th-century. Height: 6 in (15 cm). A fine group with the female immortal holding a peach, and her robe swirling around her as she turns towards a recumbent deer holding a* lingzhi *spray in its mouth. Well-sculptured in the round, the whole combines fittingly with the pale green tone and its enhancing russet markings. The peach and* lingzhi *fungus are beneficial long-life symbols.*

CHAPTER 5

THE GLORIOUS AGE OF CHINESE JADES

The Yuan, Ming and Qing Dynasties

YANG BODA

FIG. 2

FIG. 2 **ELEPHANT**
Late Ming Dynasty (17th-century). Length: 5⅛ in (13 cm). A fine jade figure of an elephant, the whole well-modelled and boldly sculptured and incised. The animal turns with its head and trunk to one side, and the stone is coloured in various tones of mutton-fat, dark brown and orange-brown. This example succeeds in the use of the natural form, its strength allied to the robustness of the sculptural work. It is totally different in its conception to the more formal elephants of the 18th century.

Beijing was at one time or another the capital city of the Yuan, Ming and Qing dynasties, each of which left a great legacy rich in jades and art. The majority of historical material indicates that the trend in jade art during this period was gradually to turn away from the characteristics typical of the Song and Jin periods – a combination of outer form and inner beauty – and eventually to shift the emphasis to craftsmanship, decoration and commercialization, largely ignoring the content and image of the objects. It was a time of economic prosperity and cultural enrichment, and a fashion for collecting ancient jades began to spread through the large- and medium-sized towns. This in turn stimulated the craft of jade carving, in particular encouraging the manufacture and collection of reproduction pieces.

The Yuan, Ming and Qing dynasties were indeed a glorious age in the history of Chinese jades; the period is regarded as a turning point from the middle to the late period, and as such it deserves careful research and accurate evaluation. However, a closer look at these separate dynasties reveals many differences determined by the diverse backgrounds and cultural conditions pertaining to each. These differences are reflected in the jade art and, as jades of different dynasties had their respective and various social functions, their positions in the history of Chinese jade art should be evaluated accordingly. It is therefore essential to analyse the differing social characteristics of the three dynasties in order to understand more fully the whole pattern of the development of jade art, and thereby add to the scientific research, collection and appreciation of jades.

PRINCIPAL JADE-USING CULTURES IN THE YUAN, MING AND QING PERIODS

AD 1271-1911

Yuan Dynasty	AD 1271-1367
Ming Dynasty	AD 1368-1644
Hongwu to Tianshun (Early Ming)	AD 1368-1464
Chenghua to Mid-Jiaqing (Mid Ming)	AD 1465-1544
Mid Jiaqing to Chongzhen (Late Ming)	AD 1545-1644
Qing Dynasty	AD 1644-1911
Shunzhi to Qianlong	AD 1644-1759
25th year of Qianlong to 17th year of Jiaqing	AD 1760-1812
18th year of Jiaqing to Xianfeng	AD 1813-1861
Tongzhi to 3rd year of Xuantong (Late Qing)	AD 1862-1911

FIG. 3

FIG. 3 **MYTHICAL BEAST WITH CURLING TAIL** *Ming Dynasty. Length: 3⅛ in (8 cm). A mythical beast in a crouching posture, its tail curling to the side. The stone has a pale green tone with brown markings. This jade succeeds in many ways: the colour tones and unusual low-relief carving perfectly complement the comical expression and pose of the animal which is very much alive and playful.*

FIG. 4 *Map showing approximate boundaries of dynasties of Yuan, Ming and Qing periods.*

FIG. 4

NEW ART IN THE JADES OF THE YUAN DYNASTY

FIG. 5

FIG. 5 **BOWL WITH SEA CREATURES**
Yuan Dynasty. A superb bowl of massive proportions, decorated in high relief with dragons and other sea creatures disporting amidst waves. The stone has a white and black tone. This jade is a superb example of the jade worker's art. After it was rescued by the Emperor Qianlong from a temple where it was being used to contain vegetables, he had poems inscribed in its interior.

The Yuan Dynasty was a strong empire founded by the Mongols, who ruled their subjects with military force and racial suppression. When the Mongol took over the Central Plains, they killed a large part of the population with the exception of the skilled craftsmen. Indeed, the Han Chinese were allowed to live only in order that they might be exploited. The population was divided into four ranks: Mongol, Semu (minority peoples from the Western border), Han and Southerners, of which the Han and the Southerners were slaves by law.

The Mongols used religion, cruelty and primitive methods of repression to demoralize the people and rule the country. Cities and their craft industries (mainly state-run) developed at an extraordinarily fast pace. Land and sea routes became more convenient for traffic, and foreign trade flourished. As a result of racial discrimination and the elimination of civil service examinations, the intelligentsia lost their privileged position in government and were forced to earn their living by way of their creative gifts. In such an environment literature and art, in particular drama and literati painting, developed in very specific ways in the Yuan Dynasty. It was under these mutating social circumstances that changes were also taking place in jade craftsmanship.

The Mongols originated north of the great desert areas of China and had high regard for the agate and turquoise that were found in their region. When Genghis Khan and his army invaded Europe and occupied central and west Asia they obtained a great number of other precious stones and became very interested in the production of jade. On taking over the Central Plains of China, the Mongols acknowledged the superior talents of the Han people in their advanced skills in the manufacture and use of jade. For example, in 1265, 14 years before Kublai Khan conquered the Song dynasty, he commissioned a jade 'ornament' called 'Du Mountain and the Sea' (the fabled jade wine basin now in Beihai Park, Beijing), and ordered that it be placed in the Guanghan Palace.

After the unification of China, the Mongol rulers adopted the political system of the Song, Jin, Han and Tang dynasties before them. Jades were widely used for adornment and ornament, more so than during the Song and Jin periods. For example, all the emperor's headdresses, garments and carriages were decorated with jade and the ritual tablets and imperial seal were made of jade. According to the *Gugong Yi Lu* (Lost Records of the Imperial Palace) by Xiao Xun, a minister of the Ming court who took part in the destruction of the Yuan Imperial Palace, when the Yuan Emperor Haizong escaped from the palace he left behind many jade items, such as a jade bed in the *Yanchun Tang* (Long Spring Chamber), an archway made of white jade in the *Yude Dian* (Jade Virtue Hall) and, in the same room, white jade screens and a jade bed. It appears that all the emperor's ornaments and accoutrements were made of, or decorated with, jade.

There were also court restrictions regarding the use of jade on the robes of officials: only the first ranking officials were allowed to wear belts of jade, be they plain, decorated or made of eight pieces; only the first to third ranks were allowed vessels made of gold or jade; only officials of the first rank were permitted to use gold or jade on their horses' saddles. Laymen were not allowed to wear jade or gold on their caps, and violators of this regulation were punished.

In order to satisfy the demands of the emperor and his

family and the nobility for jade, the Mongol court set up the Department of Jade Promotion under the Management Bureau of Jade-Workers and Goldsmiths of the Various Streets (15th year of the Zhiyuan era, 1278); the Agate and Jade Department under the Bureau of Furs and Skins at Dadu Road in the Imperial City (16th year of the Zhiyuan era, 1279); and the Management Bureau of Gold and Jade on Hangzhou Road (17th year of the Zhiyuan era, 1280). These were known as the three state-run jade workshops, the jade craftwork of Dadu being the most important. There may have been an earlier important jade centre at Helin, too, which then moved to Hangzhou.

New jade supplies came from Khotan (Hetian) and Yarkand, and some old jade was reused. The sand used for polishing the jade was transported to Dadu from Datong Road, where there was a sand quarry; this sand was known as Summer Water Jade-Polishing Sand (*Moyu Xiashui Sha*). The Yuan court controlled the supply of jade and sand and the work of the jade craftsmen, thereby ensuring well-organized production of a large quantity of jadeware.

The Mongols favoured wide-brimmed hats with jade ornaments on the top. Shen Defu of the Ming Dynasty described this kind of hat: 'After meetings at court, the lords and aristocrats all wore large hats, each person's rank identifiable by the jade on his hat. If you saw nine dragons with one of them facing forward, this belonged to the Emperor. The caps were made by the masters of the Western border, and the most expensive were worth a great deal of money.'

Many of these caps remain today, although a cap with nine dragons is not known. Shen Defu's comment that the jade masters of the Western border came to Dadu to make the nine-dragon cap shows that there were both Han Chinese and Western border craftsmen in the state-run jade workshops.

In addition to the state-run workshops local jade

FIG. 6

FIG. 6 **SEAL**
Song Dynasty. A small seal of shallow form with a feline creature crouching in high relief. The stone has a green tone with brown markings. This is a rare and useful example of a documented Song jade. The animal is well-detailed and finely worked.

FIG. 7

FIG. 7 **BIRD GROUP**
Yuan Dynasty. A fine group of a vulture attacking a swan: the plumage and features are well-detailed. The whole is a good example of animal carving, part of the tradition of high quality animal carvings which was to be maintained throughout the Ming and Qing periods.

FIG. 9

FIG. 9 **PEACH-FORM CUP**
Yuan Dynasty. A cup of peach form, the handle in high relief in the form of a stalk and leaves. The stone has a brown tone with markings. This cup is of a form popular in jade and other media throughout Chinese history to the end of the Qing period. This example is somewhat crudely worked but the stone has a good mellow tone and it does have a freedom in its somewhat coarse work which makes it sculpturally successful.

FIG. 8 **ROUNDED *HU***
Song/Yuan Dynasty. A hu *of well-rounded form, the sides with tubular handles, the cover ornamented with a dragon. The stone has a pale green tone. This is of the finest quality; the proportions of the form combine well with the translucent mellow stone, and the cover is delightfully decorated with a subtle relief of a dragon.*

FIG. 8

production also continued and developed, but compared to the amount of Han Dynasty jades that have been discovered the number of Yuan jades is small. A few jades have been discovered in the Yuan dynasty tomb of Fan Wenhu and his wife in Anqing, Anhui Province; in the Qianyu tomb in Wuxi; in the Shi Meng tomb in Wuxian; and in the parental tomb of Zhang Shicheng in Suzhou.

Among these, the jades from the tomb of Fan Wenhu and his wife are of the best quality, reflecting the general picture of the use of jade among high-ranking Yuan officials. Fan Wenhu was a Song army general who rose to the position of vice-commander of the court and governor of Zhi'an. In the 12th year of Zhiyuan (1275) he surrendered to the Mongols. On his tomb are inscribed 27 characters listing his official titles. The tomb was built in the fifth year of the Dade era (1301). His wife, Madame Chen, born in the second year of the Baoqing era (1226), was 79 years of age when she died in the ninth year of the Dade era (1305).

Some of the important jade artefacts found in the coffin of Fan Wenhu include:

≈ Belt plaque, topped with a half-sphere, with a buckle, on a belt made of eight pieces of jade joined together, 2½×2¾×⅓ inches (6.7×6.9×0.8 cm), and with an 'otter-style' tail of 5¾×2¾×⅓ inches (14.5×6.9×0.8 cm). There are obliquely cut holes at each of the corners on the back. The belt plaque, which was found beneath the body, corresponds with literary records that tell us 'The clothes and pendants for lords and first- and second-ranking officials bore jade ornaments, either plain or coloured, and belts made of eight pieces of jade joined together'.

≈ Tiger seal (see Fig. 6), bearing lines of seal script carved in relief. According to Tao Zongyi's *Zhui Geng Lu,* Vol. 2: 'Nowadays, most of the Mongol and Semu officials are unable to write; instead they make seals from iron or wood. Ministers and first- and second-ranking royal officials are permitted by the Emperor to make their stamps from jade. No one may use jade without the permission of the Emperor.' From this it is evident that the regulations regarding the use of jade were indeed strict in the Yuan Dynasty. Fan Wenhu would have been granted his seal by the emperor. The seal demonstrates the high level of craftsmanship in the state-run workshops.

≈ *Hu* vessel made from smooth white jade of fine translucent quality, with two handles and an elliptical body, in imitation of a Shang bronze form (see Fig. 8). The lid bears a flower with leaves, which are damaged. The surface of the lid is covered with relief carvings of the *chi*-dragon. The carving itself can be used as a standard in dating. The dragon has a slender body with the spine carved deeply in intaglio. The lid, with its flower and leaves, is in a different style from the imitation Shang-style decoration of the body. The flower in particular does not fit the ancient form, and as such may prove to be characteristic of Yuan Dynasty imitations of ancient jades.

Yuan pieces from the tomb of Qianyu were of a poorer quality jade and the craftsmanship was less refined. However, it is worth mentioning here a jade group bearing a *haidongqing*-vulture attacking a swan (see Fig. 7), the only one of its kind to have been found in a tomb. Lotus leaves, flowers and the arrowhead plant grow out from the lake, the swan hiding beneath the lotus from the *haidongqing.* The four layers in the design give the piece a great feeling of depth. The four corners bear the rough, unpolished marks of the tools, emphasizing the less refined craftsmanship. The body has a yellow tint, and the piece is especially valuable for the dating of the *haidongqing.* Other jades from the Qianyu tomb include a peach-shaped jade cup with open-work decoration, a belt-hook with dragonhead and lotus flower decoration, and a fish pendant made of dark jade.

In Zhang Shicheng's mother's tomb in Suzhou were found a dark jade ring in the shape of a 10-sectioned bamboo stem with jade pendants. In his father's tomb was found a plain belt plaque with a total of 25 belt pieces made of dark jade. All are important Yuan Dynasty jades.

From the limited number of Yuan jades that have been discovered, it can be seen that although the tradition of 'outer form and inner beauty' of the Song and Jin dynasties was inherited, the technical craftsmanship of the Yuan Dynasty was of a comparatively inferior quality.

The largest Yuan jade known today is the 'Du Mountain and the Sea' in the Round Fort in Beihai Park, Beijing (Fig. 5). Made in the second year of the Zhiyuan era (1265) – four years after the Mongol state-run jade workshops were set up, it was probably made by the Helin craftsmen. The following year (1266) the government set up the Department of Jade-Workers. This piece is therefore representative of Mongol court jade. Although appearing to be mostly white with black streaks, it is in fact made from a kind of black jade, which the Qianlong emperor, in his study of jades, took to be Shu jade (from the Sichuan region). It measures 2 ft 3½ inches (70 cm) in height, 4 ft 5 inches (1.3 m) and 5 ft 11½ inches (1.8 m) in elliptical diameters, 16 ft 2 inches (4.9 m) in circumference, and weighs 3½ tons (3500 kg). It would take 660 gallons (3000 litres) of wine to fill it. The outer surface of this huge jade is carved in relief with sea dragons, sea horses, sea sheep, sea pigs, sea rhinos, sea frogs, sea snails, sea fish, sea deer – a total of 13 different auspicious animals, all vividly depicted playing in the waves. The great pity is that the Du Mountain we see today displayed in front of the Chenguan Hall in Beihai Park was retouched by craftsmen during the Hongli era. Under the Hongli emperor's orders the carving was cleaned and polished, and further surface carving

was added to give the creatures hair and scales. As a result of this later retouching the piece is no longer truly representative of the time of Kublai Khan, yet it is still an impressive jade of worldwide renown.

Before coming to the Central Plains the Mongols had conquered the Jin – a northern minority dynasty – in 1234, and had inherited some of the culture of the Nuzhen. Evidence of this can be seen in the Mongols' continuation and development of the Nuzhen tradition of 'Spring Water' (*Chunshui*) and 'Autumn Mountain' (*Qiushan*) jades. However, the *haidongqing* (vulture) knob of dark jade mentioned earlier has no precedent for its carving, except in the swan and the *gu* bird. Beneath the swan are two holes through which a cord may be passed to attach it to a cap. The carving is open-work. The *haidongqing* is above the swan pecking its head, so that the swan's neck bends under the pressure. Its wings are open and struggling as it tries to escape. The Mongol rulers surely delighted in such a scene of conquest.

Representative jade items of daily use in the Yuan Dynasty would include a basin, a pourer, a vessel and cup. The oval-shaped water basin in green jade (Fig. 10) is a special piece made in imitation of ancient jades, with a pearl carved in a sharp cornered triangle, reflecting the light. Beneath is a ring-shaped handle. The cup has a very squat body and a flat base and is of plain jade with yellow streaks running through the stone. All over the surface is a very fine mesh of carved lines, rubbed over with black pigment. At first sight these dark marks appear to be natural flaws in the jade and they are only revealed as artificial on close inspection. The original red sandalwood setting remains in perfect condition, marked on the base with a Chinese character meaning 'second-rate' infilled with gold; in the Qing Dynasty the Qianlong emperor, who inspected all jade pieces, valued this as second-rank only.

A further example of Yuan jade, a cup with a goose-shaped handle in green jade (Fig.12), is inferior with its impure colours and streakiness, but the design and shape are expressive and show very good taste in landscape carving. The piece is unfussy and practical. The cup is elliptical in shape, open at the top, with a flat base and a single handle. The surface is carved with geese, ducks, lotus, weeds and waves. The goose turns its head to look back and its neck becomes the handle. The pattern is in relief, with the emphasis on the line of the long and fine 'goose-eye' pattern, with a repeated pattern below the neck; the wing feathers are carved in a lively way, and lines represent waves under the belly. Behind the goose are two mandarin ducks. Goose and mandarin duck motifs are repeated in the tall reeds and lotus in the background, and are closely associated with the contemporary style of flower and bird paintings.

FIG. 10

FIG. 10 **CUP WITH RING HANDLE**
Yuan Dynasty. This cup of well-rounded form has a flaming pearl flange of triangular form and a ring handle below. The stone has a green tone with brown markings.

FIG. 11

FIG. 11 **FLOWER CUP**
Yuan Dynasty. A cup of well-hollowed petal form, with its stalk and leaf handle pierced and worked in high relief. The stone has a grey tone with darker markings. This form is part of the tradition of peach and flower cups popular throughout all periods of Chinese history.

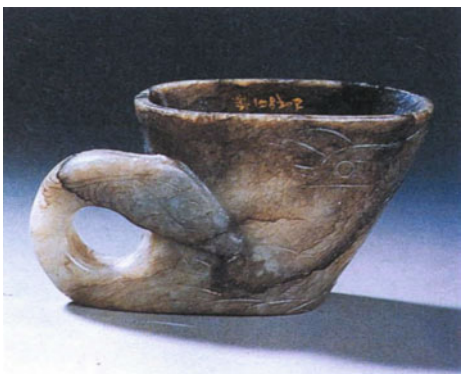


FIG. 12

FIG. 12 **DRINKING CUP**
Yuan Dynasty. A rhyton of tapering form with a goose-head handle. The body is worked in low relief and the stone has a green tone with black markings. Although generally crude, the rhyton was to become a popular shape in the Song period, the quality of the work becoming more refined in later examples.

FIG. 13 **BELT-HOOK**
Yuan Dynasty. A belt-hook with a large floral motif, a dragon's-head terminal and a further pierced dragon ring. The stone has a grey tone. It is a good example of its type, the separate dragon ring being particularly rare.

FIG. 14 **BUCKLE**
Yuan Dynasty. A buckle in the form of two confronting dragons curling around circular pierced cavities. The stone has a white tone with russet markings. It is a good example of its type, with the dragons vigorously modelled.

FIG. 15 **DRAGON PLAQUE**
Yuan Dynasty. A plaque pierced and worked in the form of a dragon vigorously disporting amidst lychees. The stone has a pale green tone with brown markings. On this fine example the pierced work is much more pronounced than usual, and the fruit is of a disproportionately large size in comparison to the dragon.

FIG. 16 **DRAGON AND *LINGZHI* PLAQUE**
Yuan Dynasty. A plaque pierced and worked in the form of single-horned dragons and lingzhi *fungus. The stone has a pale green tone with brown markings. The vigorously portrayed dragons were a particularly popular subject in the 14th century, and the device continued to be used throughout the remainder of Chinese history.*

Another boldly worked Yuan jade (Fig. 11) is a white jade cup with a black lacquer-like burn mark on the base. The cup is decorated with open-work under the leaves, which then develop into the handle. In the centre of the flower head is a plum blossom raised in relief. An aerial view shows the flower petals circling the plum blossom, reminding Chinese people of the well-known tune of 'falling petals, flowing water'. With its smoothness and elegance, the cup is a masterpiece of Yuan jades.

The Mongols of the Yuan Dynasty wore round caps and narrow-sleeved long robes with a leather belt around the waist, and liked to use fine jades to decorate the tops of their caps, their belt-hooks and pendant rings. They also used hooks and rings as belt fasteners. There is a good collection of these in the Palace Museum, Beijing, for example, the exquisitely made white jade belt-hook with a *chi*-dragon head as the hook, its body carved with *furong*-lotus plants growing out from a lake (Fig. 13). On the dragon's back are carvings of lotus leaves, and a round button that is carved in a cloud pattern and depicts a flying dragon. These dragons are carved with long whiskers, a mane, an animal's body, a long and winding tail and no scales. The belt-hook is another fine piece of Yuan jade.

The belt buckle (Fig. 14) is in two parts in relief. Each section has a circular hole in the centre. The top is decorated with *lingzhi*-fungus and with *chi*-dragons coiled on both the left and right sides. On the back, carved in intaglio, are temple guard rods and floating ribbons. The sections come apart to open the buckle.

Scholars' artefacts gradually came to be made with jade of different kinds. Fig. 16 shows a plaque carved in relief with two *chi*-dragons playing with *lingzhi* in a background of cloud pattern. There is also a pale jade plaque (Fig. 15) with carved open-work dragon and lychee stems: the jade is of excellent quality and the open-work on both sides allows a view from either side of the dragon walking among the lychee stems heavy with fruit. The base of the plaque is ivory dyed dark brown, and carved on the base, by order of the Qianlong emperor in the Qing Dynasty, is a Chinese character meaning 'third-rate'.

All the above five pieces were masterpieces that continued the Song-Jin style. They mark the end of the art of seeking 'outer form and inner beauty' – the end of the golden age of Chinese jade history.

Further study of Yuan jades is limited by the number of artefacts remaining but from those that are available it would appear that the jades do not match the creative spirit of Yuan drama, literati painting, red lacquerware and blue and white porcelain. During the Yuan Dynasty the Song-Jin style in jade art continued, with only very minor changes; Yuan Dynasty jade functions mainly as a foundation for a new age of jade art in the Ming Dynasty.

MING JADES: CRAFTSMANSHIP, DECORATION AND COMMERCIALIZATION

FIG. 17 **DEER WITH *LINGZHI***
17th-century or earlier. A pale mutton-fat white figure of a deer with a spray of lingzhi *fungus in its mouth, its head turning over to its back. This is a favourite subject in Chinese art, and this particular model relates to examples from the Yuan period (14th-century), where bronze examples are known.*

FIG. 17

In 1368 Zhu Yuanzhang led a peasant rebellion to overthrow the Mongol Yuan dynasty and set up his Ming court of Han nationality authority. There was still a fighting force of Mongols in the north, and disturbances were not uncommon in the northern border areas, but the economic situation in both city and countryside flourished. Links with foreign countries also developed and made China famous as a great power.

The country under the rule of the Ming court was comparatively small, reaching as far east as Liaohai, west to Jiayu, south to Qiongya and north to Yunshuo – in total 1,000 miles (1,600 km) north to south and 1,000 miles (1,600 km) east to west. Although Ming political control did not reach as far as the area of Xinjiang, the court was nonetheless able to support the King of Hami, known as 'Yongru', in controlling various tribes, and jade was thus obtainable from Khotan (Hetian) through trade and tributes. The state-run business had an annual trade turnover of about 5½ tons (5000 kg) of Khotan jade and Gao Lian, an author of the Ming Dynasty, recorded that 'there are more jade materials now than ever before'.

The Ming imperial household followed the Tang and Song traditions of using jade and added more of their own. Jade was far more widely available now among the common people, and jade production was more developed than in the Yuan Dynasty. The main characteristics distinguishing Ming jades from the Yuan were the Ming artistic craftsmanship, decoration and commercialization of jade. There are three periods of Ming jades and their development can be traced as a result of archaeological discoveries.

The Craftsmanship of Early Ming Jades

In 1976 a jade belt buried in the 14th year of the Hongwu era (1382) was unearthed from the Wang Xingzu tomb. The belt (Fig. 18) comprises 12 flat pieces of jade with another two pieces making up the clasp. It is made from very smooth white jade. Four of the 12 pieces are carved in the shape of a sunflower, the surface of each carved with a dragon playing with a pearl in the clouds. The other eight are carved as pointed lotus buds, the surfaces bearing the lucky cloud pattern. The two pieces forming the clasp are carved as open lotus flowers, the surface being carved in open-work with the dragon playing with its pearl weaving in and out of the cloud. Vivid, attractive and of brilliant craftsmanship, the belt reflects the early period of the Ming, when the Han were re-establishing themselves.

Another important discovery was made in the Zhutan tomb in Zou County, Shandong Province, which is of a slightly later date than the Wang Xingzu tomb. Zhutan was

FIG. 18 **BELT-PLAQUE**
Ming Dynasty. A belt-plaque of shaped form, worked in high relief with a dragon amidst clouds. The stone has a good white tone. This is a fine piece, particularly useful as an example of the style of early Ming jades.

FIG. 18

FIG. 19

FIG. 19 **PETAL-FORM CUP**
Ming Dynasty. A cup of well-hollowed petal form, the stem in the form of a flowerhead and leaf. The stone has a white tone with russet markings. Compared to Fig. 9 and Fig. 11, this cup is useful in showing the development in design from the cruder Yuan style to the more sophisticated and refined nature of Ming carving.

FIG. 20 **DRAGON PLAQUE**
Ming Dynasty. A plaque pierced and worked with a curling dragon set before rocks, waves and clouds. The stone has a white tone.

FIG. 20

the 10th son of the Emperor Zhu Yuanzhang; he died in the 26th year of the Hongwu era (1396). Jade items from his tomb include cap ornaments, belts, pendants, *gui* (a ritual jade piece), an inkstone, a brushrest, cups and other items. With the exception of the jade cup (Fig. 19), the craftsmanship of most of these jades is inferior to that of the jade belt from the Wang Xingzu tomb. The cup is made from excellent jade, smooth and shiny, with strong, confident carving; it has no very fine detail but is polished to a superb finish.

Two other Ming jades of the early period are in the Imperial Palace collection. A white jade belt ring is carved with a dragon's body curving around the ring; the surface of the ring is carved in cloud pattern (Fig. 18). It was intended to be threaded and was probably strung on to the emperor's belt. There is also a white jade hairpin with one end carved as a dragon head (Fig. 23). The dragon's head is pointed and curves inward, and the surface of the long, slender, curved body is carved with a rope pattern. These dragons are slightly different from the dragons carved later on jades of the Yong and Xuan period (1403 - 1435).

The craftsmanship of these two pieces is superb: clean, exquisitely cut and carved, in the same style as the lacquerware of the Yongle era (1403-1424) and the jade balustrades of the Qing'an Hall of the Forbidden City. They are therefore specimens of the early Ming court jade workshops and help in the understanding of early Ming court jade production, as well as the craftsmanship of the Yong and Xuan period, when the Ming capital was moved to Beijing.

As seen above, the Ming jades unearthed from tombs and in collections are indeed different from the Yuan jades. The techniques of chiselling and grinding were careful and deliberate. Changes such as these mark the initial stages of the development of artistic craftsmanship and decoration in the early Ming period.

The Uninhibited Style of the Middle Ming Jades

Most jades of this period that have been unearthed are from the areas around Nanjing, Shanghai and Jiangxi. An open-work jade plaque with lotus pattern was unearthed in Xu Fu's tomb in Nanjing (12th year of Zhengde era, 1517); its workmanship is comparatively rough.

A number of jade items were discovered in Lu Shen's tomb in Pudong Road, Shanghai (23rd year of Jiaqing, 1544): a white jade Tie Guaili (one of the Eight Immortals), a white jade butterfly, a white jade pendant in the shape of a heart, a white jade belt-hook, an open-work Chinese character for longevity (*shou*), a square jade buckle, a

FIG. 21

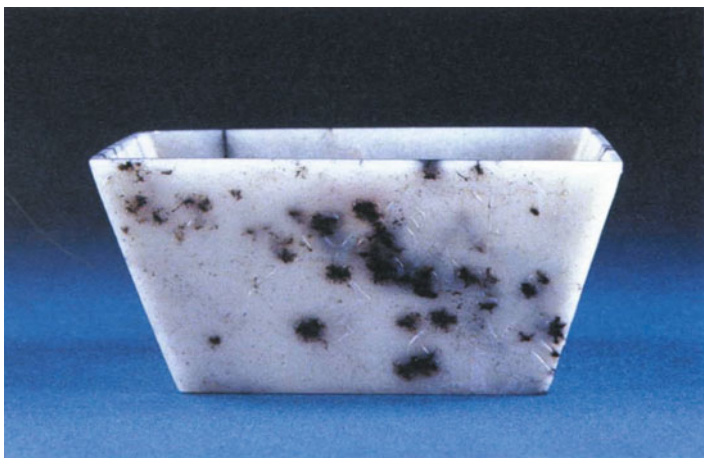


FIG. 22

FIG. 23

FIG. 21 **DRAGON RING**
Ming Dynasty. A ring in the form of a curling dragon, the whole finely pierced and detailed. The stone has a white tone with markings. This tour de force *of the jade worker's art is a magnificent reproduction of an imperial dragon.*

FIG. 22 **DECORATED VESSEL**
Ming Dynasty. A vessel of square, tapering form worked in low relief with figures in a landscape. The stone has a green tone with black markings. An unusual jade, the poem inscribed on it suggests its origin and influences as part of a scholars' taste group, probably the school of Wu.

FIG. 23 **DRAGON'S-HEAD HAIRPIN**
Ming Dynasty. A hairpin of plain and writhen form, terminating in a dragon's head. The stone has a white tone.

chrysanthemum buckle, a jade ring with four flowers, jade earrings, jade rings, a jade Daoist cap and a jade hairpin. These items are all small and exquisitely made, with exceptionally fine carving; they are representative of the jade owned by the class of landlords and rich merchants. They demonstrate that the wealthy adorned themselves with jade, especially in their headwear, on their fingers and on their clothes.

Representative jades of the middle Ming period found in established collections include a white jade belt plaque carved with open-work and a coiled dragon (Fig. 20). The quality of the jade is superb, the material almost transparent, with the dragon carved in relief curling among the pattern of cliff and sea. In the background is a repeat pattern. The workmanship is relatively rough, but on the whole the piece is carved with very fine lines, quite decorative and with a very soft appearance. There is also a jade cup, the surface carved in the shape of an old man walking with his stick in the shadow of the pine trees (Fig. 22). Carved into the jade in running-style script is a poem and a note and signature: 'done in jest by the Daoist, Mei'. This piece of middle Ming jade is obviously influenced by literati painting, probably the school of Wu. This group of Chinese literati, who delighted in the esoteric and understated works of art, are more usually found depicted on boulder groups in jade. Generally speaking, jades from this period were beginning the transformation from the early Ming to late Ming style. Thus, it is difficult to define the cup's own characteristics.

The Extravagance of Late Ming Jades

Jades of this period include those unearthed from the tomb of Xuan Wangsun's concubine of the 31st year of the Wanli era (1603). One is a flower-shaped jade belt plaque. The craftsmanship of the piece is fairly rough, and there is gold on the surface.

When the tomb of Ning Wang Xitong in Wuxi, Xinjian County was excavated in 1956, a white jade dragon-pattern belt plaque carved in relief was discovered. The material is of excellent quality and the grinding technique quite special. The dragon is carved without scales, the hair on its head standing up, the whole set against a pitted background with raised knobs. This background contrasts with the dragon pattern, and gives the piece a striking and luminous appearance.

A number of jade items were unearthed from the Zhu Jiqing tomb of the Wanli period in Baoshan County, Shanghai, including a dark jade and red sandalwood paperweight in the shape of a hound, a red sandalwood paperweight with a dark jade base, a dark jade open-work

peony belt fastener, a dark jade knob, a dark jade *yuntou* (hair ornament), a white jade ring, a dark jade short pick, a dark jade short pick with curved top, a dark jade long hairpin, two jade pendants carved in the shape of a flute-player and an old man, a white jade rectangular pendant carved with a dragon in clouds and a jade *ruyi*-sceptre.

Most of these are small pieces and the craftsmanship is less special, with the exception of two pieces: the dark jade hound on the red sandalwood paperweight, and the white jade recangular pendant carved with a dragon in the clouds. The dark jade hound acts as a handle; the dog itself is crouching, its body highly polished, and there is little surface detail. Although it has lain buried underground for so long its colour is still pure, and this proves its excellent quality. The semi-circular ring at the top of the white jade pendant is damaged but it is still possible to see the *chi*-dragon turning its head back as it climbs, in imitation of the Han style. It is decorated with very fine incised lines, and the carving is one of the finest among Late Ming jades.

The most representative jade pieces of this period are from the Wanli emperor's tomb at the imperial cemetery of Dingling. They include a belt plaque, a bowl, a small vessel, a water pot, *jue, gui*, pendant and belt. These pieces were often inlaid with gold or jewels, showing that they were elaborate treasures used by the emperor and his concubines. There is a great difference between these jades and those from the tombs of Wang Xingzu and Zhutan, who were high-ranking officials or lords; the quality, size and quantity of jades found in tombs indicate the power and wealth the person had during his life.

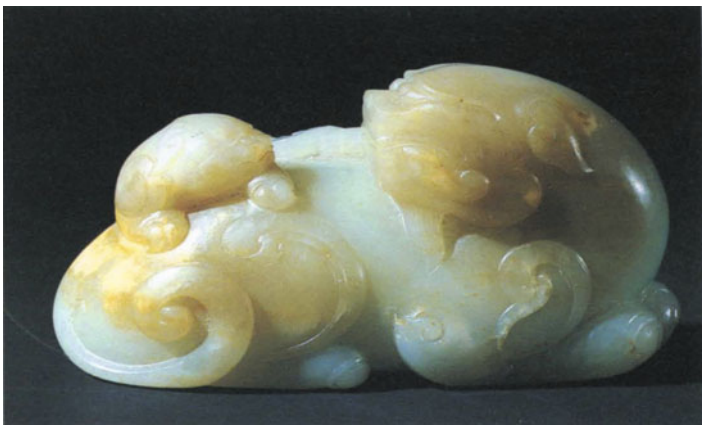


FIG. 24

FIG. 24 **LIONDOG**
Late Ming Dynasty. Length: 3¼ in (8.2 cm). A recumbent liondog supporting a cub on its back and holding a spray of lingzhi *fungus. The stone has a pale celadon colour. This piece is somewhat formal in its composition.*

FIG. 25

FIG. 25 **CUP WITH RING**
Ming Dynasty. Height: 3⅜ in (8.5 cm). A rare jade cylindrical cup, with a single ring handle. The stone has a celadon green tone with brown inclusions. This type of cup draws its inspiration and shape from an earlier form and is in the tradition of the Song and Ming interest in and revival of archaic forms.

FIG. 26

FIG. 26 **VESSEL**
Ming Dynasty. Length: 5 in (12.8 cm). A vessel of boat-shaped form, worked in relief with bifid-tail dragons curling to the sides, the base with scrolling waves. The stone has a fine white mottled tone. This is a superb rendering: the form and detail are particularly fine, and it is signed 'Zigang'.

FIG. 27

FIG. 29

FIG. 28

FIG. 27 **RAM**
Ming Dynasty. Length: 2½ in (6.5 cm). This figure of a double-horned ram, is a typical Ming animal both in composition and choice of stone.

FIG. 29 **CHIMERA**
Ming Dynasty. Length: 3⅛ in (8 cm). A fine jade figure of a recumbent chimera. The stone has an even celadon green tone with lighter flecks and brown markings.

FIG. 28 **DRAGON *JUE***
Ming Dynasty, Wanli period. A fine jue *of well-rounded form with dragons in high relief gripping the sides, supported on a gold stand inlaid with hardstones. S. Howard Hansford in* Chinese Carved Jades, *comments that in his opinion 'the material was still highly regarded for its aesthetic and amuletic qualities but was perhaps in short supply, the craft at a low ebb'.*

Among these jades found at Dingling there is one piece that is probably from an earlier date than the Wanli era. It is a dark jade vessel carved with a pair of dragons, placed in a box made out of very pure gold filigree decorated with a dragon in the clouds. It was made by the Department of Silver and Metal Production in the fourth year of Longqing (1570). Carved into the edges of the vessel is a *kui*-dragon with a *ruyi*-fungus in its mouth. Of excellent quality jade and highly polished, it is typical of the Longqing era.

Judging by the jade material and the craftsmanship, the other jade items from this imperial tomb are all from the Wanli era. They fit into four categories:

1 High-quality jade material with good polish, an example being the white jade pendant with gold on the surface, the white jade belt plaque and dark jade belt plaque. They reflect the advanced polishing technique of the jade craftsmen in the imperial court of the Wanli period.

2 Jades of average quality, most with naturally pitted surfaces, sandy coloured where they had been corroded, e.g., the jade *jue* cup (Fig. 28) with a carved dragon functioning as a handle. The craftsmanship is rough, with an average polish and lumpy surface. This kind of jade was fairly common in the Ming Dynasty. However, the cup is inlaid in a flower pattern with gold, silver and gems, which give off a rich glow suggesting wealth, and the piece most probably belonged to Yuzhun.

3 Poor-quality jade, i.e., more like stone than jade, with spots and cracks and an uneven surface. The grinding, carving and polishing are all inferior, typified by a dish with a flat base and out-curving rim and a plain jade *bi*-ring and *cong*. The colours of the dish are impure: a natural mix of dark green, white and light green. Plain jade items are mostly thick pieces with poor polish and could almost be mistaken for stone.

4 Old damaged pieces that have been reworked. These are mostly small pieces: various pendants and a plain dark jade pendant.

The third and fourth type of jades belonged to the imperial concubines and thus bear little comparison to the personal jades of the Wanli emperor himself. The differences emphasize the wide-ranging social ranks in court of the owners.

FIG. 30

FIG. 30 **INTERLOCKING DRAGON RINGS**
Ming Dynasty. Diameter: 3¼ in (8.3 cm). A rare pair of interlocking rings, each worked with dragons in relief. The stone has a greyish-green tone with russet markings. A rare subject in jade, more normally found in wood or ivory, these rings are a very fine example of the worker's art. The dragons seem alive as they clutch, crawl and curl their way around the circles. Linked rings are a symbol of change: a scholar handling them would be reminded of the nature of the universe. Appearing to be inseparable, they can be broken apart: as all things, they are impermanent.

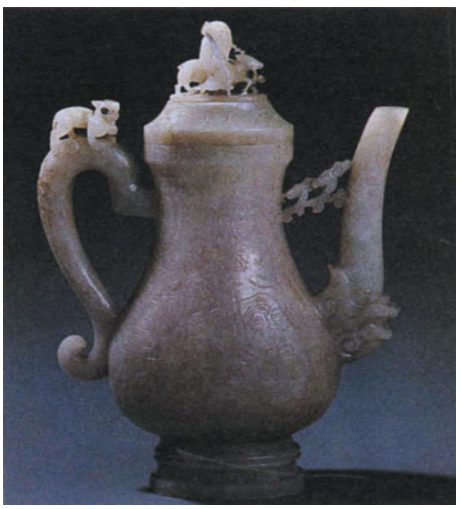


FIG. 31

FIG. 31 **COVERED EWER**
Ming Dynasty. A ewer and cover: the cover with a longevity figure and deer, the spout emerging from a dragon's head (united to the body with a lingzhi *fungus), and the body with low-relief work of the Eight Immortals. This is a superb example of Ming jade work, combining many themes and characteristics.*

During the late Ming period the ruling court was somewhat permissive in behaviour and the political situation was corrupt, with greedy officials exploiting the ordinary people and causing great suffering to the masses. Under such circumstances people longed for social peace and sought the blessings of the gods. These demands are reflected in jade craftsmanship – designs of good fortune and luck were very popular. The origins of these motifs can be traced back into the past, probably deriving from ancient ritual jades, which were involved in all aspects of social life. The designs for luck and good fortune of the Ming Dynasty included the Eight Immortals; the Three Old Men of Fortune; the characters *shou* (longevity), *xi* (happiness), *fu* (wealth); the plants lychee, peach, Buddha's hand, gourd, persimmon, *ruyi*-fungus, plum blossom, bamboo, orchid and narcissus; animals such as deer, lions, cranes and mandarin ducks; and mythical animals such as dragons, phoenix, *chi*-dragons and *kui*-dragons, all according to the principle of 'motifs must bear meaning, and meaning must be auspicious'. These lucky symbols formed a great part of Ming Dynasty jade decoration.

As the Jiaqing Emperor, Zhu Houcong, was a believer in Daoism and worshipped the Eight Immortals, the Eight Immortals motif then became a fashion in craftwork, painting and sculpture. One example in the Imperial Palace collection is the jade water pot decorated with the Eight Immortals (Fig. 31). Four of the Immortals, Han Xiangzi, Zhang Guolao, Cao Guojiu and Lan Caihe, are carved in relief on one side of the pot, along with the seal 'Everlasting Spring' and a poem in running-style script:

The jade wine jar offered a thousand rounds
Heavenly peach in five colours of harmony
Next year we'll go to the Crane Forest
And see coloured clouds rising from the sea.

On the other side of the pot are the remaining four Immortals, Tie Guaili, Han Zhongli, Lu Dongbin and He Xiangu, along with the seal 'Long Life' and another poem in running-style script:

Fragrant banquet very lively at the Heavenly Pool
Lights of fortune woven at the zenith of heaven
The Spirits celebrating together
Wishing longevity in thousands of years.

Carved on the handle of the pot is a *chi*-tiger, standing with its head raised, and on the rim of the lid are four cranes. On the top of the lid is a knob formed by the Old Man of Longevity holding a stick, riding a *sika* deer. This is obviously a design of the Eight Immortals Celebrating Longevity. The Old Man of Longevity, the deer (symbol of riches) and the *ruyi*-fungus (symbol of longevity) all emphasize the theme of long life.

FIG. 32

FIG. 32 **HORSES**
Ming Dynasty. Length: 10⅜ in (26.4 cm). A fine and rare pair of recumbent horses, each carved in an alert posture, with their features and details well-modelled and sculptured. These rare horses were exhibited at the Victoria and Albert Museum in 1975 where Rawson and Ayers described both them and other large animals made for the palaces as follows: 'The outstanding series of carvings of horses and buffaloes assembled here are among the most ambitious and monumental examples of jade ever worked in China.'

Other popular motifs of good fortune are the rebus designs, i.e., those of animals and plants whose names share the same pronunciation as a lucky word. Their functions vary: sometimes the representation is thematic, sometimes just pure decoration. The number of rebuses shows the popularity and extensive use of these designs.

In short, the designs of Ming jades differ from those of the Tang and Song in that the Ming characteristic is to consider good fortune first, then the theme of the design. Sometimes these functions were over-emphasized and detracted from the aesthetic and artistic value of a piece, some pieces even bordering on the vulgar.

Later Ming jades were influenced by literati painting in their shape, decoration and inscription. Sometimes even the jades of the ordinary city dwellers were decorated in this way, suggesting that literati painting was a major influence on the fashions of the time. One green jade ear cup carved in open-work is a typical example. Its shape accords with the everyday taste of the wealthy social and business class, yet it bears the following scenes carved in relief: 'Before the room, looking up at the moon' and 'Reciting poems beneath the pines', both of which are literati themes in traditional landscape painting. It is also inscribed with the following poem in running-style script:

Giving a long sigh as I watch the quiet white clouds
Climbing the green mountain so clean . . .

FIG. 33

FIG. 33 **GOAT PLAQUE**
Ming Dynasty. Length: 3⅛ in (8 cm). A plaque of two goats, recumbent and turning their heads to confront a yin-yang symbol amidst cloud sprays. The stone has a green tone with grey, black and brown markings. This group, although small in size, retains the kind of sculptural and full-bodied qualities associated with Ming animals. This grouping symbolizes a wish for youthful vitality combined with a long and harmonious life.

FIG. 34

FIG. 34 **PLAQUE WITH CONFRONTING DRAGON** *Ming Dynasty. Length: 3⅞ in (10 cm). Height: 3¼ in (8.25 cm). A jade plaque of oval form, worked and pierced with a confronting dragon vigorously curling amid floral scrolling. The stone has a pale greenish tone with light brown markings. A similar piece from the Wells Bequest is in the Victoria and Albert Musuem. This plaque, which was possibly the head of a* ruyi *sceptre, is intricately worked but the dragon still has great tensile strength and is typical of confronting dragons, also to be seen depicted on lacquer, porcelain and other media.*

The handles, in peach-blossom shapes, are out of harmony with the literati landscape painting and the Daoist-style poem. However, such disharmony is by no means rare in late Ming jades and this piece illustrates how far the influence of literati taste pervaded every class in privileged society: businessmen, landlords and officials all aspired to the image of a well-educated scholar, and jade artefacts such as brushrests and inkstands became even more popular during the late Ming Dynasty.

Ming art followed the Song tradition of imitating ancient styles and this trend grew more and more popular, especially in the late Ming period. This fashion was described by Gao Yuan, a Late Ming author: 'Recently in Wuzhong [central Wu, around the Yangtze River] high prices are paid for jades in imitation of the Han and Song style *jue*-ring, belt-hooks and rings. People are using *canhuang* [a yellow pigment] to dye bright green and dark blue jades, and then carve out articles in the ancient style, which then pass as ancient and thus command a high price.' In view of the profit that could be made from these imitations, more and more craftsmen followed the trend. The market was flooded with imitations of ancient pieces.

Generally speaking the imitators were not simply copying one period and one type of jade, but were imitating various periods and styles of both bronzes and jades. However, by looking at the craftsmanship of these imitations it is possible to distinguish between the various styles. One type of jade may copy an ancient style yet use the Ming grinding techniques – a typical example of this is the dark jade beaker with animal feet and a handle in the form of a dragon (Fig. 35). It was a copy of a jade *chih* of the Warring States period (481 BC to 221 BC), but there are obvious differences in design and shape between the original and the copy. In particular, the craftsmanship is very noticeably Ming. Scholars of Chinese jades will know that the standard of jade-carving during the Warring States period was very high, the decorations were numerous and the designs were built up out of many levels of carving. By comparison the carving of the Ming Dynasty vessel was poor; there are only three levels of carving, and the size of the grinding wheels were larger than those of the Warring States, making the latter's very fine, clean lines much rougher. However, there were some outstanding craftsmen who were able to copy the styles and techniques of the Warring States

exactly. They made excellent imitations: for example, the dark jade *guang* (pouring vessel) with a cover in the form of an animal head (Fig. 36). Compared with the poorer imitations, the craftsmanship here is exquisite. The patterns are mostly carved in relief and the surface is worked intricately and with strength, giving the piece a special aesthetic value among imitation ancient jades.

Of all the jade artefacts of the late Ming period that have survived, the most representative are the *hu* (jar) and the cup. This may be due to the growing popularity during the Ming Dynasty of tea and wine drinking, which led to the increasing use of handles on jade jars. There were many varieties of jade jars and cups, decorated with a multitude of patterns, and some beautiful pieces remain.

Research into jades bearing the stamp of the late Ming jade craftsman Lu Zigang, one of the few who signed his work and therefore much imitated, is extremely difficult. Very little is known about his life or his techniques, apart from the fact that the Lu family came from Taicang Zhou during the period of Jiaqing to Wanli (1522–1639). He was admired as an expert in jade craftsmanship, and the artefacts he made include jade hairpins, a white jade seal box, a water brush-dipper, an evil-averting jade and a white jade fish.

There are numerous jade items with the seal of Zigang in the collections of many provincial museums, cultural relics departments and also in collections outside China. The Imperial Palace Museum collection contains about 30, most from the Qing Dynasty Palace collection, including jars, cups (Fig. 37), water basins, incense burners, plates, ink platforms, brushrests, brushes, a gong, pendants, *huang*-rings, hairpins, bridle-bits and belt-hooks. Zigang's signature is both incised and carved in relief, sometimes with three characters, sometimes two, in seal, clerical and formal script styles. There are all kinds of design motifs and themes: Chinese impressionistic landscapes and figures, finely carved dragons and phoenixes, children playing, poetry in fine calligraphy. The jade varies: some of it is white or dark with a very strong gleam, while other pieces have very little gleam. Most of the pieces were passed down from generation to generation, very few being archaeological discoveries.

The style of these jade items bearing the Zigang seal is eclectic in nature; some pieces are good, others less so. This may be not so much an accident as a mysterious component of Zigang's work, which is not yet fully understood; in so far as researchers have not yet systematically examined all the pieces bearing Zigang's seal, and have yet to distinguish the genuine from the fake Zigang pieces, the understanding we have of Zigang's work is still very basic. Only with further research will it be possible to tell with any degree of accuracy which pieces are the true work of Zigang.

FIG. 35

FIG. 36

FIG. 37

FIG. 35 **BEAKER WITH RING HANDLE**
Ming Dynasty. A cylindrical beaker with a ring handle, the taotie *design on a rice grain background. The stone has a green tone with brown markings. This type of cup draws its inspiration and shape from an earlier archaic form and is in the tradition of the Song and Ming preoccupation with the revival of archaic forms and ideas.*

FIG. 36 **POURING VESSEL**
Ming Dynasty. A pouring vessel in the form of an archaic bronze guang, *the whole with flanges and* taotie *designs, and the cover in the form of a horned bovine female. The stone has a green tone. This piece represents an unusual and rare revival of an archaic bronze form, more strongly rendered than the Song copies of archaic subjects.*

FIG. 37 **PEACH CUP**
Ming Dynasty. A cup of peach form worked in high relief with stalks and leaves. The stone has a green tone with brown markings. This typical example of a Ming jade is robustly and strongly worked, and is signed 'Zigang'.

Researchers and collectors of the past all acknowledged a dramatic change in jades from the Yuan Dynasty to those of the Ming Dynasty, but it is hard to give a fair evaluation of these changes. The Ming Dynasty collector Gao Lian did offer an assessment; his high appraisal of Tang and Song jades – 'technique was at its highest, with carving and lines as fine as hairs, no cracks and no mistakes' – gives the impression that he was indirectly criticizing the jades of his time, that is, those from the later Ming, Jiaqing and Wanli period. His words had a great influence, and from the Qing Dynasty to the antiques world of today Song jades are valued highly while Ming jades are to some extent undervalued. However, as we look at jades today, we should try to see them objectively and give a fair judgement of their characteristics in the context of their date of production and their importance in history. The main change that took place in the production of jades in the Ming Dynasty was their commercialization during the beginnings of capitalism against the background of flourishing foreign trade. It is understandable, therefore, that in the contradictory demands of art and profit a number of poor-quality jade articles were produced. It is also understandable that with the fashion for nostalgia and antiquity, along with an avoidance of current reality, Ming jades left behind the characteristic realism so admired in Song and Jin jades to embark upon the path of 'arts and crafts' and decorative work, governed by the new commercialization. Nevertheless, there were some exquisite jades made in the ancient style, with excellent craftsmanship and special character, and jades of this period laid the foundation for the further development of Qin Dynasty jades.

FIG. 38 **DRAGON FINIAL** *Ming Dynasty. Height: 4¾ in (12 cm). A fine jade finial, with a dragon pursuing a flaming pearl amidst cloud sprays. Strongly worked, this jade is well-detailed and nicely coloured.*

FIG. 38

FIG. 39

FIG. 39 AND FIG. 40 **LOTUS LEAF BRUSH-WASHER** *Ming Dynasty. Length: 3⅜ in (8.6 cm). A brush-washer, in the form of a single lotus leaf, the edges curling, the veins finely detailed. The translucent grey stone has strong russet markings. This small brush-washer is sensitively worked and very well observed, combining restraint with the colour of the stone to achieve a powerful natural effect.*

FIG. 40

THE PINNACLE OF CHINESE JADE ART: QING DYNASTY JADES

FIG. 41

FIG. 41 **JADE BOULDER** *18th-century. Height: 9⅝ in (24.5 cm). Width: 7¼ in (18.5 cm). A large jade boulder, worked in high relief with a* lohan *sitting on a rocky ledge holding a tablet in one hand. The top and reverse of the rock bear inscriptions. The stone has a pale whitish-green tone with a burnt effect to the front. Formerly in the Mount Trust Collection (exhibited at the Victoria and Albert Museum), this large and fine boulder has great presence. The colour is appropriate for the subject and the face of the* lohan *is sensitively portrayed.*

In 1644, after the Manchus took over the Central Plains, they had various effective policies under which the economy slowly began to recover and strengthen. This led to increased prosperity for over 100 years during the reigns of the Kangxi, Yongzheng and Qianlong emperors. The jade craftsmanship of the Qing Dynasty was based on that of the Ming craftsmanship and gradually developed and flourished under these benevolent conditions. These Qing Dynasty jades were still being produced for the Han bureaucrats, landlords and businessmen, but they were made mainly for the Manchu Imperial Court, the lords and aristocrats, upper classes of the Eight Banners, and for political and religious leaders of minority peoples.

By examining the contribution of Khotan (Hetian) jade to the Qing court and the scale, craftsmanship and quantity of jade production, the development of Qing Dynasty jade can be divided into four stages.

The Slow Development of Qing Dynasty Jades

From the first year of the Shunzhi era to the 24th year of the Qianlong era – a period of 115 years – jade supply from Khotan was limited due to the separatist policies that Mongol and northern leaders were applying. Khotan jade could not be obtained through tribute nor through smuggling and this reduction in jade sources seriously damaged the jade industry, making development slow.

There were few carved jades from this period at the

FIG. 42

FIG. 42 **PENDANT**
Kangxi period. A fine dark green jade pendant worked in relief and open-work, with a cloud pattern. This representative example was discovered in the tomb of Hei Hanli.

imperial court. In the first year of Yongzheng (1723), precious stones included agate, cloudy amber, coral, tourmaline, glass, diamond, Shoushan serpentine, lapis lazuli, rock crystal and turquoise, but very little carved jade. In the 10th year of Yongzheng (1732), Shi Zong ordered Xi Yao, the Manager of Internal Affairs, and Hai Bao, the Officer in Charge of Production in Suzhou, to find jade materials and send them to him. In the sixth year of the Qianlong era (1741), the entire jade collection of the Qing imperial court amounted to 10 complete pieces and 66 fragments. Gao Zong had the artist Yao Zongren draw a design for a bird-shaped vessel and send it to Tu La, then the Officer in Charge of Production in Suzhou, so that he might have a piece of jade carved to that design. In the eighth year of Qianlong (1743), Gao Zong ordered his people to carve a white jade 'good spirit' and a white jade horse. In the 12th year of Qianlong (1747), he again ordered the Officer in Charge of Production in Suzhou to make four jade items: one based on the 'releasing the crane' pattern, one on the theme 'writing poems on stone wall', one 'hero' and, in intaglio, 'Dao Maoshu admiring the lotus'. In the 18th year of the Qianlong era (1753), Yao Renzong selected 101 pieces of uncarved jade from the imperial stock, with a total weight of 2⅓ tons (2214 kg), which he sent to the Officer in Charge of Production in Suzhou to make 100 jade bowls and 100 *zhuomu*. This was the largest single amount of imperial court jade production during this period when the supply of jade was otherwise limited, and it is possible to extrapolate from these pieces a picture of the entire jade trade at that time. There are very few jade pieces remaining from the period. Jade items discovered in 1962 from excavations in the present-day Beijing Normal University campus, which are from around this period include: the tomb of Hei Hanli, granddaughter of the Manchurian, Suoni, whose tomb dates to before the 14th year of Kangxi (1675) – a white jade pendant and a dark green jade pendant (see Fig. 42). The carving of these two pendants is in relief and open-work, and represents lucky clouds moving. The carving and polishing are excellent and the beauty of craftsmanship and decoration is superb, with no flaws or over-elaboration. These pendants are representative of jades from the Kangxi period.

There are very few jade items in inherited collections: one of these few is the jade double-*chi*-dragon hand cup (Fig. 44) in the Imperial Palace Museum. The whole body is light green , open-mouthed, with a fine body shape and two *chi*-dragon handles, with artificial ageing. According to the emperor's personal writings – in the 14th year of the Qianlong era (1753) – this cup was made by the grandfather of Yao Zongren, a famous jade craftsman of the Qianlong period. It reflects the standard of reproduction jade during the Kangxi period, and casts some light on the

FIG. 43

FIG. 43 **LIU HAI**
17th/18th-century. Height: 4 in (10.2 cm). An unusual jade group depicting Liu Hai with a youthful attendant: both are wearing long, flowing robes. The larger figure is holding a spray of pomegranate; his arm is resting on his companion's shoulder. The youth is offering a toad in an oval vessel. The stone has an attractive celadon tone with mottling and russet markings, and the whole is well-sculptured and defined.

FIG. 44

FIG. 44 **DRAGON CUP**
17th-century. A cup of well-rounded form with bifid-tail dragons gripping the sides, and an oval stand with more dragons in high relief. The stone has a green tone with markings. This design is based on yingqing *porcelain of the Song/Yuan period but was also very popular in the Ming and Qing periods.*

FIG. 45

FIG. 45 **POMEGRANATES**
17th/18th-century. Length: 7⅞ in (20 cm). A fine group of pomegranates, worked in high relief with gnarled branches, leaves and an insect. The stone has a pale celadon tone with mottling and light brown blushes. The pomegranate is a symbol of fertility and posterity.

history of reproduction jades. There is also a jade ink box, square in shape, with a very high gleam (Fig. 49). Its lid is carved on the underside in both relief and intaglio with a lotus leaf and frog. Its two corners are marked with drill holes. The top of the lid is carved with a *kui*-dragon with two bodies, and carved in relief are the characters 'warm and smooth, silent and pure, straight without bends, good for the ink'. There are two small round seal marks, *zi* and *ang*. On the base of the box the two characters meaning 'Keep forever' are carved in intaglio and there is a turquoise ink stone to match, carved 'Produced during the Kangxi reign'. It was probably made during the late Kangxi period. These two items imitate ancient styles of jadeware: the cup is in the Han style, the box in Yuan style. The Qing Dynasty jade-workers continued the tradition of Ming jade craftsmanship but avoided the over-embellishment and vulgarity of Ming times. These two items are quite different in respect to their jade material, shape, design and decoration, and give an indication of the variety of reproduction jades during that time.

One very rare piece from the Yongzheng period (1723-1735) is a plain, uncarved jade two-handled cup (see Fig. 50) with the rim curving widely outward, a flat-topped then curling handle and a raised base. Its body is very thin, and on the base are the Chinese characters 'Produced during the Yongzheng reign' incised in seal script. The Shi Zong emperor often ordered his craftsmen to take an ancient piece of jade and recarve it with a thinner body and pattern. He had his own quite special aesthetic taste, and it obviously reflects his collection of ceramics. We do not know for certain whether this cup was recarved from a piece of original Ming jade or whether it was brand new. It

FIG. 46 AND FIG. 47
DOUBLE-GOURD BRUSH WASHERS
18th-century. Length: 6⅜ in (16.2 cm). A brush-washer in the form of a double gourd, finely worked in high relief with leaves, fruit, a gnarled and pierced stalk and bats at the top. The stone has a pale white-green tone. This vessel is a triumph; the intricate jade-working combines successfully with the fine stone to produce a first-class example of 18th-century skill.

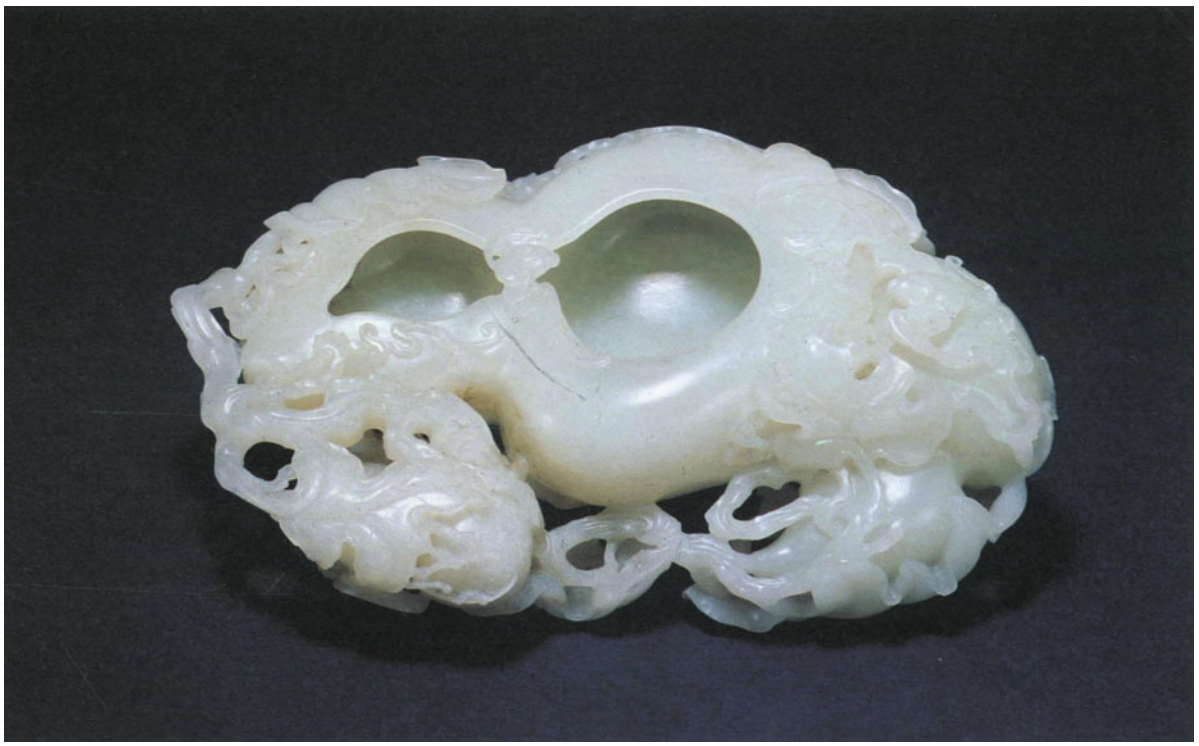


FIG. 46

FIG. 47

FIG. 48 **BOULDER** *18th-century. Height: 9½ in (24 cm). A boulder worked with a scene of a Buddhist* lohan *sitting below a tree on a rocky recess, waves curling to the base; the reverse with trees,* lingzhi, *rockwork and more waves. The flat rock-face above the* lohan *bears an inscription playing on both the physical and metaphysical aspects of the* lohan. *His mien is that of a spirit, while his body is inhabited by goodness, because, while he has already thrown away the* sutras *and gained full knowledge, he does not yet live as a Buddha. The stone has been specially selected for its veins and colour.*

is hardly significant, for the value of this piece lies in its reflection of the artistic character and craftsmanship of jade production during the Yongzheng period. At the same time there were also carvings in the style of ancient jades, much as the Ming people carved in the style of the Warring States jades.

All these jades from the early Qing Dynasty show that it was a transitional period from the late Ming to the Qianlong style. The jades from the Kangxi period were mostly influenced by the later Ming tradition, and as such are usually formal. By the time of the Yongzheng period the jade craftsmen began to spend more time and effort on fine carving and careful production, and this trend continued until the early part of the Qianlong reign. Technically, it paved the way for the distinctive style of jade carving of the Qianlong period.

We know from the above records and pieces that during those 115 years before the Qianlong emperor there were very few new pieces made, and the new pieces mostly bore the influence of the late Ming style of carving, with very little change. However, during these years the

FIG. 49

FIG. 49 **INK BOX** *Kangxi period. An ink box of square form, the lid worked in low relief with characters, the base inscribed 'Keep Forever'. Part of the scholar's desk group, this restrained and subtle jade is a very pleasing piece.*

FIG. 50

FIG. 50 **CUP WITH GEOMETRIC HANDLES** *Yongzheng period. A cup of well-rounded form with formal geometric handles. The stone has a white tone with russet markings. This is a rare jade from a very short period. It is generously formed, the whole being understated but beautifully proportioned.*

FIG. 51

FIG. 51 **TWO PHEASANTS** *18th-century. Height: 7¼ in (18.5 cm). A boulder in the form of a rock with two pheasants perched on outcrops, the base with swirling waves, the reverse with a flowering peony tree. The stone has a pale green tone with russet markings. This strong jade has encouraged the worker not only to retain the boulder form but to further develop the theme in creating the craggy rock. Rocks, particularly sculptured or weathered examples, fascinated the Chinese cognoscenti and were held in high regard. They were collected for their aesthetic properties. These stones were known as* guaishi, *or strange stones; many emperors became involved in this petromania, and in the Imperial Palace, Beijing, there is a garden of such rocks.*

FIG. 52 **BOWL WITH CICADA RING HANDLES** *18th-century. Length across handles: 9½ in (24.3 cm). A bowl of circular form, worked in high relief, with cicada ring handles, the centre carved with fish and water weeds. The stone has a pale green tone with a brown/pink blush. It is a fine example of 18th-century jade. The cicada handles are a rare feature, and the fish in low relief allows much of the stone to reveal its qualities.*

FIG. 52

FIG. 53

FIG. 53 **BOULDER WITH CHILDREN AND LION** *18th-century. Length: 6¼ in (16 cm). A boulder worked in high relief with a landscape scene of children, the first of whom leads a lion and cub forward as he holds a religious symbol aloft. The quality of the detail is excellent.*

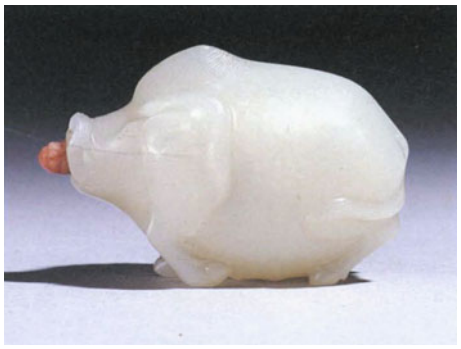


FIG. 54

FIG. 54 **SNUFF BOTTLE** *A nephrite snuff bottle carved as a hog. The stone has a white tone. A beautifully hollowed-out piece, and an example of the wide range of types to be found in this medium.*

FIG. 56 **VASE WITH TUBULAR HANDLES**
18th-century. Height: 10¼ in (26 cm). A vase of cylindrical form, swelling to the centre, the neck with tubular handles above a low-relief band of taotie *masks. The stone has a translucent pale celadon tone with mottling. It is an elegant vase of near perfect proportions, the design subtly contrasting with the restraint and plainness of the body.*

FIG. 55 **OVOID VASE WITH DRAGONS**
18th-century. Height: 6½ in (16.5 cm). A vase and cover, the ovoid body worked in high relief with curling dragons. The stone has a strong yellow tone with markings. This is a good example of strong relief work skilfully combined with striking colours.

FIG. 55

FIG. 57

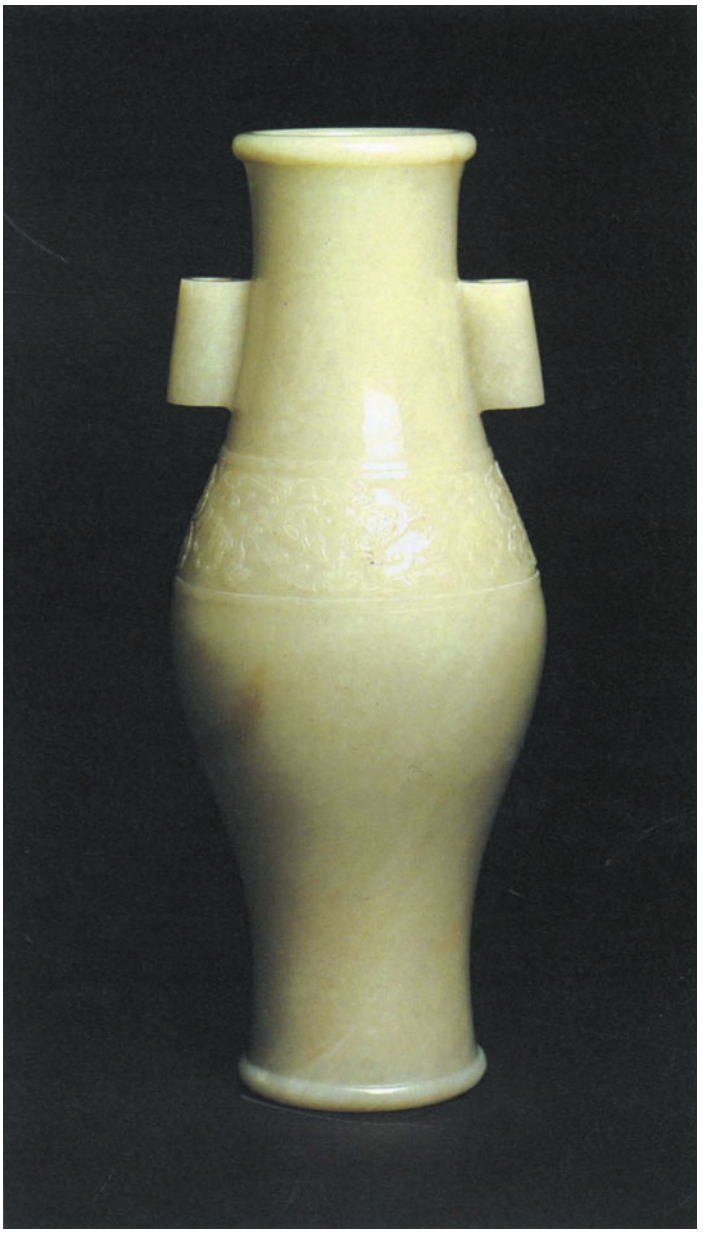


FIG. 56

FIG. 57 **VASE WITH TREES AND BIRDS**
18th-century. Height: 6¼ in (16 cms). A vase in the form of two tree trunks, worked in high relief with birds, pine branches and trailing vines. The stone has a spinach-green tone with black inclusions. A popular model for jade workers, this example is exceptional for its composition, the quality of its workmanship and the boldness with which the relief work skilfully projects from the main trunks.

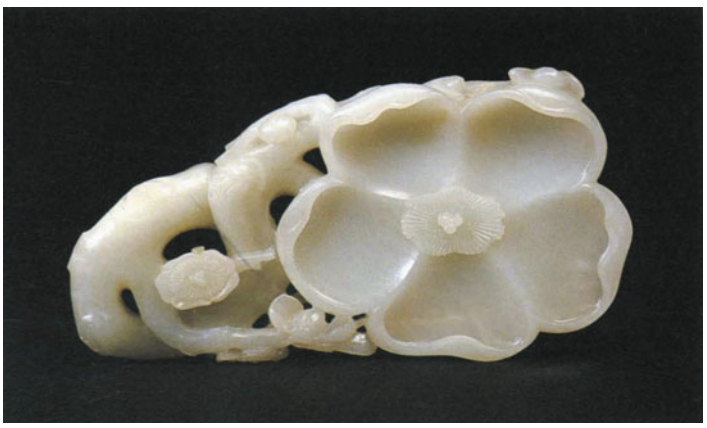


FIG. 58

FIG. 58 **FLOWERHEAD AND BRANCH**
18th-century. Length: 5¼ in (13.5 cm). A white jade group of an open prunus flowerhead and branch. The stone in this example is fine, with some mottling and flaws integrated carefully into the design. The relief work is well done, the plainness of the branch and interior of the large flowerhead contrasting with the detail on the small buds, flowerheads and stamen. The prunus is grouped decoratively with pine and bamboo: they are collectively known as 'The Three Friends', and when seen together symbolize spring.

FIG. 59

FIG. 59 **POMEGRANATES AND MERRY BOYS**
18th-century. Height: 6½ in (16.5 cm). A group of a cluster of pomegranates and the Twin Genii, one of whom holds a ruyi *sceptre. The whole is carved in high relief. The stone has a pale white-green tone. This playful subject is a fine example of 18th-century jade-working and is auspicious with its pomegranates (the symbol of plentiful progeny), and the Twin Genii of Mirth and Harmony.*

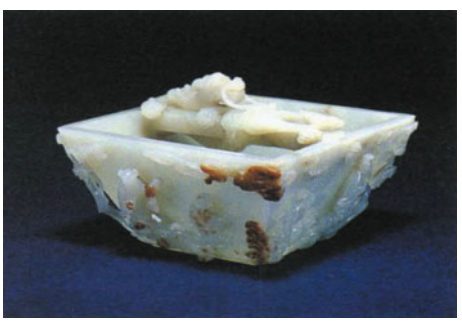


FIG. 60

FIG. 60 **DECORATED MEASURE**
18th-century. Right: 4¼ in (10.8 cm). A measure of tapering form, worked in high relief with figures and cloud sprays. The sides are connected to the interior by a bar, around which curls a dragon. This is an example of an article of humble origin enhanced by the jade carver and superbly ornamented with auspicious subjects.

FIG. 61

FIG. 61 AND FIG. 62 **FRUIT-FORM BOX**
18th-century. Length: 3¼ in (8.3 cm). A box and cover in the form of a fruit. The two halves are connected by interlaced stems, the top is decorated with a small beetle, and the stone has a white tone with russet markings. Part of a rare group, this attractive small example is sensitively rendered and well-hollowed.

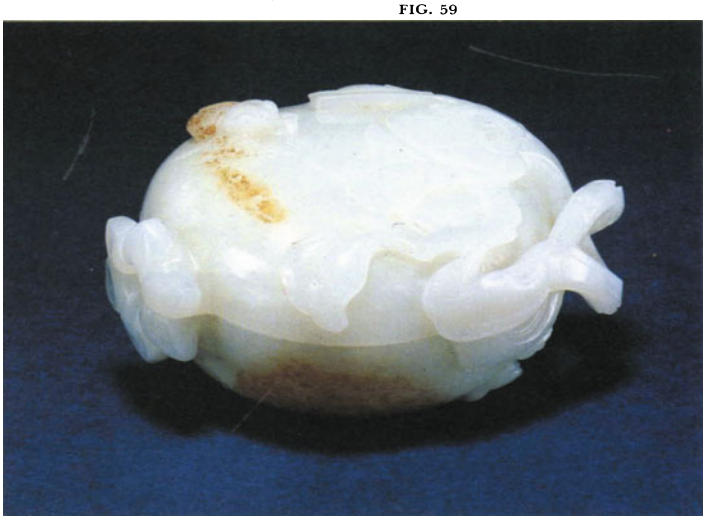


FIG. 62

emperor's taste combined with the jade craftsmanship and technique of Suzhou to form a new style.

The Flourishing of Qing Dynasty Jades

During this period of 52 years jade production flourished and reached a peak in its history. From a historical perspective, the Manchus had been in power for nearly 100 years and the Kangxi and Qianlong emperors had seen strong reigns. The population was growing, production was developing, cities were prosperous and society was peaceful. All these factors laid a solid foundation for the development of jade craftsmanship. Famous jade craftsmen with excellent techniques were recruited by the imperial court to work in the production workshops such as Ruyi Guan (The Imperial Department for Production). Ordinary workshops in Yangzhou and Wumen also employed many craftsmen, and jade craftsmanship was beginning to mature.

The situation regarding jade supply changed and materials were now abundant. From the 20th to the 24th year of the Qianlong era (1755-1759) the Manchurian army, with some local support, quelled several rebellions in the northwest, and the Qing court control reached the northwestern border area. This meant that jade from Khotan (Hetian) could be sent almost continuously inland and there was a sufficient supply for both the imperial and the ordinary workshops. This increase in the supply of jade material played an important role in the flourishing of Qing Dynasty jade craftsmanship. These three conditions were essential for the development of the jade industry in the Qing Dynasty, and this development can be viewed from a number of aspects.

JADE TRIBUTE AND PRIVATE TRADE

The Hongli emperor wrote, in his poem 'Admiring a Khotan Jade Bowl': 'Jade from Khotan was given as a tribute in the spring and autumn'. In another poem, 'Scene as They Mine Jade in Khotan', he writes 'Jade mined in Khotan was sent as a tribute regularly every year'. According to the *Tang Chao* (Chamber Records), a court document from the first year of the Daoguang era, 'after peace was restored to Xinjiang every year we received more than 4000 jin[1] in weight of river jade materials from Khotan and Yarkand'. This record is relevant to modern-day research into jade. If an average of 4000 jin of jade was sent annually to the imperial court from the 25th year of Qianlong to the 17th year of Jiaqing, a period of 52 years, the total amount would have approximated 208,000 jin. The true amount was in fact much greater than this. The Hongli emperor

FIG. 63

FIG. 64

FIG. 63 **WISE MAN WITH PRUNUS**
18th-century. Height: 4in (10.4 cm). A sage and attendant, holding sprays of prunus; the stone has an almost flawless pale celadon tone. This is a well proportioned and charming composition.

FIG. 64 **VASE WITH DRAGON AND CATFISH**
18th-century. Height: 10½ in (26.7 cm). A large vase of tapering form with a flared lip. The body is decorated with shou *motifs, dragons, catfish and a band of overlapping, upright blade designs. This is a fine example of imperial jade.*

once wrote: 'I get jade from the rivers regularly every year,[2] I have received jade from the mountains many times.' From this it is evident that in addition to the regular annual tribute, the imperial court often asked for extra jade according to its needs. This did not happen every year, but perhaps once every three or four years. The real total over the 52 years probably amounted to 300,000 jin (150 tonnes). If the amount of jade circulated through private trade is included the total would come to about 500,000-600,000 jin (250-300 tonnes).

Jade from Xinjiang was of varying quality: mountain jade was dry, with the largest pieces weighing 9000 jin; river jade was smooth, with the smallest pieces less than a pebble in size. The colours were dark, white, green-white, dark blue, multi-coloured, black and yellow; to date no record of red jade has been discovered. The mining and use of jade had to be authorized by the imperial court; unauthorized digging by the local people was prohibited. Yet, despite restrictions, local officials, together with

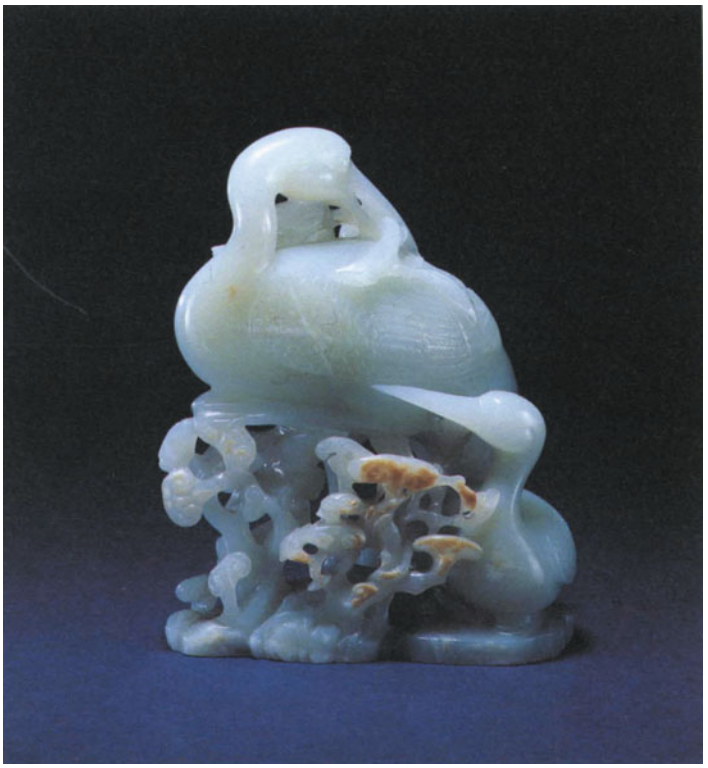


FIG. 65

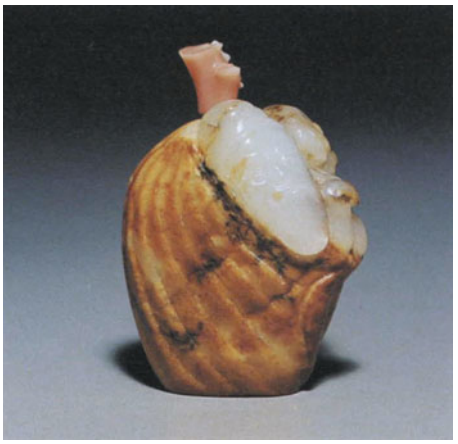


FIG. 66

FIG. 65 **CRANES**
18th-century. Height: 6 in (15.2 cm). A group of two cranes before a cluster of lingzhi *sprays. The stone has a pale white-green tone with russet markings. This finely composed group is well-detailed. The crane is symbolic of long life.*

FIG. 66 **DECORATED SNUFF BOTTLE**
18th-century. Height: 2¼ in (5.7 cm). A snuff bottle carved as a figure of an old man with a lion around the shoulders. Whilst many jade pendants and fingering pieces were converted into snuff bottles by hollowing them out, this figure was carved from the very first with its eventual use in mind, as can be seen by the folds in his robe at the top encircling the mouth.

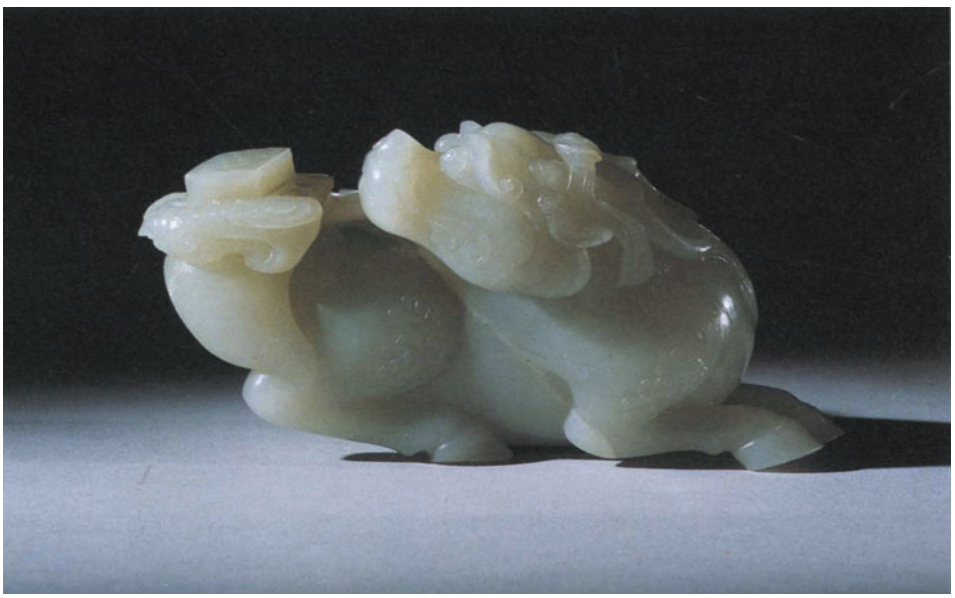


FIG. 67

FIG. 68

FIG. 67 ***KYLIN* FIGURE**
18th-century. Length: 5in (12.7 cm). An unusual jade figure of a kylin, *its head turning over its shoulder towards its back on which rests a set of books on vaporous clouds. The stone has a pale celadon and white tone with markings.* Kylins *are rarely represented in jade.*

FIG. 68 **TREE-TRUNK AND PRUNUS BRANCH**
18th-century. Height: 3⅛ in (8 cm). A small vessel in the form of a tree-trunk, a prunus branch to the side, a clump of lingzhi *to the base. This is a good example of the increasingly popular yellow-green stone, successfully rendered.*

businessmen, still dug and carried on their private trade. The names of those who were punished for smuggling jade can be found in historical texts and government documents and it is possible to see how limited the effectiveness of the imperial court was. On an imperial inspection tour in the south the Hongli emperor saw 'splendid quality jades in the Suzhou and Yangzhou workshops. You only have to see them to know they are from Khotan. This proves that Muslims and businessmen have been smuggling jade out to the Central Plains for profit. How can I bear it?' He went on to say 'There are many jades in Suzhou market. Even worse is that the local people know they have been smuggled in and have not been stopped . . . . There may be tributes to the Emperor yearly, but private trade still continues among the local people, and without strict prohibitions what can I do?' It is evident that the local jade workshops were able to obtain jade from Khotan (Hetian) with ease.

CRAFTSMEN AND JADE CENTRES

Two important factors marked the flourishing of jade production during this period: the growing number of jade production centres and the movement of jade craftsmen. Tribute jades were sent from Xinjiang to the imperial court and after examination, ranking and design, some would be kept at the Ruyi Guan (The Imperial Department for Production) for carving while others were sent for production to the eight departments under the imperial court, in Suzhou, Lianghuai, Hangzhou, Jiangling, Huaiguan, Changlu, Jiujiang and Fengyang. Of the eight, Suzhou and Lianghuai were the highest ranking; Hangzhou, Changlu, Huaiguan and Jiangling were second-rank, and Jiujiang and Fengyang were less important. There were eight places that were also jade production centres for the private jade industry: Suzhou, Yangzhou, Hangzhou, Jiangling, Huai'an, Tianjin, Beijing and Guangzhou. These centres were all located in large cities that had a developed economy and communications network; Suzhou, Yangzhou, Hangzhou, Jiangling, Beijing and Guangzhou are traditional centres of jade production and each has a long history. In addition, Hanjing, Xi'an and Nanyang may also have had their own local jade production and trade, albeit on a smaller scale.

The jade centres developed in different degrees during the Qing Dynasty: Huai'an and Tianjin, for example, were newly developed jade centres without a historical jade industry; they changed with the political and economic climate, and saw only a very short period of expansion in their jade industries. The success or failure of these places also reflected the settlement of jade craftsmen, who were peripatetic.

In the Yuan and Ming dynasties Beijing was already the

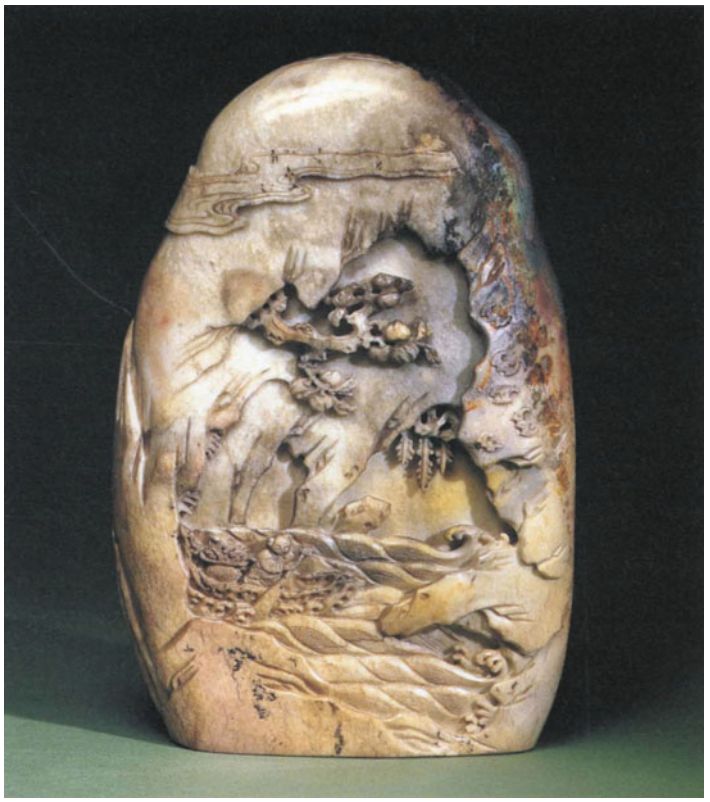


FIG. 69

FIG. 70

FIG. 69 **BURNT BOULDER** *18th-century. Height: 9¼ in (23.5 cm). A fine burnt boulder, worked in high relief with a scene of a boy rowing a boat below a branch of peach-sprays. The quality of the detail is good and the colour is of the so-called 'chicken-bone white' associated with the best burnt jades. Also clearly visible are the pinkish-red areas appreciated by the Chinese collectors of burnt jade and called 'baby's blush'. The examples of jade that turn the colour of calcined bone are nephrite: jadeite tends to become glass-like and lose its shape when subjected to extremes of heat.*

FIG. 70 **ELEPHANT** *18th-century. Length: 4⅞ in (12.25 cm). An unusual representation of an elephant, the grey stone being used to great effect. The whole has a natural, rounded form, and an air of tranquillity. The stone has a rare mottled grey tone with markings.*

FIG. 71

FIG. 71 **GOOSE**
18th-century. Length: 4¾ in (12.2 cm). A figure of a goose, its head turned over its back. The details of the wings and head are given an archaic quality. The stone has a pale whitish-green tone with light brown blushes. This jade is a fine example of a subject popular in the 17th and 18th centuries. Its combination of a pure stone, controlled detail and a graceful composition is highly successful.

most important centre for jade production. Many craftsmen respected Qiu Chuji as a 'jade spirit' (or ancestor of jade craftsmanship), and Beijing jades were known as 'Northern Jades'. In the Qing Dynasty, when the Ruyi Guan was short of labour, local Beijing craftsmen were usually employed. This shows that there existed in the capital several independent jade enterprises and a number of jade craftsmen. However, because their technique was not so advanced and their carvings were rough, they were less well regarded by the Hongli emperor and the officials of the Department for Production.

The most important centre of jade craftsmanship in the south was Zhuanzhu Lane in Suzhou. Jade craftsmen there were advanced in technique and respected the Xuan Ling king of the Zhou Dynasty as their own master or 'patron saint' of jade craftsmanship. For this reason the Officer of Production of Suzhou was able to provide craftsmen for the imperial Department for Production. The work of these jade craftsmen was to select good jade materials, to design, carve and finish, to carve characters and to age the jade pieces; they would often work for the imperial court for years. Jade craftsmen from Suzhou were also sent to Jiujiang and Fengyang.

There were very strict labour divisions in the Suzhou jade industry: sawing the raw material, drilling, shaping the piece, carving in detail, polishing, carving characters and staining were tasks particular to individual craftsmen. One day's work would fetch about 5.6 grammes of silver. In general the person in charge of the whole procedure was one who was particularly skilled at selecting materials and making designs. The Suzhou jade industry was especially famous for its techniques of carving characters and staining, both of which maintained its reputation for first-class quality throughout the whole of the Qing Dynasty.

Another important centre for the jade industry was the region around the Huai River based in Yangzhou, with its many famous jade craftsmen. This centre was especially renowned for the carving of large pieces of jade. The largest piece made there, 'The King of Jades', was the jade known as 'Yu Controlling the Flood'. Effective management of the Yangzhou jade industry meant that production costs were lower there.

The jade industries of Jiangling and Huai'an operated on a smaller scale. The Officers for Production in Jiangling and the Governors of Huai'an often had jades carved for the imperial court, so it was necessary for them to manage a number of jade craftsmen who came from Suzhou and Yangzhou or who were recruited locally. Local craftsmanship was generally inferior to that of Suzhou and Yangzhou.

The position of Official for Salt Administration (tax collector) of Changlu was originally based in Changlu itself, then later moved to Tianjin, another large centre of the jade industry in north China. The Tianjin craftsmen carved a number of jades for the imperial court on the orders of the Official for Salt Administration of Changlu, such as 'Green Is the Southern Mountain', 'Six Dragon Drum' and 'Square Vessel with Two Rings', each weighing 3000 jin. The craftsmen who made these pieces probably came either from the south, i.e., Yangzhou or Suzhou, or from the north, i.e., Beijing.

FIG. 72 **BUDDHIST LION**
18th-century. Length: 3 in (7.5 cm). A group of a Buddhist lion and cub, a cloud spray issuing from the lion's mouth. The stone has a white tone. It is a charming group; Buddhist lions are mythological creatures often found in pairs outside tombs or temples in the role of guardians.

FIG. 73 **SEATED DOG**
18th-century. A figure of a seated dog, its features and body finely detailed and sculptured. The stone has a white-grey tone with markings. This particularly fine animal is clearly in the great tradition of animal carving. It has an element of sophistication and sharpness more akin to the Qing Dynasty, but contains some of the elements and subtlety of earlier Song animals in the form of its head.

FIG. 72

FIG. 73

FIG. 74 **MYTHICAL ANIMAL WITH *LINGZHI***
18th-century. Length: 3⅜ in (8.5 cm). A fine white jade figure of a mythical beast, a lingzhi *spray in its mouth. The stone has a good white tone, and the colour and pose of the animal combine to demonstrate the 18th-century worker's art. The lightness of the pose, the detail and the playful vitality of the animal are very much in the tradition of the 18th century.*

FIG. 74

FIG. 75

FIG. 75 **GREY HORSE**
18th-century. Length: 7½ in (19 cm). A superb jade figure of a recumbent horse. Its head is raised in an alert posture turning to its back, and the whole is well-modelled, with fine details to the head, mane, tail and hooves. The stone has a rare grey mottled tone with varying degrees of colours – the lighter areas used for the head. This piece was formerly in the collection of Lady Patricia Ramsay, the last surviving daughter of Queen Victoria. It is a magnificent example.

FIG. 76

FIG. 77

FIG. 76 **BUFFALO AND BOY**
18th-century. Length: 5 in (12.7 cm). A group of a buffalo and boy. The beast is in a recumbent posture with a rope attached to its nostrils and its right horn extending to the boy who grasps it with both hands. The stone is white. This jade is a supreme example of the jade worker's art. The stone was carefully selected to be skilfully worked into the most superior of compositions.

FIG. 77 ***LINGZHI*-FORM WATER VESSEL**
17th-century. Diameter: 3 in (7.8 cm). A fine water vessel, carved in the shape of an open lingzhi *fungus, with further branches of* lingzhi *forming the base. The stone has an even white tone with a small russet inclusion. Well-sculptured and finely detailed, the composition and colour exceptionally pleasing, it is a superb example of a small vessel.*

FIG. 78

FIG. 78 **LEAPING CARP**
18th-century. Height: 6½ in (16.5 cm). A group of leaping carp, the fish with open mouths, the flaming pearl in high relief. The stone is of contrasting grey tones. This jade combines many qualities: the material is broadly sculptured, the fish leap dramatically from the swirling waves and rocks and the stone is layered to play its full part in the dramatic effect. The carp in Chinese mythology was transformed into a dragon as it leapt the Lung-men falls and is symbolic of success and official promotion.

The jade craftsmen working in the Ruyi Guan came from Suzhou and Beijing and there were also some clan craftsmen of the Manchurian Eight Banners (the Provinces). However, the Suzhou craftsmen were the driving force. There was usually a core of four or five Suzhou craftsmen in the Ruyi Guan, and more were brought in from Suzhou when necessary. The southern craftsmen were treated well: they were paid a food allowance of 150-200 grammes of silver, and every season received a clothing allowance of about 375 grammes, with the Manchurians receiving an additional 100 grammes.

Guangzhou was the political, economic and trading centre of the Lingnan region during the Qing Dynasty, and was also the location of the customs house. There was a reasonable level of jade industry in Guangzhou, and one would expect to find a high level of craftsmanship and technique there, yet there is no comparison with Suzhou and Yangzhou. It may be for this reason that there appears to be no record of the imperial court ever commissioning jade from Guangzhou. However, there are some jade items that were tributes from Guangdong in the collection of the Qing court in the Imperial Palace Museum: jade pearls, a landscape in a bowl, a *ruyi*-sceptre, some carved and decorated jades, agate, coral and jadeite, all of which are hard materials and are superbly fashioned. The technique of the Guangzhou craftsmen therefore should not be underestimated. From these items it is evident that the jade craftsmen of Guangzhou had probably learnt some techniques from European jewellery. They were especially good at combining jade and jewels to make landscapes in bowls and jewellery, and in this respect their work was quite different from the traditional techniques of Yangzhou and Suzhou. Unfortunately, I do not have a comprehensive knowledge of the Guangzhou craftsmanship since we have not seen any complete Guangzhou jade items of this period.

In Xinjiang there were Manchurian clan and Uighur craftsmen carving jade, the latter working as slaves. A large jade plate dating from the Qianlong era has been unearthed at Yili in Xinjiang; it was probably made and carved by Uighur craftsmen. In the 27th year of the Qianlong era a number of Uighur jade craftsmen were requisitioned by the Department for Production, but the Hongli emperor was not satisfied with their work. In his poem 'Jade Ladle in the Shape of a Half Melon from Hindustan' he wrote: 'There is jade from Khotan, but people there don't know how to carve'. He added the note: 'Although there are some jade craftsmen in Khotan they do not do fine carving.' Generally speaking, Xinjiang jade craftsmen did not influence the development of the Chinese jade industry as a whole; their influence was merely on a regional scale.

Jade materials found in other places include Baolan stone, Maoshan and Jiezhou stone (in modern-day Fujian), stone from Ba and Jia (in modern-day Guizhou and Sichuan), stone from Xuanhua and Zhongzhou (in modern-day Sichuan), jade from Lantian (in modern-day Shaanxi), Nanyang (in modern-day Henan) and Dian (in modern-

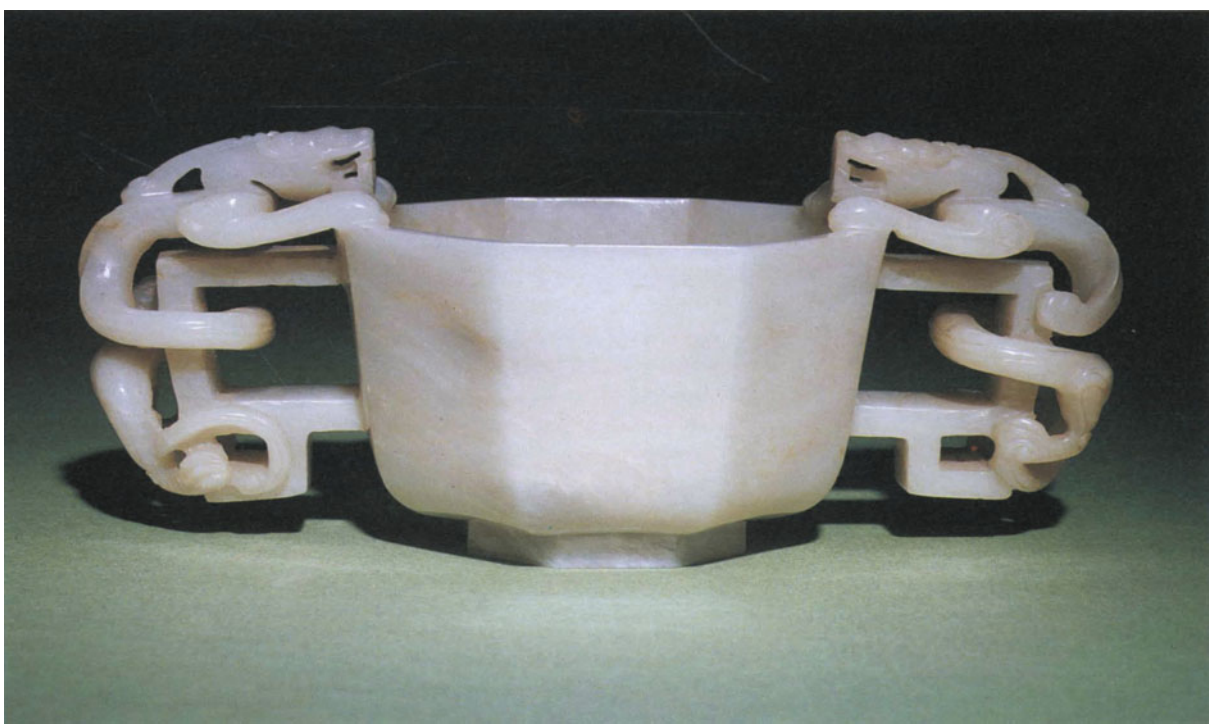


FIG. 79

FIG. 79 **TAPERED OCTAGONAL BOWL**
17th-century. Diameter over handles: 5⅞ in (15 cm). A fine bowl of tapered octagonal shape, supported on a low foot rim. It has twin geometric handles, around each of which is a coiled dragon. The stone has a very pale celadon tone with some darker markings. It is thought by some authorities that this type of cup relates to porcelain examples of the late Song/Yuan period usually covered in a pale blue (yingqing) glaze. The design is also found in bronze and other media.

FIG. 80

FIG. 80 **HORSES**
17th/18th-century. Length: 5⅜ in (13.7 cm). A boulder worked in relief with a scene of two horses at the edge of a stream before rockwork and a willow tree. The stone has a white tone. The subject of horses was popular in art throughout China's history. It is not a common subject on jade, and, where found, is more likely to be a single animal than a pair.

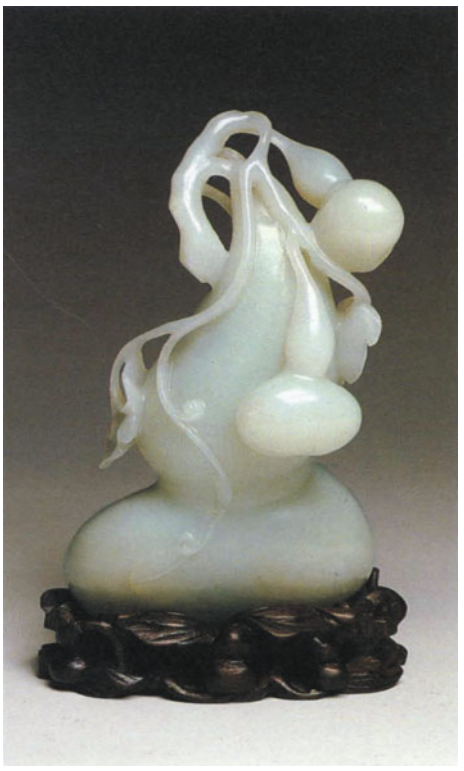


FIG. 81

FIG. 81 **GOURD-FORM CARVING WITH BAT**
17th/18th-century. Height: 5⅛ in (13 cm). A fine jade-carving of a double gourd, with leaves and tendrils in relief and a bat to one side. The stone has a white tone. The slender pierced tendrils are sensitively worked, and the whole gourd is well-rendered and carefully composed.

FIG. 82

FIG. 82 **LOTUS VESSEL**
17th/18th-century. Length: 7½ in (19 cm). Width: 5½ in (14 cm). A large jade lotus vessel, well-modelled in the interior with a crouching toad. It has a strong celadon green tone. The vessel obviously caught the imagination of the worker: the colour is appropriate for the subject chosen, and the curving flowers are beautifully introduced into the design.

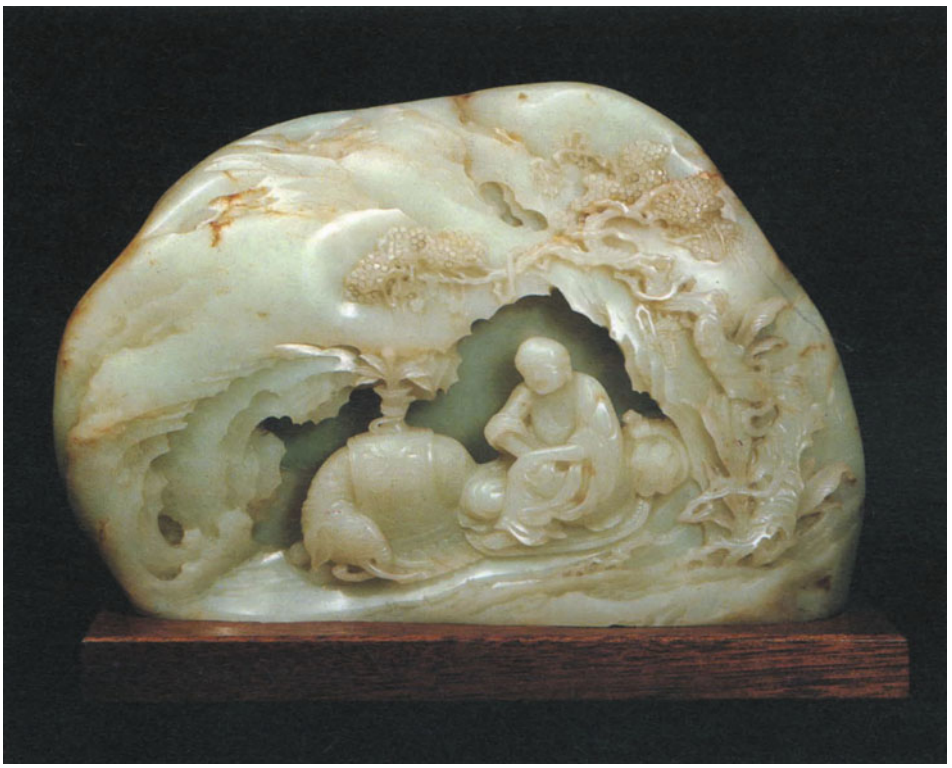


FIG. 83

FIG. 83 ***LOHAN* AND ELEPHANT**
17th/18th-century. Length: 8⅝ in (22 cm). A fine boulder worked on one side with a lohan *in a loosely draped robe within a hollowed cave, an elephant and a bundle of scrolls. The reverse is worked with pine and* lingzhi. *The stone is a pale green with russet markings. This boulder is most successful in its size, retention of form, the high quality of the work and detail, and the choice of subject.*

FIG. 84 **PLAIN VASE**
17th/18th-century. Height: 5⅞ in (15 cm). A vase of plain form. The cylindrical neck has taotie *ring handles, and a faceted body over a flared and stepped foot rim. The stone has a pale white tone with light brown blushes. This vase is successfully rendered. The stone has a mellow attractive tone, and the shape possibly drew its inspiration from a Ming bronze form.*

FIG. 84

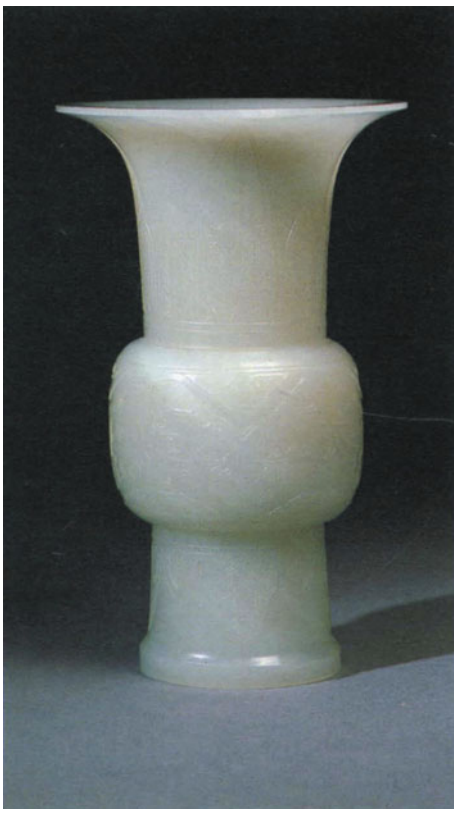


FIG. 85

FIG. 85 ***GU* BEAKER**
18th-century. Height: 5½ in (14.1 cm). A gu *beaker, the body with raised central section worked with a band of* taotie *masks, the splayed foot and widely flared neck worked with stiff leaves. This jade copies an archaic bronze form but is delightfully proportioned, with low-relief carving of an exceptional quality. The stone has a very good colour. Altogether it is a very pleasing example of an archaic-revival jade.*

FIG. 86

FIG. 86 **LEAPING DRAGON FISH**
17th-century. Height: 4 in (10.25 cm). A large group of a leaping dragon fish, a flaming pearl to its side, the whole worked in high relief. The stone has a whitish-green tone with brown-red markings. This subject, popular in jade, is here dramatically depicted with the vigour with which the fish leaps from the waves seemingly caught at a moment in time. The relief work is particularly daring and of a very fine quality.

FIG. 87

FIG. 87 **FLOWERING LOTUS BOWL**
Qianlong period. Diameter: 8⅛ in (20.8 cm). A superb jade bowl with a flowering lotus spray to the interior.

day Yunnan). The materials were carved by local craftsmen or by craftsmen from nearby cities. These jade pieces were comparatively rough, and were only traded on a limited scale; they did not influence the national jade industry.

THE PRODUCTION OF JADE

In the Qing court jade was produced according to a strict process: the selection of material, the measuring up for design according to the materials and then the carving. Every key stage had to be authorized by the emperor, and once a piece was finished it was sent to the emperor to be ranked. A special award was given for the excellent work of the best craftsmen. The emperor would glance through average pieces and send most of them to the stores.

A typical example is the production process of the 'Yunlong (Cloud and Dragon) Jade Drum':

1. Selection of materials
2. Design
3. Sawing
4. Drilling, including making holes and hollowing-out
5. Shaping
6. Open-work carving
7. Detailed carving
8. Polishing
9. Carving characters and seals
10. Ageing (staining)

The process of jade production in the ordinary workshops was similar to that of the imperial workshops. The jade craftsmen who could best design and select materials were made heads of the workshops. In the Department of Production the so-called Southern Masters, Yao Renzong and Zhou Jingde, both from Suzhou, were heads of the Ruyi Guan workshop as they could design and select

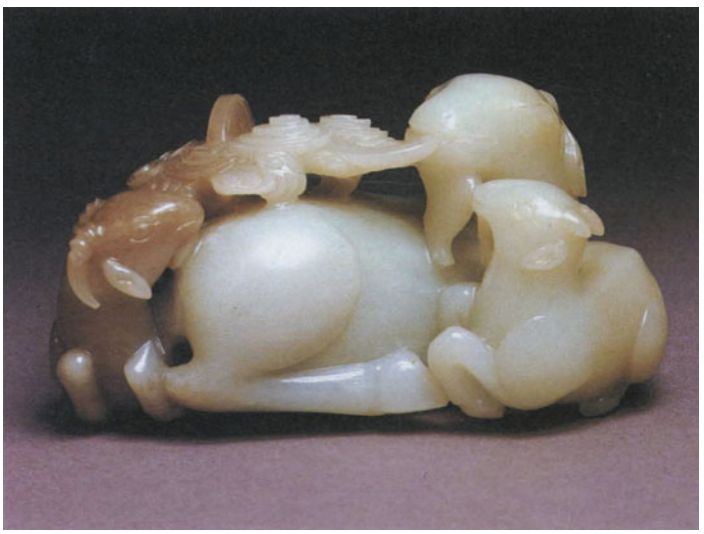


FIG. 88

FIG. 88 **GOAT AND KIDS**
17th/18th-century. Length: 4⅜ in (11 cm). The vapour from the cloud is issuing from the mother's mouth and partially enveloping a yin-yang symbol.

FIG. 89

FIG. 89 **INCENSE BURNER WITH DRAGON** *18th-century. Length across handles: 6¾ in (17 cm). An incense burner and cover, the domed top with a curling dragon finial, the whole with* taotie *masks divided by split flanges, the sides with bird ring handles, all on a pedestal foot. The stone has a strong spinach-green tone. This well-balanced piece is an example of the type of classic shape produced in dark green jade: the relief work is confidently done and the whole is pleasing in its proportions.*

FIG. 90 **BUDDHIST LION** *18th-century. Length: 7½ in (19 cm). A large and fine jade figure of a Buddhist lion gripping a brocade ball and holding a ribbon in its paw. Although this large animal group may be somewhat too complicated and assertive for some collectors' tastes, it is, however, a very fine example of the worker's art: the stone is varied in its colour tones (predominantly pale green) and the snarling animal is caught in a moment of time as it turns to face the viewer.*

FIG. 90

FIG. 91

FIG. 91 **CENSER ON TRIPOD LEGS**
18th-century. Height: 9⅝ in (24.4 cm). A censer and cover standing on plain tripod legs. The large bowl is carved in relief with an archaistic frieze of confronting animal motifs, further paired dragons around the shoulder, and with two upright strap handles. The cover has a matching frieze and is surmounted by a pierced knop in the form of a dragon. The stone has a fine spinach-green tone with dark speckling and paler inclusions. This classic example of spinach jade at its best is the type of incense burner and cover found in the imperial palace. Its proportions and bold roundness are particularly pleasing, as is the low-relief carving and magnificent, tautly-posed dragon knop.

materials. The workers in charge of sawing and drilling were regarded as being of the lowest rank, while the jade-workers who did detailed carving, character-carving and staining were the most important as these were difficult techniques.

GRINDING AND CARVING TECHNIQUES

Jade production during this period was splendid, with various types of jades and with many different functions to fulfil, the use of jade increased in many areas of daily life. The carving of jades naturally demanded special techniques and the jade craftsmen of the Qing Dynasty inherited and developed the traditional grinding and carving techniques such as relief and incised line carving, relief and incised pattern-work (much like European cameos), open-work and staining.

Some of the jade pieces were carved with scenes of landscapes, plants or stories of historical figures. To do this kind of work a craftsman required a deep understanding of his subject before he started to carve. Usually he sought

FIG. 92

FIG. 92 **TOAD WITH POMEGRANATE SPRAY**
17th-century. Length: 3 in (7.5 cm). A figure of a three-legged toad with a spray of pomegranate; it is worked in naturalistic detail, and the stone has a pale green tone with russet markings. In the paddy fields of China, toads were favoured for their supposed medicinal qualities. In mythology, the toad is said to live in the moon, which it swallows during the eclipse. It became the sign of the unobtainable and was associated with Liu Hai, a student of Daoist magic and the only one who could snare it. The three-legged toad also became a symbol of commercial success.

FIG. 93 **CYLINDRICAL BRUSH-POT**
18th-century. Height: 4⅞ in (12.5 cm). A brush-pot of cylindrical form worked in high relief with scenes of sages and their attendants in landscapes. The stone has a pale celadon tone.

FIG. 93

to appeal to spiritual and artistic taste. The artists of the Qing court, the Ruyi Guan and Suzhou mostly belonged to the Siwang, Wu or Hui schools. They were equally good at depicting landscapes, plants and historical figures in a realistic manner and their work had a strong influence on the design and carving of jades.

The carving of Qing jades was very carefully done, using different techniques to express the various movements and emotions of human figures. When they carved landscapes the jade craftsmen tried to represent the characteristics of brush painting. Scenes of human figures and landscapes on jade mountains and jade screens were mostly carved in relief on different levels. The carving was excellent, very vivid and similar to the wood, bamboo and iron carving of Jiangling. The designs mainly used the three methods of Chinese perspective, emphasizing the flat horizon, height and depth, although occasionally one-point perspective was used. This confirms that jade design was influenced by contemporary painting of the Qing Dynasty.

Some items are animals carved three dimensionally, and there are examples of a cow, a horse, sheep, a dog, deer, the mythological evil-averting animal of fortune, a chicken, a duck, a crane, a magpie, a quail, a phoenix and human figures of Buddhists and Daoists. To carve these figures a craftsman needed to bring out the natural beauty of the raw material, to understand the true feel of the stone and at the same time carve in very great detail. One example is a box in the shape of a quail squatting on the ground, its feathers precisely carved. The craftsman was seeking to achieve the Song style of *gongbi* (exquisite and detailed) painting. It is in the 'art academy' style of northern Song. Another jade bird (see Fig. 71) has its head carved with clear facial details, and the nails on its feet and the feathers on its wings are all carved in vivid detail. Yet the craftsman ignored all other body feathers, and in doing so achieved an effect of immediacy enhancing the superb quality of the material itself.

During this period jade craftsmen intentionally conserved the exterior parts or rind of the raw jade material and used them as part of the landscape and botanical scene. The changing colours were used, for example, to give an impression of autumn trees. In the imperial court workshop the technique was called *pi zao yu* (rough skin jade) and in the ordinary workshops *liu pi* (keeping the skin). The same technique wsas used in bamboo carving and was known as *liu qing* (keeping the green skin).

Reproduction jades have had a long history in the development of Chinese jades, starting in the Song Dynasty, and flourishing in the Ming. In the Qianlong period reproduction jades were even more popular, and were not limited only to reproductions of a certain period – everything from Shang, Zhou, Qin and Han was imitated.

FIG. 94

FIG. 94 **FINGER CITRON** *18th-century. Length: 9¼ in (23.5 cm). A large group of a citron, modelled in open-work and high relief, the curled fingers, gnarled stalk and leaves naturalistically rendered. The stone has a pale green tone. The finger citron, 'citrus medica', was inedible but had a strong odour used for scenting rooms. It was offered in porcelain bowls before the shrines of household gods at religious festivals, particularly at the New Year, and was deemed by the Chinese to resemble the Buddha's hand. Sometimes seen to illustrate the gesture of grasping for money, it also became a symbol of wealth. This example is superb in its sculptural strength and ambitious use of such a large stone.*

FIG. 95

FIG. 95 **DUCKS**
17th/18th-century. Length: 4¼ in (11cm). An unusual group of two mandarin ducks recumbent in a large lotus leaf, the edges curling. The stone has a pale green tone with russet markings. This fine group is beautifully sculptured: the ducks, symbolizing marital bliss, jointly hold in their beaks a lotus stem. The stone is a colour typically chosen for aquatic subjects, with its green tone and brown markings.

FIG. 96

FIG. 96 **SHOUXING**
17th/18th-century. Height: 7⅞ in (20 cm). An exceptionally fine and large jade group of a Shouxing, standing in long flowing robes holding a large peach before him. To one side a young attendant holds a large spray of lingzhi *fungus, and to the other a deer holds a spray of fungus in its mouth. Shouxing is the stellar god of longevity and is usually depicted as a sage with a massive cranium. The peach in Chinese art symbolizes longevity, spring-time and marriage and it appealed greatly to the Chinese aesthetic sense. The deer is believed by the Chinese to live to a very great age and thus became an emblem of long life. It was said to be the only animal which was able to find the sacred fungus of immortality* (lingzhi). *It is unusual to find the subject of Shouxing depicted in jade and it is rare for a jade figure group of this age to be completed in such a large form. The subject of Shouxing is more usually seen in the media of ivory, bronze, soapstone or porcelain.*

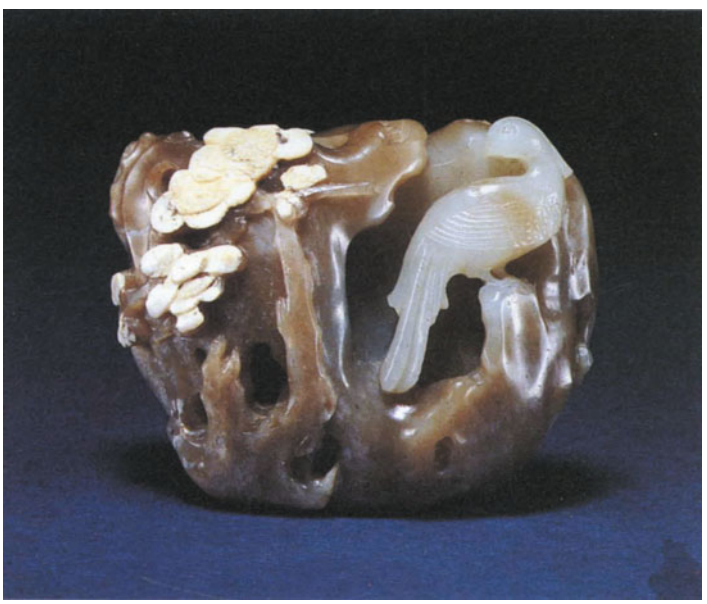


FIG. 97

FIG. 97 **BIRD WITH BRANCH**
17th/18th-century. Height: 2⅝ in (6.7 cm). A small boulder worked in high relief with a crested bird observing a branch of pine. The stone has a light brown–pale green tone with white highlights. This is a very fine sculpture, the brown colourings used to great effect.

FIG. 98 **A PAIR OF QUAIL**
17th/18th-century. Length: 4⅞ in (12.5 cm). A group of two quail, standing on a pierced rockwork base before a vase with sprays of millet in their beaks. The stone has a creamy-white tone with mottling. Bird subjects were popular in jade, though the quail is rarely depicted and is more frequently seen as a decorative subject in Oriental art on Chinese or Japanese porcelain.

FIG. 98

However, the characteristics of the carving, both incised and relief pattern-working, were similar to the middle-period style of Western Zhou bronzes. Qianlong reproduction jades show particular attention in polishing, background treatment and finishing. Even today the surfaces are still very smooth, quite different from the Ming Dynasty jades, which were uneven and bore marks made by tools. Another technique was that of staining, which achieved its highest level ever, and reproduction jades looked exactly the colours of the original ancient pieces.

The standard of carving was very high and, whether using a single technique or combining two or more, the Qianlong craftsman was careful and very skilled. He was able to carve in straight lines and curves, finely or roughly, and sharpen or round corners as required. These techniques could not be done solely by hand, and so some machinery would have been used.

Jade production of this period was precise, harmonious and neat. Not only were the shape and surface patterns very carefully carved, but time and skill were also spent on the inside. Less attention was paid to the base, feet and lid of items. Open-work was mostly applied in the carving of plants, their leaves and stems. From the front they look natural and beautiful. If you touch the open-work with your fingers the stone feels smooth, and even the back is polished; the artistic and decorative beauty of Chinese jade truly reached its height during the Qianlong period.

The carving of Chinese characters during this period also reached a very high standard. This again is a reflection of the emperor's strict demands and of the excellent techniques of the craftsmen, who had inherited the tradition of carving characters on jade and developed it into a high art form, paying particular attention to the variety of different writing styles. They would often carve both Chinese and Manchu scripts on the same piece – a phenomenon that appears here for the first time. Ancient and modern Chinese scripts carved in jade include bronze inscription style, seal script, clerical script, standard and running-script styles. In order to satisfy the Manchu rulers' demands the craftsmen would even write the Manchu script in an adaptation of these Chinese styles. A further characteristic of carving script in jade was to add a carved colophon by one of many methods and this again excelled what had gone before.

Foreign designs were also adapted into jade production. Craftsmen would take the shape and patterns of Hindustani jades and combine them with traditional Chinese scenes, forms and techniques. In this way a new type of jade emerged – a cross between traditional Qing jade and Hindustani jade.

During this period the jade craftsman's tools and technologies were improved. Some craftsmen began using steel knives from Qinzhong (in modern-day Shaanxi) and were thus able to create a new effect in their carving, which was also far quicker than when using previous methods. A large piece of jade of around 9000 jin would need several craftsmen working on all sides. The scale of labour and co-operation was vast, and carving a piece like that intricately and in great detail required elaborate organization and skills. Using the improved tools, one such piece was completed in only seven years; this was comparatively quicker than it would have been using old tools.

The Ruyi Guan, the Department for Production of the Qing court, the Officer for Textile Production, the Administrator of Salt and the Officer for Currency each had their jade workshops. Several artists of the Department for

FIG. 99 ***LOHAN* WITH FLOWING ROBE**
17th/18th-century. Height: 3⅞ in (10 cm). A figure of a standing man, his body enveloped in a long robe, his hands held together. It is a good quality example of the Buddhist lohan *subject with flowing robes and good detail.*

FIG. 99

FIG. 100

FIG. 100 **TRUNK, WAVES AND BEAST**
17th/18th-century. Height: 2½ in (6.5 cm). An unusual group of an openwork trunk above swirling waves with a mythical creature to its side. The stone has various depths of grey. It is a charming jade, and the stone is used intelligently.

FIG. 101

FIG. 101 **WHITE HORSE**
17th/18th-century. Length: 2 in (5 cm). A white jade figure of a horse with its head turned over its back towards its curling tail. The stone has a white tone. This delightful carving is more playful than earlier examples – perhaps a little sentimental in its pose. The stone is a good colour.

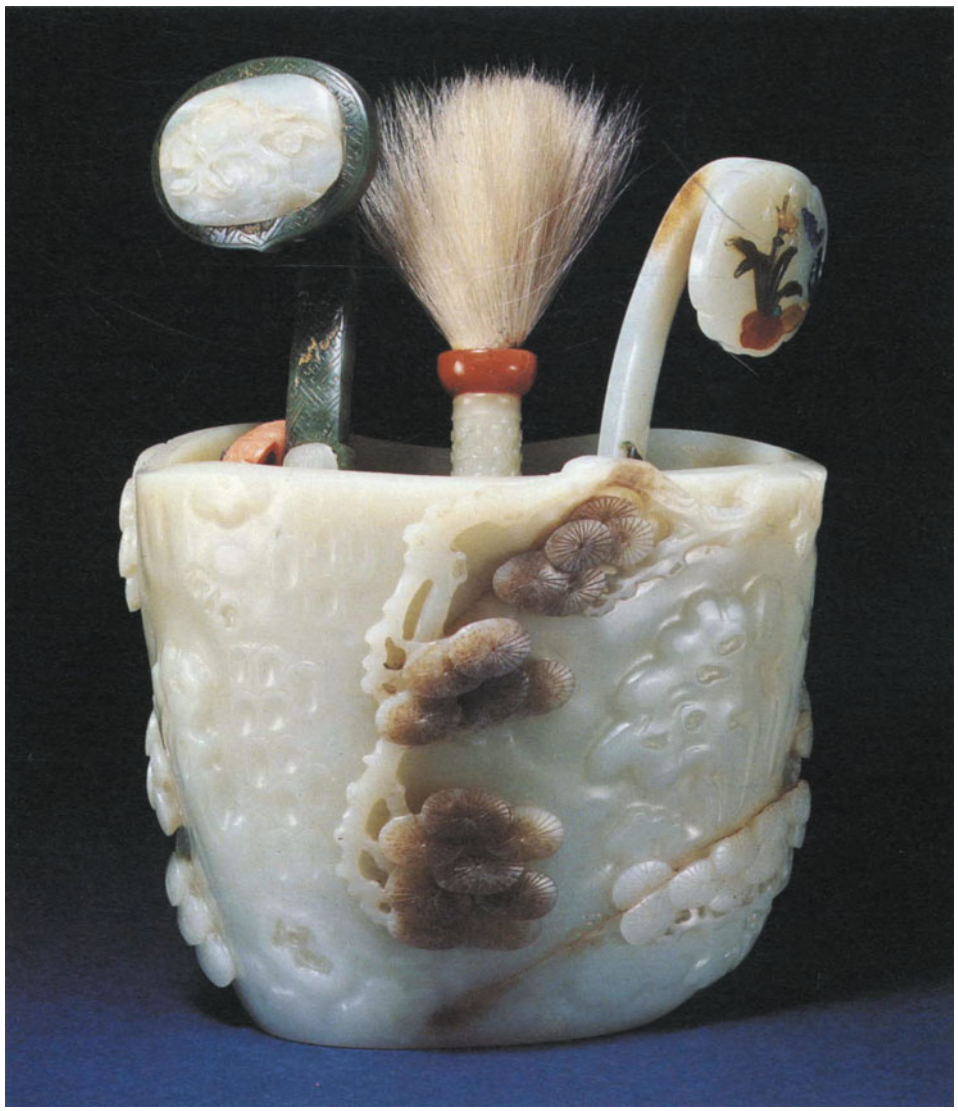


FIG. 102

FIG. 102 **BRUSH-HOLDER**
17th/18th-century. Height: 6½ in (16.5 cm). A brush-holder of rounded, tapering form, worked in high relief with pine sprays, the interior with two ruyi *sceptres and a brush. The stone has a pale light green tone with brown markings. This is a favourite design for brush-holders; there is a fine similar piece in the Fogg Art Museum, Harvard, and another example by Zigang.*

FIG. 103 **LIONDOG WITH CURLED TAIL**
17th/18th-century. Length: 3¾ in (9.5 cm). A figure of a bifid-tail liondog, its head turned to one side, its tail curled over its back. The stone has a pale green tone with russet markings. The pose of this Buddhist lion is typical of the way it is frequently depicted in many media in Chinese art: sometimes as a single animal, at other times in pairs, it is usually animated and playful.

FIG. 103

FIG. 104 **FEMALE IN FLOWING ROBES**
17th/18th-century. Height: 5⅞ in (15 cm). A female in long flowing robes standing next to a vase of plain form with lappet bands around the shoulder and foot. The stone has a pale green tone. It is an unusual jade, contrasting the detail and flow of the robes with the plainness and restraint of the vase.

FIG. 104

FIG. 105

FIG. 105 **DEER WITH *LINGZHI* SPRAY**
17th/18th-century. Length: 4⅛ in (10.5 cm). A jade figure of a recumbent deer, its raised head with a lingzhi *spray in its mouth. The stone has a pale celadon tone with russet markings and light brown tones. This is a well-sculptured figure; stone of this type and colouring was popular with jade workers for animal figures and groups. This subject has as its theme longevity, the deer symbolizing long life and the* lingzhi *immortality.*

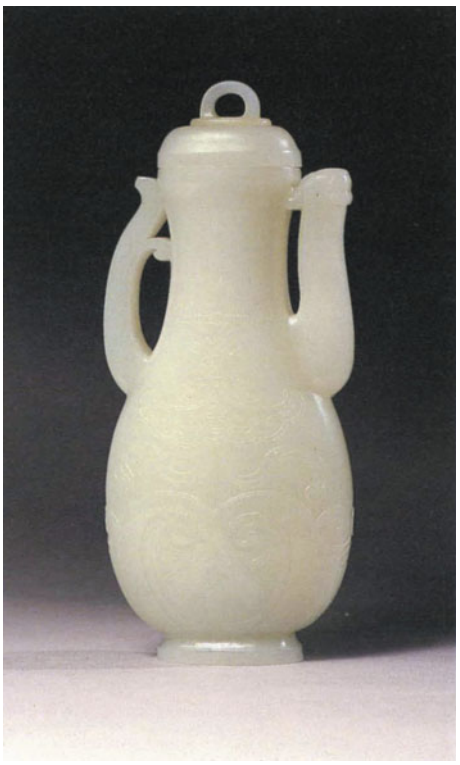


FIG. 106 **EWER AND COVER**
18th-century. Height: 7¼ in (18.4 cm). A well-proportioned vessel, that relies for its inspiration on Near Eastern metal-form ewers, worked in low relief with archaistic scrolls beneath musical stones tied with ribbons. The stone a pale celadon tone.

FIG. 106

FIG. 107 **CRESTED GREBES**
17th/18th-century. Length: 3½ in (9 cm). A burnt jade group of two Great Crested Grebes, the male presenting a leaf to the female. The stone has a pale mushroom grey tone with rose tints.

FIG. 107

Production, e.g., Zhang Bangyan, Yu Xing, Fang Zong, Yao Wenhan and Jin Tingbiao, took part in overseeing and designing some of the important pieces. In addition, promotion of the jade industry was actively encouraged by the Hongli emperor. All these factors helped raise jade craftsmanship to the high standard it reached in the Qing Dynasty.

THE WIDE USAGE OF JADE

This period also saw the flourishing of the jade industry in the wider use of jade items in daily life, and in the variety of shapes produced. By considering both function and shape it is possible to divide jade production into nine categories:

1 Display articles: *ding, zun, gui, guang, gu, ping, lu, hu,* all in imitation of ancient bronze style, jade mountain scenes, small screens, vases, *ruyi*-sceptres, animals, human figures, mythological animals.
2 Household vessels: plates, saucers, cups of various sizes and shapes, boxes, lamps, bowls, pots with and without handles, teapots, chopsticks, spoons, forks, pipe mouthpieces (pipestems), snuff bottles, tobacco saucers, spitoons.
3 Ornaments: belts and strings of beads for official wear, bracelets, necklaces, scent boxes, belt-hooks, hat ornaments, hairpins, finger-rings, thumb-rings, bangles, combs, *huang*-rings, pendants, labels, weights, *jue*-rings, protection-from-evil symbols and fans.
4 Writing articles: tablets, jade bookends, seals and jade placards used in the palace.
5 Ritual articles: sacrificial treasures, *jue*, ritual ornaments, water pourers, Buddhist bowls, Buddhist lamps, rods with bells, *gui*-tablets, *bi*-rings, *cong*.
6 Images of the gods: Buddhas, *lohans*, famous Buddhist monks, the Eight Immortals.
7 Scholar's writing accessories: brush-holders, inkstands, waterpots, knives, brush pots, brushrests, paperweights, armrests, waterbowls, very small waterpots, chess pieces, game pieces, stove-bottle-box sets, timepieces, scroll boxes, seals for stamping books, small jade table ornaments.
8 Items of daily use: flutes, whistles, back-scratchers, wall-hooks for caps, knife handles, walking stick handles, combs and powder boxes.
9 Articles with jade inlay and jade items inlaid with gold, silver, gems and pearls.
The variety of jade articles here is greater than at any time during the history of Chinese jade, again showing that the Qianlong period was truly a unique period for jades.

THE DEVELOPMENT OF JADEITE

The 19th-century French mineralogist Damour identified jadeite (known as *fei cui* in Chinese) as a very hard jade coming from Burma. According to the Chinese geologist Zhang Hongzhao, there was a record of the phrase *fei cui huo qi* in the verse *'Xi Du Fu'* ('Verse on the Western Capital'),

FIG. 108

written by the Han Dynasty poet Ban Gu. Although *fei cui* is also understood by some to be a bird, it is probably better identified in this instance as jadeite. In the court collection of the Song Dynasty there is a pair of jadeite lamps and a piece of jadeite was discovered in a Ming Dynasty tomb, but jadeite was not generally used because of its lack of availability.

During the Qianlong era communication between China and Burma was good and the import of jadeite to China increased. Prior to the Qianlong period the price for jadeite had been rising as it became one of the new materials competing with Khotan (Hetian) jades. Jadeite was a comparatively late arrival in the family of Chinese jade stones but with familiarity the Chinese grew to appreciate its beauty. In the collection from the Qing court there is a jadeite box inlaid with jewels in the shape of a fish (see Fig. 111). A typical jadeite article of the Qianlong period, it is translucent and white mingled with blue in colour. On the inside of the box and on the lid is a poem, carved in Chinese characters in standard style, written by Gao Zong in admiration of a Hindustani jade box. The Hongli emperor wrongly identified this box as coming from Hindustan, thinking the material was Khotan jade. Even Qianlong it seems could not differentiate jadeite, so it is hardly surprising that in all the poems written by him there are very few that mention jadeite, despite the fact that some of the jadeite

FIG. 108 **TWO BIRDS** *17th/18th-century. Height: 5¾ in (14.5 cm). A boulder of natural form, the whole worked in low relief with a scene of two birds in flight above a flowering tree issuing from craggy rockwork. The reverse is worked with pendant stalks and a* lingzhi *spray.*

FIG. 109

FIG. 109 **PEONY SPRAY** *17th/18th-century. Length: 5¼ in (13.3 cm). An unusual flower group in the form of a peony spray. The stone has a pale green tone with russet markings.*

FIG. 110

FIG. 110 **CYLINDRICAL PERFUME HOLDER** *17th/18th-century. Height: 8¾ in (22.2 cm). A fine jade perfume holder of cylindrical form, worked and pierced in high relief with a continuous landscape design of figures and pavilions amidst rocks and trees, a scene reminiscent of Chinese painting. Examples of perfume holders similarly carved and of the same design are to be found in bamboo pieces of the same period.*

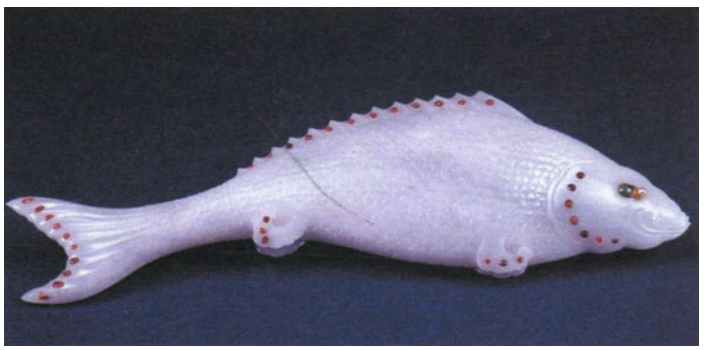


FIG. 111 **FISH-FORM BOX AND COVER**
18th-century. A box and cover in the form of a fish, the creature's features well defined and inlaid with hardstones. The jadeite has a green-white tone. This fine box relies very much for its inspiration on the influence of Mughal jades in its slender elegance and the inlay of hardstones.

FIG. 112 **NINE DRAGONS**
18th-century. A large vessel worked in the form of nine dragons, vigorously emerging from scrolling waves. The stone has a dark grey tone. The vessel shows the jade carver's accomplishments in both detail and composition.

items and mountain scenes in the collection of the Qing court were carved at this time. Although jadeite was previously little known it swiftly became more important during this period of the Qing Dynasty. It was first used by the imperial court where it attracted great attention, and then spread more widely among the ordinary people. This growing use of jadeite marked a new development.

THE PEAK OF QING DYNASTY JADE CRAFTSMANSHIP

Overall, the Chinese jade industry flourished during this period. From the 25th year of the Qianlong era (1760) there had been a steady period of growth. From then until the 41st year of Qianlong (1776), the tribute jade materials comprised six pieces weighing a total of 20,000 jin, and another piece weighing 9000 jin. The most famous piece of jade was 'Yu Controls the Flood', which was finished in the 52nd year of Qianlong (1787) and depicted a large mountain flood scene.

During these 10 years or so jade craftsmanship reached its peak. Other famous large pieces were 'Red Platform in the Spring Dawn', again a mountain scene, 'Cloud and Dragon Pattern Jade Drum', 'Nine Dragons Jade Drum' and 'Nine Old Men of Huicang', another mountain scene.

'Nine Dragons Jade Drum' (Fig. 112), now in the collection in the Dongnuan Chamber of the Qian Qing Palace of the Forbidden City, weighs 4000 jin, has a height of 4 ft 3 inches (1.3 m) including the base, a width of 4 ft 3 inches (1.3 m), length of 2 ft (60 cm) and a depth of 13¾ inches (34.5 cm). The body of the drum is rectangular, and the surface is carved with drifting clouds and nine dragons emerging from the sea. The inside of the body of the drum is plain, with an inscription of over 1000 Chinese characters, a poem written by the Hongli emperor; it was carved by Zhu Yongtai, a famous craftsman from Suzhou. The base is made of red sandalwood, carved in the water pattern. It was produced by the Department for Production in Yangxing Hall and work on it began on the ninth day of the sixth month of the 41st year of the Qianlong era (1776), finishing on the 23rd day of the 12th month of the 44th year – a labour of three and a half years, allocated as 64,000 units of labour; each unit cost nearly 8 grammes of silver and the total cost was 492,362.45 grammes (about US $69,500 in 1991 silver prices!).

'Yu Controls the Flood' (Fig. 113), now in the back room of Leshou Hall of the Forbidden City, has as its full title, 'The King of the Mileta Mountain, the Great Yu, Controls the Flood', and is also known as 'The Great Yu Splits the Mountain'. It depicts with admiration the historical story of the great Yu and his hardworking followers in the mountains as they tried to control the great flood. It weighs about 9000 jin, has a height of 7 ft 4 inches (2.2 m), a width

FIG. 113

FIG. 113 **'GREAT YU CONTROLS THE FLOOD'**
18th-century. A large mountain worked in high relief with an extensive landscape scene with trees and figures. The stone has a dark green tone. This monumental jade is famous for the time it took to produce and for its design based on a Song painting. It has great presence and is also boldly sculptured and worked. Certainly one of the largest and most important jades in the world.

FIG. 114

FIG. 114 **VASE WITH LIONDOG COVER**
18th-century. Height: 8¾ in (22.5 cm). A jade vase and cover, with a recessed splayed base. The compressed ovoid body has an intertwined rope design encompassing the plain body, the sides have pierced scroll handles, and the neck has an overlapping pendant blade design. The cover shows an upright overlapping blade design below a Buddhist lion and brocade ball. The stone has a pale celadon mottled tone.

FIG. 115

FIG. 115 **INCENSE BURNER**
18th-century. Diameter: 6⅝ in (17 cm). Height: 3¼ in (8.4 cm). An unusual incense burner of plain form supported on three feet, the sides with ring handles. The stone has a pale celadon green tone. This attractive plain vessel has the unusual feature of elephant-head handles and bears a close resemblance to bronze incense burners of the late Ming period.

FIG. 116

FIG. 116 **SPINACH-GREEN INCENSE BURNER**
18th-century. Height: 6⅜ in (16.25 cm). A fine spinach-green incense burner and cover, standing on three shaped legs, the body decorated with formalized masks and dentated flanges in relief. The shoulder bears curled leaf handles, and the cover a floral finial. A classic example of its type with good strong colour with the added unusual feature of the flaring leaf handles.

FIG. 117 **THREE SAGES**
18th-century. Height: 7¾ in (19.8 cm). A boulder of well-rounded form, worked in high relief with a landscape scene of three sages below a craggy rockface, a pavilion to the top. The stone has a pale green tone with light russet mottling. This is a classic example of a superbly worked boulder, the quality and detail of the workmanship combining superbly with the retained natural shapes. The subject of scholars in mountain retreats was a favourite in jade boulders, as well as other media, despite the fact that some purists regarded jade as a luxurious, decadent material in comparison with other, simpler materials, such as bamboo.

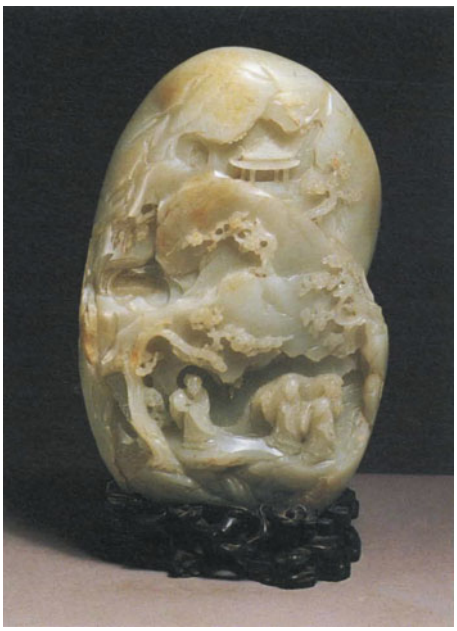


FIG. 117

FIG. 118

FIG. 118 **INCENSE BURNER**
18th-century. Width: 7⅞ in (20 cm). Height: 5⅛ in (21.5 cm). A large incense burner and cover of archaic bronze form, the rectangular body supported on four feet and carved with taotie *masks and flanges. The sides have ring handles suspended from animal masks. The stone has a spinach-green tone. The whole sits on a* cloisonné *enamel stand. It is a fine example of the formal type of jade made for the palace, with the unusual feature of a stand made for it in a medium other than wood.*

FIG. 119

FIG. 119 **LAO TZU RIDING A BUFFALO**
18th-century. Length: 7½ in (19.2 cm). A small boulder worked in relief with Lao Tzu riding a buffalo, attended by a servant, a series of steps leading to a pavilion behind them. The reverse is worked with a stream, bridge and pine tree. The stone has a whitish tone with areas of black and yellow and a small burnt section. This boulder is small but sensitively worked. It has an inscription: 'A picture of Lao Tzu riding an ox, inscribed by the Emperor. With his white hair flowing behind him. The jade-like brilliance of the five thousand (characters of Tao te ching) should not have been squandered on a gift for the Keeper of the Pass to take home with him.'

FIG. 120

FIG. 120 **BOULDER WITH PIERCED WOOD STAND**
18th-century. Length: 5⅞ in (15 cm). A boulder worked in high relief with scenes of sages and attendants in rocky landscapes. The stone has a strong spinach-green tone. The natural shape of the stone is intelligently used in this composition and the choice of subject is a popular one on jade boulders. This good example shows how some of the spinach-green stones can be vibrant and strong, the flaw to the top being incorporated into the design. The pierced wood stand is particularly fine in its carving and piercing. A well-carved and proportioned stand can make a great deal of difference in the way a jade is shown to best effect.

of 3 ft 2 inches (96 cm), and its brass base is inlaid with gold. It is known as the 'King of Jades'. The design is adapted from a Song painting of the same name (*The Great Yu Controls the Flood*) and was redesigned by the Department for Production. Work started in the 46th year of Qianlong. On the 10th day of the second month four designs were made for each of the sides, and Jia Quan, an artist from the Imperial Academy, copied the designs on to the jade. On the 24th day of the third month a model was made in wax. On the seventh day of the fifth month the Administrator of the Liang Huai Rivers received the model and the jade materials for production. The Administrator was concerned that the wax model might melt if the working time was too long, so a copy of the model was made in wood. The piece was finished in Yangzhou and sent to Beijing by boat on the 13th day of the sixth month of the 52nd year of the Qianlong reign (1787). It arrived in Beijing after about two months' travelling time. The cost of craftsmanship and living expenses was paid by the Official for Administration of Salt, Zhen Rui.

On the 25th day of the first month of the 53rd year of the Qianlong era (1788), the Hongli emperor gave an order for the craftsman Zhu Yongtai of the Ruyi Guan to carve the Chinese characters on the jade.

During the six years it took to carve the piece there were two Officers for Administration of Salt of Lianghuai, first Ming Ah and, after him, Zhen Rui. The Hongli emperor's poem reads 'it will take 10 years of time and strength to finish this treasure'. The 10 years would include all the stages, from selecting materials to the design, carving and finishing of the piece.

This piece was one of the last large jade carvings. Afterwards, although jade craftsmanship was still strong, large pieces are rare, and none weighs over 1000 jin. This in itself indicates that the jade industry had reached its peak and was beginning to slow down.

THE REGIONAL CHARACTERISTICS OF ISLAMIC JADES

In addition to the eight centres of jade industry in the

interior of China during the Qianlong period, there was also an Uyghur Muslim centre in the northwest, in Xinjiang. For historical reasons, little was known outside China in the past about jade craftsmanship in Xinjiang. The first records of the Xinjiang jade industry are found in *Jiu Tang Shu:* 'Yutian state has good jade, and the local craftsmen have good techniques. In the sixth year of Zhen Guan they sent an Ambassador to the Tang court to pay tribute with a jade belt.' Even as early as 632 AD jade craftsmanship in Yutian was already quite advanced, and the tradition persisted. In the Yuan Dynasty there were still famous jade craftsmen there but very little detailed information is available about Xinjiang jades in that period.

As mentioned earlier, Muslim jade craftsmen were recruited by the Qing imperial court in the 27th year of Qianlong (1762). The Uighurs in the Qing court were referred to as Muslims, and there were some Uighur jade craftsmen working in the Department for Production. But the Hongli emperor did not have a high regard for their techniques and assumed that the Muslim craftsmen were unable to do very elaborate fine carvings, so he never let them carve for him. When we look at the Muslim carved jades in the Imperial Palace collection we see that his

FIG. 122 **INCENSE BURNER WITH DRAGON** *18th-century. Width: 6½ in (16.5 cm). A pale white jade incense burner and cover with a dragon finial and mythical beast handles. The cover and body have a low-relief* taotie *design. This is a good example of the 18th-century jade worker's art. The incense burner and cover have the unusual feature of being oval in form, the pale green-white tone is good, and the low-relief work is of the best type. The proportions of cover to base and handles are all pleasing.*

FIG. 122

FIG. 121 **SCROLL WEIGHT** *18th-century. Length: 9⅞ in (25.3 cm). A jade scroll weight, the top with a branch of flowering prunus in high relief. The stone has a celadon green tone. This small jade combines the finely detailed and well-worked prunus branch with its plain base. The prunus is the symbol of spring in Chinese art.*

FIG. 123 **IMPERIAL INCENSE BURNER** *18th-century. Width: 7 in (17.8 cm). A fine imperial incense burner and cover of oval form, the whole pierced and worked with precious emblems amidst scrolling peonies and foliage. The stone has a fine white tone with natural mottling. This type of jade incense burner and cover has imperial status and in* Chinese Jades from Han to Qing *James Watt states that they are said to have come from the Yuan-Ming-Yuan (the summer palace).*

FIG. 121

FIG. 123

FIG. 124 **CURLING DRAGON PLAQUE**
18th-century. Length: 2⅞ in (7.2 cm). A plaque of ovoid form, worked and pierced as a curling three-clawed dragon. The stone is white. In this well-proportioned composition, the dragon's vitality and strength are vigorously portrayed, and its scales and features are well-detailed. The dragon emerging from the watery depths in the spring, rising to the skies, was the emblem of imperial power, particularly of the emperor himself: the empress is symbolized by the phoenix.

judgement was justified to a certain degree: most of the Muslim jades are simple in design and shape, mostly plain, with fairly rough grinding and carving. However, they have a certain value in that their designs were made to suit the Muslim way of daily life, their aesthetic tastes and religion. Uighur jades have an Islamic influence but are different to the Arabic-style jades of the Mughals and, as we would expect, jades made by the Uighur craftsmen bear local Uighur characteristics. All this variety had a refreshing influence on Chinese jades in the Qing Dynasty.

The movement of Xinjiang jades and the jades of the Chinese interior was through both official and trade routes. This movement encouraged the combination of different techniques. For example, open-work in jade carving was very popular in Suzhou, Yangzhou and throughout the interior. The technique then spread to Xinjiang and was taken up by the Uighur jade craftsmen there. Conversely, in the 57th year of Qianlong (1792), a Uighur leader made a tribute to the Qianlong emperor of an inkbox made of jade along with a jade brush (see Fig. 125) and a Uighur jade belt plaque with inlay made in the Ming dynasty. The Hongli emperor wrote: 'This box was made by Xinjiang

FIG. 124

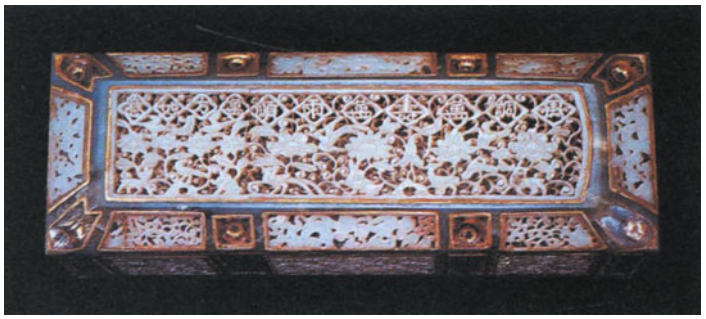


FIG. 125

FIG. 125 **INK BOX**
18th-century and earlier. An ink box of rectangular form inset with a pierced plaque. The stone has a white tone. This unusual box was presented to the Emperor Qianlong in 1792 and combines features from several reigns.

FIG. 126 **THREE JADES**
18th-century. Diameter of incense burner and cover: 6⅝ in (17 cm). Height of vase: 4⅝ in (11.4 cm). An incense burner and cover with overlapping leaves, a lotus leaf vase tied with a ribbon, and a box and cover in the form of a lotus pod. The stone has a pale green tone. The lotus theme dominates this group throughout and when found in bronze these three are termed the 'Three Friends of Incense'. They are unusual in that they are unified as a set.

FIG. 126

FIG. 127

FIG. 127 **FOUR *RUYI* SCEPTRES**
18th-century. From left to right: a small child's sceptre, the handle worked in high relief (7⅞ in/20 cm); a sceptre, the head carved with twin peaches and a bat (12½ in/34 cm); a sceptre, the head carved with a bat and the stem worked with a bifid-tail dragon (15¼ in/38.5 cm); a sceptre, the head with a bifid-tail dragon crawling before a peach spray and bat (12½ in/34 cm).

craftsmen, they arranged four items for the scholar's study in one piece. It is therefore a Chinese cultural item.' But he also made the criticism, 'the carved characters are similar to the Chinese, but the grammar is not correct. They do not understand well the meaning of Chinese characters'. The Hongli emperor undervalued the ingenious work of the Uighur craftsmen – they had used old jades to make the new scholar's study pieces.

THE INFLUENCES OF HINDUSTANI JADES

Chinese jades were probably the original inspiration for Hindustani jades, but after the 18th-century Hindustani jades came to China and influenced in their turn the Chinese jade industry of the Qianlong period. Hindustani jades are also known in China as 'Foreigners' jades' or 'Indian jades', and in the West are called 'Mughal jades'. The Hongli emperor studied the location of Hindustan and wrote many times 'the state of Hindustan is located beyond the area of the Muslim tribes and beyond the Badake Mountain, and lies southwest of the mountain on the Indian border'.

According to the Qing writer Ruan Kuisheng in his book, *Cha Yu Ke Hua*, Vol. 13. ('Conversations with Guests over Tea'), 'Hindustan is a large Muslim country . . . the people of this country study techniques and are very good at jade carving. They can carve jade as finely as a fly's wing or a hair. They inlay with gold and silver threads. They also make textiles, silk, gold, lacquerware and sculpture. These pieces are wonderful and are sold abroad.' Hindustani jade carving was of a high artistic level, and jades were given as tributes to the Qing court between the 16th and the 24th year of the Qianlong era (1751-59). The Hongli emperor admired them and subsequently encouraged imports of Hindustani jades, ordering the Ruyi Guan to copy them. The styles spread from the imperial court and gradually became popular all over the country.

The influence of Hindustani jades on Chinese jades of this period should not be undervalued. Hindustani jades had a strong Arabic characteristic in that the carving techniques were excellent, in particular the carving of very thin pieces, and they were polished to a very high gleam. Known examples are a Chinese white jade water pourer used in a scholar's study, a white jade bowl inlaid with gold, a dark jade six-petalled bowl and a dark jade chrysanthemum-petalled plate, all copied from Hindustani jades; the result is successful, but strictly speaking the standard of thinness and polishing is inferior to that of the original Hindustani pieces. The saying 'Hindustani jade is so good that the Chinese cannot copy it' does have some basis in fact.

TRENDS AND STYLE IN JADE ART OF THE QIANLONG PERIOD

The jades of this period can be divided into two main

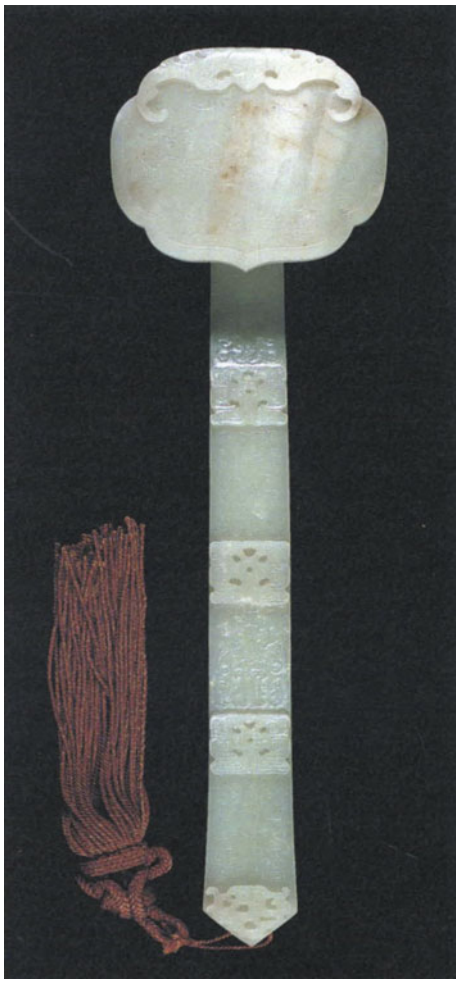


FIG. 128 **SCEPTRE** *18th-century. Length: 17½ in (44 cm). A large* ruyi *sceptre, the head worked with a large bat, its wings outstretched, above a fruiting peach and wild waves. The shaft is worked in low relief with archaistic motifs. The* ruyi *has been an object historically held in high regard by the Chinese. It illustrated the expression 'As you wish'. The head is said to be based on the* lingzhi *'sacred' fungus, and the* ruyi *was even said by some to be based on a back-scratcher. It grew in popularity as an important gift. It was also a* ruyi *that Daoist and Buddhist priests held during worship.*

FIG. 128

FIG. 129 **DRAGON CUPS** *18th-century. Width: 5½ in (14 cm). A fine pair of jade cups, each with upright sides rising from a ring foot, the handles carved and pierced as scaly dragons clambering up the sides to bite the rim. The stone has a white tone. This magnificent pair of 18th-century pieces succeeds due to the contrast of the fine plain white bodies with the well-detailed dragon handles.*

FIG. 129

branches: imitations of ancient jades, and the newer contemporary styles. From an artistic point of view jades of each type had their own characteristics.

There were two types of imitation jades: first, those in imitation of ancient bronzes – especially in their shape and pattern – mainly from the Shang and Zhou dynasties. During this period the trend of Ming Dynasty imitation jades also continued and developed new characteristics. In comparison with the Ming Dynasty imitations there is a greater synthesis of styles borrowed from many different sources. Craftsmen did not merely copy one bronze but indicated that the piece was an imitation; the purpose was not to deceive but to return to standard and style of earlier times.

One example is the dark jade vase with an animal mask motif and two handling rings (Fig. 130). The jade is translucent with a light blue running through it. On the lid is carved a dragon playing with a pearl, all in open-work. The two rings are in the form of animals' heads. On the neck of the bottle is a *Taotie* motif, and there is the Western Zhou wave pattern on the body of the bottle. Characters carved in seal script read 'This important *ding* should last forever, may all your descendants keep and use it always'. Carved on the base in clerical script are the characters 'Imitation made in the Qianlong period of the great Qing Dynasty'. This bottle with its animal motifs combines different aspects of the Shang, Zhou and Warring States bronzes in one piece, and has the beauty of an ancient piece combined with the aesthetic appeal of later decoration and art. The fashion of the time was to create something new in an ancient setting rather than make a copy of an earlier form.

The second type of imitation jade has been loosely termed 'Imitation of jades from the Han period'. In fact this term referred to a particular kind of imitation jade, which developed from the time of the cup with the two *chi*-dragons made by the grandfather of Yao Zongren, the famous craftsman of the Ming Dynasty discussed earlier. This kind of imitation jade was made intentionally to deceive buyers in the hope of an enormous profit. These pieces were indeed deceptive, and had to be examined carefully in order to distinguish them from originals.

Qing jades in contemporary style were made in diverse forms and with various designs and techniques. There were countless jades of this type made during the Qianlong period, some decorated very simply with a clear carving technique and finished with an excellent polish to maintain the beauty of the materials, and others bearing intricate detail to demonstrate the carving techniques. The latter items were similar to paintings of the Ruyi Guan and wood, bamboo, iron and ivory carvings of the period in that they were an expression of the elaborateness of the craftsmanship and art of the Qianlong period.

It is evident that during this period the special artistic and decorative beauty of Ming and Qing jades had reached maturity. Characteristics from different regions were also combined: for example, the finesse and feminine beauty of Suzhou jades and the uninhibited and masculine beauty of Yangzhou jades were combined to form a new style in the production of imperial jades. These two main categories, imitation and contemporary jades, were very dissimilar and reflect the differences in the appreciation of jades.

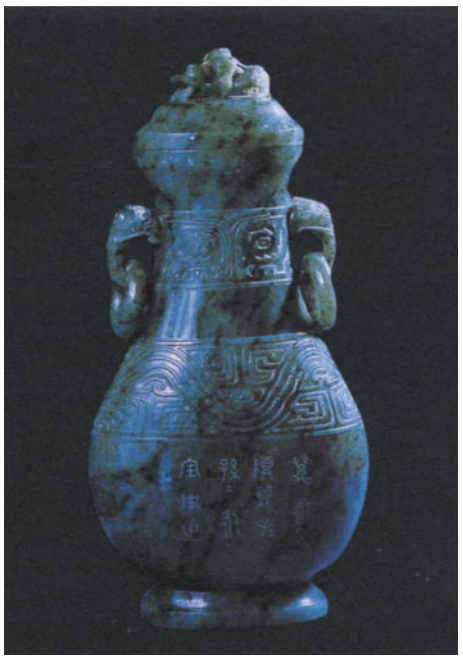


FIG. 130

FIG. 130 **VASE WITH DRAGON FINIAL**
Qianlong period. A vase and cover worked in relief with a dragon finial, taotie *bands, animal mask ring handles and an inscription. The stone has a spinach-green tone. This is typical of the formal 18th-century jades made for the palace. The well-proportioned vase has an added feature of an inscription and Qianlong mark. This type of archaic jade was frequently produced in spinach-green stone.*

FIG. 131

FIG. 131 **INKSTONE OR PALETTE**
Qing Dynasty. Length: 4 in (10 cm). Width: 2⅞ in (7.4 cm). An extremely fine jade inkstone or palette, the top worked with a flowerhead in intaglio *above a shallow concave circle. The base has russet markings, the stone has a pale celadon tone, and the whole sits upon a wooden stand. This particularly fine inkstone would have been considered decadent by the more purist scholars of China but still succeeds in its use of the irregular section of jade and its restraint and colour of stone.*

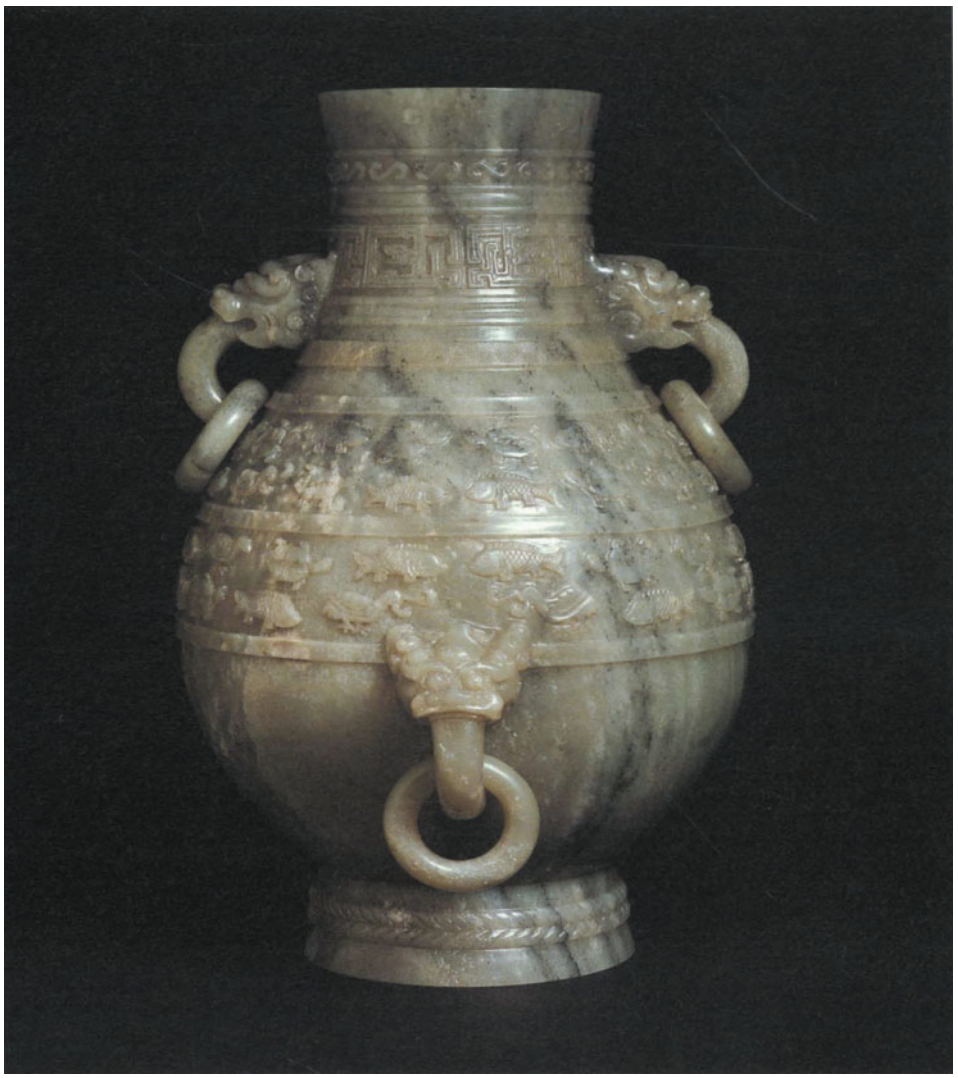


FIG. 132

FIG. 132 **LARGE *HU* VASE**
Qianlong period. Height: 16½ in (42 cm). An exceptionally fine and massive imperial hu *vase, the shoulder bearing twin animal mask ring handles. The body has bands of birds, turtles and fish below an archaistic dragon band. The base has a four-character inscription:* 'Qianlong Fang Gu' *('Qianlong imitating the ancients, or old style'). This large and imposing vase obviously emerged from the Imperial Palace and was formerly in the collection of Admiral Humman, Commander-in-Chief of the French naval forces in China at the time of the Boxer Rebellion.*

FIG. 133

FIG. 133 **SNUFF BOTTLE**
Qianlong period. Height: 2 in (5.2 cm). A nephrite snuff bottle: the stone has a white tone. This example has imperial-style decoration of a central crossed-keys motif enclosed by shell-like scallops reminiscent of those carved on the Yuan Ming Yuan (the Western-style palace built by Qianlong outside Beijing). Items with Western motifs were highly popular within the court during the 18th century.

FIG. 134 **INCENSE BURNER WITH PAD FEET**
Qing Dynasty. Height: 5⅛ in (13 cm). A spherical incense burner and cover, the cover with a crouching Buddhist lion finial, the sides with dragon ring handles finely detailed and worked in high relief. The globular body is supported on plain waisted legs terminating in pad feet. The stone has a fine pale white icy tone with attractive light apple-green markings including emerald splashes. This is an unusual incense burner and cover.

FIG. 134

FIG. 135

FIG. 135 **EWER WITH DRAGON LID**
Qianlong period. Height: 7¼ in (18.5 cm). A fine ewer and cover, the domed lid with a coiled dragon finial, the handle and spout as dragons attached to the well-rounded, plain body and flared base. The stone has a pale green tone with flecking. The base bears the four-character mark of the Qianlong Emperor. This imperial jade is one of a rare group with the imperial reign mark. Its boldly worked and detailed dragons contrast particularly well with the swelling, plain vessel; the cat-like posture of the dragon handle being particularly successful.

FIG. 136

FIG. 136 **VASE**
Qianlong period. Height: 9⅛ in (23.2 cm). A vase of plain arrow form, the well-rounded body curving to the waisted foot and pedestal base. The neck has double tubular fittings, and the stone has a pale celadon tone with paler grey-green and russet tones. The base bears the six-character mark 'Da Qing Qianlong Fang Gu' *('made in the Qianlong period in the Qing, in imitation of the antique').*

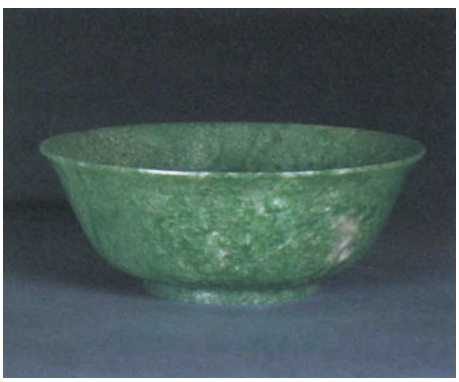


FIG. 137

FIG. 137 **BOWL WITH EVERTED RIM**
Jiaqing period. Diameter: 5⅛ in (13.2 cm). A fine bowl, the rounded sides rising to an everted rim, the underside of the base incised with a four-character mark of the Emperor Jiaqing and with a further imperial mark 'Xianfeng yuyong' *('for imperial use of the Xianfeng') incised in a line around the body above the foot rim. The stone is an apple-green colour with paler tones and emerald flecks. This particularly fine bowl is of a group made for the palace. These frequently have two reignmarks: one in the base, the other below the lip of the rim. The shape is pleasing and the colour is a good, mottled green.*

FIG. 138 **SCREEN**
Qianlong period. Diameter: 10⅛ in (25.75 cm). A fine and rare circular screen, worked in high relief with a scene of hunters pursuing a tiger and deer amidst rockwork and trees. The reverse has four horses in a landscape. The whole sits on a pierced wood stand. It is a superb example of 18th-century jade workmanship, a kind typically found in the Imperial Palace, Beijing. The wood stand is of top quality.

FIG. 138

The artistic style of the Qianlong jades was diverse and eclectic, developing as it did in technique and decorative style from Ming jades. It is no exaggeration to say this was the high peak of Chinese jade history, when the jade industry stood way above many other crafts.

The Gradual Decline of Qing Jades

For nearly 50 years, from the 18th year of the Jiaqing era to the 13th year of Xianfeng (1813-61), the jade industry was in decline. There are two explanations for this: first, the giving of jade as tributes was reduced and eventually stopped, and second, the production of jades fell sharply. In the 18th year of Jiaqing the imperial court only received tributes of river-jade materials from Xinjiang – 1240 pieces with a total weight of just over 2058 jin (1029 kg). Jade tributes were stopped in the first year of the Daoguang era (1821). Afterward there were two rebellions of Zhang Ge'er and Bai Yanhu, when the Qing court sent out an army to

FIG. 139

FIG. 139 **BRUSH-POT**
Qianlong period. Height: 6⅝ in (16.7 cm). A large spinach-green jade brush-pot of cylindrical form with a slightly recessed base, the straight sides worked in deep relief with a continuous scene of three immortals and an attendant in a landscape. This is a fine example of a spinach-green jade; brush-pots were popular in this stone and are examples of the high imperial taste prevalent at the court in the 18th century.

FIG. 140

FIG. 140 **THREE JADES**
From left to right: A small jade vase and cover, with double-scroll handles (18th-century, height: 4½ in/11.5 cm). A jade vase of archaic bronze form; the flared neck with four taotie *mask ring handles (Qing Dynasty, height: 5⅞ in/15 cm). A jade incense burner and cover of shallow form, worked in low relief with fruiting vines (Qing Dynasty, length: 5½ in/14 cm).*

FIG. 141 **MYTHICAL BEAST**
Qing Dynasty. Length: 4¾ in (12 cm). A mythical beast with a bifid horn and curling tail, with small animals beneath its body. The stone has a pale grey-green tone with markings. This is a Qing animal very much in the style of a Ming piece. Although it is a good reproduction of its type, its tight control, and its rather flat expression reveal its origins. It is an unusual size, and rests on a pierced wooden stand.

FIG. 141

fight them, and jade supply stopped once more. During this period rebellions and corrupt practices threatened the strength of the state. The annual tribute of jade was never resumed, and in 1911 the Qing rule itself was overthrown.

The jade production of the imperial court grew less and less. In the 18th year of Jiaqing (1813), 68 pieces were designed – jade mountain scenes, jade vases, a reclining horse and reclining cow, as well as a belt-hook ring, and of these 36 were made up by the Ruyi Guan and the rest were sent to Lianghuai, Hangzhou, Suzhou, Changlu, Jiangling and Huaiguan. During the Daoguang era the imperial court reduced its production of jade and the majority of jade pieces were now small – pendants, belt rings, thumb-rings, little jade bottles – and of the larger pieces, only one each of the jade drum and jade mountain scene were made.

Only a few workshops, such as Ruyi Guan and the Workshop for Gold and Jade, worked for the imperial court during the Xianfeng reign. The Suzhou workshop made jade bookends and tablets, and the Guangdong Customs Workshop made jadeite thumb-rings. Other centres, e.g. Hangzhou, Jiangning, Lianghuai, Huaiguan, Changlu, Fengyang and Jiujiang, did not receive any more jade commissions. Soon after this most of the jade centres were destroyed by war.

During the Taiping Tianguo rebellion (*c.*1850-1864) the capital was set up in Nanjing, and a Department for Jades was established. The Department was in charge of making jade carvings for its own government, and there were two important pieces – the jade seal of the Tian King, and the jade seal of the younger Tian King, now in the collection of the Museum of Revolutionary History in Beijing. These two pieces were made by craftsmen of the Taiping Rebellion, and were the symbol of the power of the Taiping Tianguo. They are also historical evidence of jade production at this time. The jade seal of the Tian King was made in dark blue Khotan (Hetian) jade and its handle was carved in the shape of a broad bridge, decorated on both sides with a phoenix playing with a lotus. The top is carved with cloud pattern. The inscription, of 44 characters, is carved in Song writing style. The jade seal for the younger Tian King was made in white Khotan jade, decorated in the same way as the other seal, and with an inscription of 38 characters, also in the Song writing style. There is also a dark jade bat-shaped belt clasp in the Lingzi City Museum collection. The design and theme differs little from those of the Qing court: dragon, phoenix, cloud pattern. However, these pieces have a natural folk art style that differs from the imperial jade carvings.

FIG. 142

FIG. 142 **DOUBLE-HANDLED BOWL**
Qianlong period. Length: 13 in (33 cm). A very fine double-handled bowl of lobed quatrefoil section, with twin animal-head ring handles, the interior carved with a panel of twin catfish within four ruyi *scrolls. The spinach colour is particularly strong in this example of formal, imperial taste. Twin fish are symbolic of conjugal felicity.*

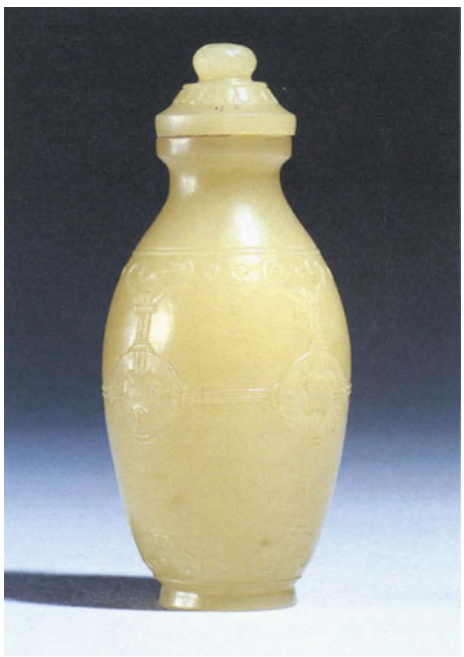


FIG. 143

FIG. 143 AND FIG. 144 **SNUFF BOTTLE WITH *BI* DISCS**
Qianlong period. Height: 2½ in (6.3 cm). A nephrite snuff bottle carved with bi *discs. The colour, yellow, is rare and the design follows that of an archaic bronze. The quality of the work and the decoration, together with the neatly incised four-character mark of the Qianlong Emperor on the base, indicate the Beijing palace workshops as the source of this piece.*

FIG. 144

The Revival of Late Qing Jades

This period lasted 49 years, 46 of which were under the rule of the Empress Dowager Cixi – the emperors Zaichun and Zaitian were no more than puppet rulers.

After the Qing army put down the Taiping Tianguo rebellion with assistance from foreign forces, the power of the Qing court began to regain its former strength. Consequently industry, agriculture and trade also underwent a revival, known as the 'Tongzhi era revival', and the jade industry was re-established in Suzhou, Yangzhou and Jiangling. Nephrite and jadeite carvings from Suzhou and foreign-style 'export' jades were popular but the industry could not compare with the Qianlong period, either in technique or range of work.

The policy of the Empress Dowager was to maintain strict pressure on the nation at the same time as she was giving away national interests to foreigners. Despite the poorer conditions and near-closure of the Department of Production, the Empress Dowager, who had an insatiable desire for luxury and honour, used her power to order the Officers of Administration of Salt and currency officials in the customs houses to obtain all kinds of gifts for her personal use: textiles, jades, jewellery made with jadeite, ceramics, study accessories, foreign playthings and other goods. Her personal taste differed from that of the Qianlong Emperor, and she much preferred jadeite to nephrite, letting the customs house in Guangdong pay her tribute in jadeite goods such as rings, jewellery and hair pieces. However, the departments were not always willing to accede to her demands and found excuses not to comply.

In the twentieth year of the Guangxu reign (1895) the Empress Dowager had her 60th birthday celebration. A list of tributes was prepared by Fu Kun and others, including jades: five pairs of jade *ruyi*-sceptres, two 'old man with a peach' carved in red-blue agate and, made from mutton-fat jade, a pair of jade screens, a pair of jade boxes, a jade bottle and water vessel, a jade vase inlaid with silver, a hand bowl carved in the shape of flower petals, two pairs of jade tea cups and two large screens – in all, a total of 29 jade items with another six jade platforms. Other officials also gave jade items to please her.

During this time the private jade industry in Beijing was developing steadily. One example of work from a private Beijing jade workshop is a jade platform in the shape of a trapezium; the front is 3 ft 10 inches (117 cm) long, the side 3 ft 2 inches (96 cm) long, the back 2 ft 9 inches (83 cm) long. It is 14 inches (35 cm) high at the front and 4 ft 4 inches (130 cm) high at the back. It is carved with heavenly signs and has a red sandalwood base carved with flower patterns. The scenes on the platform show little streams and terraced land; the scene on the front is of 'the

FIG. 145

FIG. 145 **BOULDER**
A boulder worked in relief with two Immortals and an attendant walking up a cliff face. The reverse side of this boulder, showing two deer amidst rocks in front of pine trees and a waterfall, is depicted in Fig. 34, page 40.

heavenly Penglai' and 'fortuitous cavern of heaven', with the Eight Immortals, and young boys playing in the cavern. The top level is carved with the jade heaven and pool, home of Xi Wang Mu. Xi Wang Mu holds a *ruyi*-sceptre as she sits in the cave, with two attendants standing at her side holding fans. In front of the cave is the old man, *meihua* deer and a white monkey holding a peach. There are pine trees, cypresses, *ruyi*-fungus, strange flowers and grass, all depicting the heavenly lands. All these are symbolic: as the entire piece was made as a birthday present for the Empress Dowager Cixi, everything was a symbol for an auspicious and long life. Xi Wang Mu, the old man from folklore, the white monkey and the Eight Immortals are carved in jade, and the trees, plants and flowers are carved from glass, agate, turquoise and other coloured gems. The materials were expensive, and the scene of celebration is on a large scale and very colourful. But careful examination shows that the carving technique was far below the technical standard of the jades of the Qianlong period. This shows that the jade industry of the Qing Dynasty started to decline after its high peak under Qianlong and eventually fell to its lowest ever. It never recovered.

In considering the four periods of jade development during the Qing Dynasty it becomes evident that the last half of the Qianlong period (latter half of the 18th century) was the last golden age of jade in China. Jade craftsmen of this period inherited and developed traditional jade carving techniques and raised them to a new high standard. They learned from paintings, bamboo, wood and iron carvings and other craft techniques. Intaglio carving, relief carving, open-work, colouration and staining were widely used, and jade production was influenced by foreign arts. The jade craftsmen combined all of these techniques to create a new style of jade art in the Qing Dynasty, when large quantities of jade materials of excellent quality were available. Countless jades were made, in imitation of ancient styles of jade and also in newer contemporary styles. The elaborate carving techniques of this period were superb and were never matched in any other era during Chinese history.

FIG. 1

FIG. 1 **BOULDER**
20th-century. Length: 10 in (25 cm). A large boulder, worked in high relief with scenes of sages and attendants in a mountainous landscape with pine trees. The stone is a pale green tone. A good example of its type, the modern origins are revealed in the style of the rockwork, the curve of the terrace, the straightness of the waterfall, and the colour of the stone and its polish. It is a rare example of Korean nephrite being carved in Yangzhou, China.

CHAPTER 6

POST-1800 CHINESE JADES

The Decline of Qing Jades and Contemporary Carving

ROBERT FREY

FIG. 2

FIG. 2 **JADEITE JEWELLERY**
Early 19th-century. A group of accessories made from quality jades. Clockwise from top: a jadeite and gold hairpin, the finial carved as a dragon's head emerging from another dragon's mouth; a fine belt-hook of translucent jadeite, the finial a dragon's head, a chilong *with* lingzhi *fungus in its mouth climbing up the arched shaft; a hairslide in the shape of a* ruyi *sceptre, the head with a bat and cloud-collar design, and Shou symbol; a similar hairslide in spinach-green; a fine two-part belt-buckle, with a twisting* chilong *carrying* lingzhi *fungus in its mouth, the hook worked as a dragon's head; a similarly carved belt-buckle in an unusual russet tone; an unusual belt-hook, terminating in a* ruyi*-shaped head.*

As Yang Boda has pointed out at the end of the last chapter on Qing jades, there were few, if any, fresh ideas or motifs in jade-carving during the decline of that dynasty. Earlier in the Manchu reign the encouragement of the arts, especially jade-carving, by some emperors – such as Kangxi and Qianlong – brought such skills to a high point perhaps not reached since Eastern Zhou times, almost 2000 years earlier. In 1680 the Imperial Factories were established in Beijing by Kangxi, who reigned until 1722. The peak of jade artistry and production came during the long reign (1736–1795) of the Qianlong emperor, whose 'signature' on a piece of jade adds such value that it has been engraved on works of jade well into the 20th century.

Today's visitor to the semi-annual Guangzhou Trade Fair finds thousands of samples of Chinese-made products on display. He places his orders and leaves, expecting the containers of products to reach his market months later. The exceptions to this pattern of trade are the jade and gem carving rooms at the fair. Each province or city has its own room and the articles on display are from lapidary artists in that location. Each and every piece on display is unique, safely boxed and 'what you see is what you get'. The jade pieces bought are marked with the buyers' names and are quickly dispatched to their destinations.

The carving skills represented at this major fair can range from fair to superb, but the motifs depicted on the jades continue to be those current in mid-19th-century China when the decline of Qing jades was underway. The fine arts in China have had their equivalent periods to those in Europe, from Impressionism to Surrealism and on to Modernism, but jade has stayed in the period of the Old Masters. A possible exception to this somewhat depressing repetition was the set of Chinese revolutionary figures in precious stones carved in the 1960s. The figure of Chairman Mao was in the finest mutton-fat nephrite and lesser

political figures were in a descending order of value of various precious and semi-precious lapidary stones. We may well wonder where this set now rests.

Contemporary jade carvings, therefore, have not changed much from the end of the Qing Dynasty to today. What has changed, from dynasty to dynasty in China, and over the past 150 years in the West, has been the varying taste in jades. In many Chinese dynasties there have been cravings for the past. There have always been jade-carvers ready to satisfy such demands and, for example, ancient bronzes could be the models for carvings done in the Song Dynasty, and the Qing Dynasty and even today. Some of the most skilled lapidary artistry has been shown in the carved surfaces of such jades. There are many remarkable examples, regardless of the dynasty in which they were carved, and their only drawback is the difficulty in dating them.

Even though jade-carving reached a peak in the Qing Dynasty, that dynasty was a mixed blessing as far as connoisseurship in China was concerned. The Manchus were a relatively primitive lot and their taste ran to pale pastel colours juxtaposed against each other and intricate designs fussier than they needed to be. Such was the dominance of the Manchus over the centuries, however, that traces of these design and colour elements are still found in Chinese temples (and restaurants) all over the world. The taste in prior dynasties might have been more akin to what is considered Japanese taste today; much of the Japanese culture was taken *en bloc* from China in the 8th and 9th centuries and preserved there during the following centuries.

Exhibitions of Chinese art in the West, including jades, were held as far back as the middle 1850s, particularly in the USA and in England. However, the big influx of jade objects came to the West with the fall and looting of the Summer Palace near Beijing. The majority of these pieces were from the Qing Dynasty and they set a taste in jade that has continued to this day. These were the more decorative pieces and the majority were of the bright jadeite colours rather than the more subtle nephrite hues.

In the 1800s the royal patronage of jade-carving declined. Jade gifts to the emperors were fewer. Insurrections were cutting off raw material supplies and the number of regional workshops was dropping. In the middle of the century the Taiping rebellion against the Manchu Dynasty contradicted its name (Great Peace) and added further disintegration to the dynasty and its centralized control of China. It was not a propitious time for the arts.

An interesting exception to the trend of those times is the impetus given to jade collecting (and resultant carving) in the province of Guangzhou in the early decades of the 19th century. This came from the newly rich Chinese middlemen-merchants (whose best profits were a result of their opium imports). Such was the interest in the past that

FIG. 3 **HORSE AND RIDER** *20th-century. Height: 5½ in (14 cm). A jadeite carving of the Cultural Revolution period (1966–76), from the Van der Werf Collection. The rider, who has a Western face, wears a turban, a fur-lined coat and an armband incised with the characters for 'red guard'. The cream streak within the pinkish and light green jadeite has been cleverly incorporated as the face and body.*

FIG. 3

FIG. 4

FIG. 4 **JADEITE PENDANT** *Early 19th-century. Length: 2¼ in (5.7 cm). A fine jadeite pendant of oblong shape, the sides carved with a peacock and other birds amongst foliage – a common subject, very popular in the 19th century for earrings and pendants. The stone a bright apple-green.*

FIG. 5

FIG. 5 **SQUARE SEAL** *19th-century. Height: 2⅛ in (5.3 cm). A plain square seal of green-brown stone stained red. Well-detailed, with the knop in the form of two horned dragons united, the piece is in the style of the large imperial examples. It exhibits the art of staining to enhance a stone.*

FIG. 6

FIG. 6 **JADEITE PENDANT** *19th-century. Length: 2¾ in (7 cm). A pendant of good colour finely carved in open-work with twin mythical animals supported on a pearl and tourmaline fastening. In James Watt's* Chinese Jades from Han to Ch'ing, *he describes this grouping as the final stage in the evolution of the animal style in China, where domesticated animals, which were previously more formally depicted, are represented in more natural poses.*

the prices for bronzes and jades reached heights equivalent (in purchasing power) to those reached by auction houses today. This led to an important trend that gives museum curators and auction houses headaches to this day. There were not enough casual finds of archaic jades to satisfy the market, so they were made to order – thereafter adding much confusion to dating jades. It became economically feasible to carve 'new' jades, or even to recarve old jades, in the 'old-style' – be it Shang, Zhou or Han, and there were enough skilled jade-workers with sufficient man hours and raw materials on hand to replicate just about any jades from any dynasty (the demand being primarily for archaic 'tomb burial' pieces). Consequent confusion over accurate dating has only recently been partially sorted out by the careful excavations done in China since 1949, which enable the connoisseur and curator to pinpoint the styles, at least, if not the authenticity.

As far as the techniques and tools of jade-carving were concerned, from the 1800s onward there were some changes in abrasives, with the introduction of carborundum and diamond powder, but man-driven machinery and slow abrading still had to suffice until the introduction of turbines and motors. Steam power might have driven tools in a few jade shops initially but elecricity took over at the beginning of the 20th century and revolutionized the art of jade-carving.

Contrary to much that has been printed on the subject of using power tools in carving jade, there is nothing wrong with these high-speed tools if they are in the hands of an artist rather than a mechanic. Indeed, the high speeds of these modern tools often require more skill than old-fashioned handiwork. There is less room for error when more can be abraded from a jade surface in one second of grinding with a power tool than in ten minutes of hand-grinding. The problem, especially in China, is that there are relatively few artists and too many mechanics using these high-speed tools in lapidary factories. Some of the 'shortcuts' to carving today range from high-speed cutting of the raw stones to the initial sandblasting of designs on jade surfaces before moving into finer designing. Again, in the hands of artists there is nothing wrong with these time-saving techniques, but in the hands of mechanical carvers they are a disaster.

Most of these state jade-carving factories do not pre-select workers for obvious talent, nor do they have training classes. They thus employ only relatively unskilled workers who do boring, repetitive work – and little of the stone they work on is actually jadeite or nephrite. A recent visitor to the Guangdong Jade Carving Factory (in Canton) found only one worker using jadeite as the raw stone in an entire floor of carvers. All of the others were carving bowenite serpentine, which was then christened 'New Jade' and sold

FIG. 7

FIG. 7 JADEITE JEWELLERY
19th-century with 20th-century mounts. A fine jadeite bead necklace, composed of 50 beads of virtually identical size and apple-green colour, each carved in open-work relief with a sinuous dragon. The oval open-work plaque is carved in relief with finely detailed chrysanthemums and foliage. The pendant is carved as a large beanpod with a bird in flight at the top. The open-work drop earrings are made from jadeite plaques carved on both sides with fruit decoration.

FIG. 8

FIG. 8 ART DECO EARRINGS
19th-century with 1920–30 mounts. Length: 2½ in (6.4 cm). A pair of fine drop earrings, each with an open-work jadeite disc carved with flowers and a bat. Suspended from articulated white gold mounts, set with onyx and small diamonds.

as such to the unwary buyer in the factory showroom. Even that one worker in jadeite was making the same figurine over and over again, year in and year out – not an inspiring career in jade-carving.

However, there are exceptions (particularly in Yangzhou and Beijing) to this mechanized factory production of jade and its substitutes, and some of the newly made pieces are superb in technique.

The hope for the future could lie with Chinese jade-carvers such as Jing-Wei Kao, an artist in his early thirties living in Taiwan. Kao feels that good carvers should first have training at Chinese painting and calligraphy. Then they should be able to sketch, with ink on paper, their unique designs for jade-carving. No carving should ever be repeated. A carver should have skills that range from engraving tiny calligraphic characters to shaping massive stones into final works of art. Themes can be both classical and modern. A few of his pieces are illustrated on pages 212–3. Such current carvers, be they well-known like Jing-Wei Kao or the anonymous contributors to the Guangzhou Fair showrooms, give some hope for the future of jade-carving in China and for work that might better reflect themes from both its past and its present.

FIG. 9

FIG. 9 JADEITE NECKLACE AND BANGLE
19th-century. Beads: diameter 3/16-3/8 in (0.5-1 cm). Bangle: 3½ in (8.8 cm). A beautiful necklace and bangle of plain design that sets off the fine colours. The string of 97 graduated beads is of a deep lavender tone; the bangle is of a deep purple tone with pale green inclusions.

FIG. 1

FIG. 1 **SNUFF BOTTLE** *Chinese, 18th/19th-century. Height: 2 7/16 in (6.25 cm). A bi-coloured nephrite snuff bottle of well-rounded form, worked with a design in high relief of a carp's transformation into a dragon, a metaphor for student success in examination and assumption of an official post. The jade-worker has manipulated the colours to enhance this important classical and literary theme. Now part of the Edward Choate O'Dell Collection, this superb and famous bottle combines fine sculptural qualities with a particularly high quality stone of variegated grey tone.*

CHAPTER 7

APPRAISAL OF CHINESE JADES

DAPHNE LANGE ROSENZWEIG

EVALUATING JADE

FIG. 2

FIG. 2 **COVERED VASES** *Chinese, 20th-century. Height: 8¾ in (22.25 cm). A pair of vases and covers with dragon-head ring handles, the sides with elephant-head ring handles and archaic dragon motifs. The lavender colour is all it should be – strong, uniform and natural. The shape is classic and pleasing, the free-moving handles are intact and unflawed, and both lids are present and well finished. Though not old, great care has been taken to bring out the beauty of the material. Now in the Albert Harari Regal Collection.*

The evaluation of Chinese jade carvings poses difficult problems for connoisseurs and appraisers. There are three approaches involved in assessing jade carvings produced in the major workshops located in mainland China, Hong Kong or Taiwan. The first is that of the physical properties of the work – the identification and quality of the material and the size and condition of the carving. The second is that of its aesthetic properties – the quality of workmanship, the school, style and period characteristics, the desirability of its shape, subject, palette and proportions and, once again, its size. The third aspect, extraneous properties, involves such issues as the provenance of the work, market volatility and local taste. These three aspects form the basis of this chapter.

Connoisseurs and appraisers may weigh certain of these issues differently, but any careful analysis of Chinese jade carvings will necessarily involve consideration of each of these three aspects. The initial goal must be to judge tangible and indisputable qualities of the carvings, and after this the importance of intangible qualities, such as verifiable previous history, may be assessed. Intangibles are interesting and pertinent to market value, even though they are not intrinsic to the work itself. The establishment of any carving's quality involves a summation of all these issues and a qualitative scale established so that an appropriate assessment of the work in toto is possible.

For every defect exhibited by a carving there may be a form of compensation and among many apparently equal jades there are often factors that make a particular jade a superior piece in the eyes of collectors and dealers. Top-quality carvings are traditionally produced either in carefully regulated palace or other well-ordered workshops, with the most skilled workers executing the finishing touches on the pieces. There are relatively few 'perfect' Chinese jade carvings.

It should be noted that both the market and the

connoisseur alike often bring arbitrary and variable values to play in considering a jade carving – the connoisseur might prefer, for example, only jadeite, or only spinach-green jade carvings. The market in one location may reflect local taste that would not be reflected in another market, as illustrated by the distinctions among the carvings offered at current auctions in Hong Kong, England and New York.[1] An assessor must be prepared to recognize this unwritten but very real variety of taste among collectors and, although the marketplace in which the carvings are presented is not the focus of this article, it is certainly a factor in the ultimate monetary valuation of any such work.

FIG. 3 **MUGHAL-STYLE BOWL**
Chinese, Qing Dynasty. Height: 3¾ in (9.5 cm). Diameter: 6 in (15.25 cm). A thin-walled bowl of plain form with a body gently curving to an everted lip. The body has gold and gemstone inlay; the jewelled bands and florettes are placed in well-calculated proportion around the bowl. This is an example of a type where the date of inlay could be later than that of the bowl. Now in the Marcia Israel Collection.

FIG. 4

FIG. 4 **VESSEL**
Chinese, Late Qing Dynasty. Height: 5½ in (14 cm). Diameter: 8 13/16 in (21 cm). A vessel of archaic bronze form, the stone white with markings. This bowl is well-worked and attractive in its proportions, and is possibly lacking a cover. Now in the Marcia Israel Collection, this bowl illustrates the skill with which a good jade-worker would carefully select archaic elements (such as animal masks or dragons in profile) and combine them with contemporary features of high technical skill such as free-moving rings.

PHYSICAL PROPERTIES

FIG. 5

FIG. 5 **MYTHICAL BEAST** *Chinese, Ming Dynasty. Length: 4¾ in (12 cm). A recumbent single-horned mythical beast exhaling smoke, its cub crawling on to its back. The subject of the mythical horned beast, either singly or with its young, was popular in jade throughout much of China's history. A well-modelled group.*

This aspect of Chinese jade carving analysis, which one might think would be the easiest for a connoisseur or appraiser, is in fact one of the most problematic for a variety of reasons – the first of which is the identification of the material itself.

Identification and Quality of the Material

The mineralogical implications of the term 'jade' have been examined elsewhere by this author and many others[2] and have been discussed in this volume as well. Some of the major points bear repeating here. The accepted Western usage of the term 'jade' means specifically nephrite and jadeite (and chloromelanite, if certain conditions are met). Any appraiser must become familiar with the qualities intrinsic to those materials and the many variations possible within the given broad definitions.

The general public, however, is usually unaware of the limiting factors of the all-embracing rubric 'jade' as it is applied in the West and is susceptible to blandishments by unscrupulous or ignorant dealers and national workshops encouraging them to buy – at jade prices – what is purportedly jade but in fact is another material entirely for which the value is substantially lower. Compounding the difficulties are the diverse and very loose Chinese interpretations of the term *yu*, which is translated as 'jade' in English.[3] Also, there are many materials that have been called 'jade' or some variation thereof by dealers or international trading consortiums, and purchased as 'real' or 'genuine' jade by the unsuspecting admirer.[4] (A fuller list of jade simulants is given by Jill Walker on page 29).

A major problem with current hardstone carvings produced in China and sold abroad as 'jade' is the wide-scale use of bowenite serpentine, which has the cream or apple-green colour many buyers associate with the name 'jade' but which otherwise has very different and inferior

properties to the jades it is imitating.[5] Any would-be connoisseur of Chinese jade carvings is well-advised to visit not only museums and fine private collections of such carvings but also 'real' marketplace settings such as the Tucson Gem and Mineral Show (held each February in Tucson, Arizona), one of the Canton Trade Fairs (with appropriate permission)[6] or mainland China, Hong Kong or Taiwan centres of carving such as the Peking Handicraft Centre.[7] 'Jade' carving is one of eight departments at this centre, employing over 200 carvers to produce works fashioned not only from jadeite and nephrite but also serpentine, malachite, soapstone, lapis lazuli, rose quartz and other materials lacking the properties of either nephrite or jadeite.

The quality of the material is a factor of both the intrinsic properties of the jade itself and the manner in which it has been carved, which is discussed under the section detailing aesthetic properties. Generally speaking, over the centuries fine-quality material has been readily available to the Chinese jade-carver from a variety of locales, with the possible exception of the Ming period, during which there was an apparent paucity of supply, according to recent research by Craig Clunas, although Yang Boda's section on Ming jades (see page 135) is less pessimistic about supplies at this time.[8] Among the factors affecting connoisseurs' perceptions and appraisers' valuations are colour tonality, the textural variations of the material, the degree of evenness of the tones overall or an interesting variety of tones, and the degree of, and success in, the incorporation of any rind.[9]

For jadeite jewellery, particularly cabochon stones, the issues have been made relatively easy by a recent series of writings on jadeite grading. Ng and Root summarize the properties to be considered as tone (hue and intensity), translucency and texture.[10] Given the irregular quality of larger pieces of jadeite material, the terminology cannot be applied as readily to carvings as it can to ring-stone cabochons or snuff bottles. Nevertheless, it is well to keep these issues in mind. Healey and Yu have devised a system by which the texture and transparency of jadeite may be measured, including 'glassy', 'icy', 'coarse fibrous' and 'chalky' – the least desirable, sometimes also called 'hobbyist's jade'.[11] The problem with such systems, helpful as they are, is that individual perceptions affect the interpretation of many of these adjectives, and therefore they must be used with care.

Size and Condition of the Carving

Depending on the proposed function of the object, its size is a tremendously important factor in consideration of its merit. If the work is a handpiece, the way in which it fits

FIG. 6 **BLADE AND *BI*** *Chinese, Ming/Qing Dynasty. Length: 10⅝ in (26 cm). An impressively scaled, weighty blade and* bi *whose design elements are derived from a combination of Shang, Zhou and Han designs. Dragons course across the* bi, *descending into the mountain-sea setting and curling around the incised star sign at the top. It is perfectly typical of Ming revival jade style in its scale, mass and free interpretation of archaic devices. Now in the Marcia Israel Collection,* FIG. 6 *it is worked in cream nephrite with rind and minor red/brown staining.*

FIG. 7 **JADE *BI***
Chinese, Shang to Zhou Dynasty. A fine large plain bi *of good green tone with brown markings. The edges show deterioration and calcification, symptomatic of ancient burial pieces and adding character and interest to a simply worked example. Sometimes such effects can be deliberately worked into a later carving to add 'antique authenticity'.*

FIG. 7

into the palm and the nature of its 'feel' are paramount. If the work is for display on a public scale, large size is often desirable. If, on the other hand, the work is for appreciation by a limited number of connoisseurs, specifically for use as part of a scholar's desk array, an intimate scale will be appreciated. In certain periods large-scale works were simply not executed, due to the shortage of appropriately sized raw material. There are periods in which the works displaying the highest degree of 'sincerity', an ineffable but all-important quality, were small in size even though large carvings were possible. There are owners who simply prefer one size to another for whatever reason.

Thus, the purpose of a piece at its time of manufacture as well as its present function, and the potential size of the piece given its age as opposed to its actual size (that is, could it have been larger given the jade size available at the time, and would it have been more effective so?) must be taken into any consideration of size as an element in judging a carving. If a piece is extraordinarily large or cunningly minute, the effect is impressive and the object desirable.

Condition is tremendously important in evaluating a carving; a piece in excellent condition is always more desirable than a comparable but damaged work. A modern carving with obvious or inherent flaws has little to recommend it: an older work now flawed (and perhaps even flawed from the beginning) is, within limits, acceptable simply because of its age. While museum-quality carvings usually find a home even if they are flawed, works of a more routine nature may find their desirability compromised by unsatisfactory condition; as Roger Keverne reports with regard to the sale of several jade dishes, 'The buyers were not accepting average goods with problems . . . and these well-modelled shallow dishes had flaws which were close to being cracks'.[12]

One common type of flaw is a broken link in the elaborate chains typical of Qing and modern jades. They may be embellished with metal to hide the break. A similar repair is found on free-moving circular handles suspended from attached handles on the sides of Qing and modern vessels. If the damage is readily apparent value plunges, so attempts to hide problems are common. Apart from flaws such as fractures (which should be stabilized), other types of instability of the material and outright breakage, both of which are fairly obvious, there are a number of more subtle faults and flaws that are tests of the connoisseur's and appraiser's prowess.

It is becoming more and more common to find surface and colour treatments applied to jades with the intention of making the material more attractive and thus more valuable. There are also treatments to artificially age newish jades to make them look like antiques. Many of these artificial treatments are routinely practised in contemporary workshops or dealerships and some are almost impossible to detect with the naked eye. Some have been practised for centuries, generally for unscrupulous purposes; it is now recognized that artificial staining, for example, probably began much earlier than had previously been thought. Brian McElney suggested that it occurred 'at least as early as the Tang'[13] and could have been done at the time of the creation of the work or at a later time. Burial effects, which of course occur naturally, have also been artificially induced with great success.

A common feature of large Ming and early Qing jades was the addition of staining on carvings of mountainous scenery to suggest the brown rind or 'skin' characteristic of the old stream bed boulder jade of Central Asia. This was a time when the jade available to the workshop (making possible the new large-sized carvings of mountains and other forms such as recumbent buffalo) was not stream bed-derived but quarried or 'mountain-origin' jade, which had a lesser name among carvers and collectors.[14] Clearly there are a number of tricks to the practice of carving and presenting jade, as discussed in the extensive body of recent literature in art history, mineralogy and gemology texts devoted to the subject.[15] It is an area in which any honest connoisseur or appraiser must admit to being fooled at some time or another.

AESTHETIC PROPERTIES

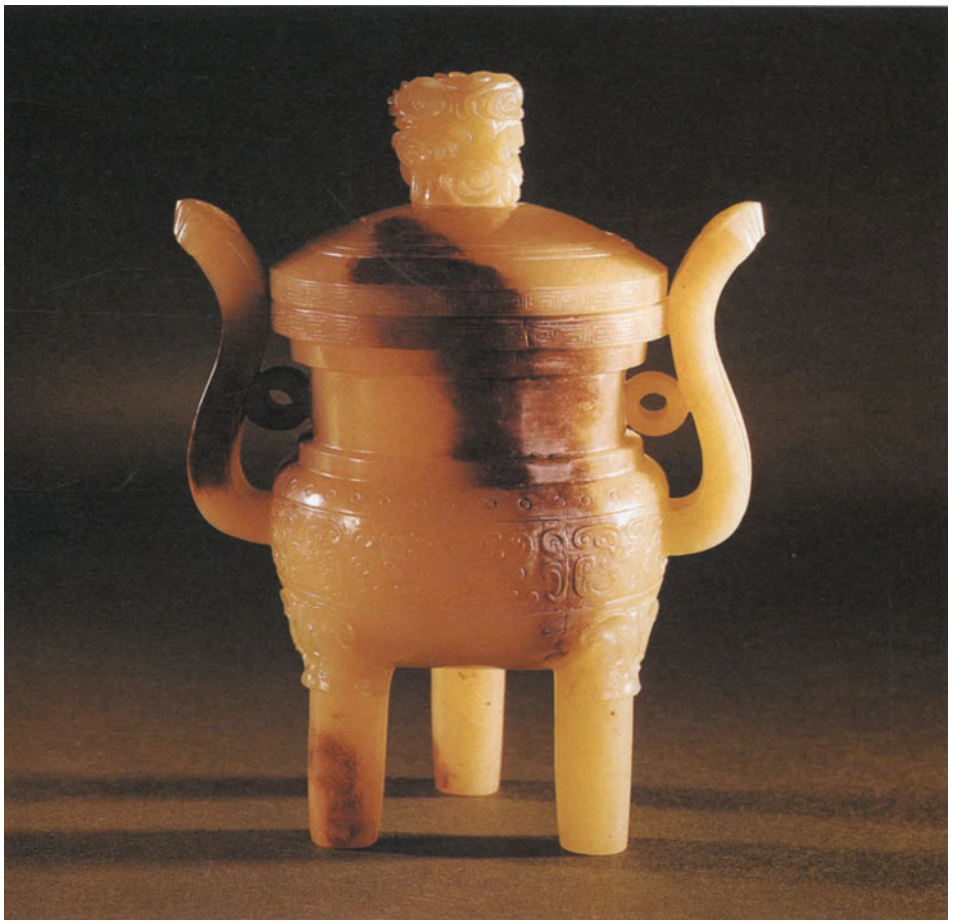


FIG. 8 **INCENSE BURNER** *Chinese, Qing Dynasty. Height: 6¾ in (17 cm). A yellow incense burner and cover, the sides with upwardly curving handles, the body with archaistic motifs over three animal-mask cylindrical legs. Now in the Marcia Israel Collection, this example is very much in the archaic tradition, although such a strong yellow stone is unusual in a piece of this size. This tripod's desirability is enhanced by the fact that its lid is extant – all too often, multi-sectioned pieces are incomplete. The lid here is an important factor in the overall proportioning. The knob is independently carved, another attractive feature.*

FIG. 8

Quality of the Workmanship

Of overwhelming importance in analyzing the merit of a jade carving is the level of workmanship in its execution. Has care been taken in respect of the material, to bring out its best features advantageously, including taking advantage of the colour variations and the size and shape of the overall boulder or slab, and to minimize less positive features without distorting the character of the stone?

If the carver intended to have his work emerge perfectly smooth to the touch, has he in fact smoothed off each part? Obvious signs of incompetent or slovenly workmanship are rough, unpolished surfaces lurking on the underside of fixed handles, a lid bottom, or in perforations and interstices in pierced and open-work designs. Such dull areas are not uncommon on contemporary or late-19th-century works. Given the technical level to which a particular age might attain, the work should be polished as carefully as possible throughout. Early works do not usually have a high polish (although one may have been added at a later period) but high-polish works are typical of later Qing and modern carvings. If a late work is not highly polished it is, generally speaking, an inferior carving. However, the polish should be examined closely, since it has been known for pieces that appear to be of uniformly fine stone, without defects and sporting a fine, high-surface gloss, to have in fact been treated with a layer of wax that obscures imperfections. It is even possible that the gloss may make a carving fashioned from serpentine or lesser material appear to be the more valuable nephrite or jadeite.

Chains, if present, should ideally form a physical as well as aesthetic unit with the block from which the main shape has been carved, in other words, carved out of the same material and never separated from that material. Integral fractures should have been incorporated skilfully, or obscured cunningly, by the design. The work should be well hollowed-out, the carver excavating inner material

and allowing for sheet-thin walls rather than simply drilling a hole straight down and leaving the walls dense and opaque. If these factors are important to the shape, as they certainly are for snuff bottles, then the ideal treatment is that received by the superbly coloured and polished jadeite bottles from the Edward Choate O'Dell Collection illustrated in Fig. 9.

In examining a carving, a design should be visually comprehensible, with major motifs clearly distinguished from background motifs. The lines through which the design is delineated should be seen to be cut precisely. Shang incisions (sometimes called 'sunken relief'), for example, will be less complex or well articulated than late Zhou incisions: this is the result of the period in which they were made, and does not reflect upon the Shang carvers. A work should reflect the highest level of skill available to the period – within the bounds of prevailing taste, a caveat added here because of the flamboyant, tasteless nature of many modern works. The modern carver's repertoire of technical devices, including electrically powered equipment and diamond bits, allows him to manipulate the work in almost unbelievable ways, but often the work suffers from the emphasis on technical showmanship: the carving is more a trick than a work of art. There is a fine point where the technical qualities that are deemed essential for a work meet other equally important aesthetic qualities, and when these qualities are not allowed a voice the work suffers.

School, Style and Period Characteristics

Several chapters in this volume discuss the forms, motifs and technical skills characteristic of each major jade-carving period in Chinese history. It helps to be cognizant of the historical development of Chinese jades and to be able to recognize particularly desirable objects, either of museum quality or the more ordinary level. It is necessary, to add to an already formidable list of variables, to consider the current popularity of certain shapes, designs and periods – for example, as Keverne put it, 'the continued popularity of groups of figures in boats'.[16]

In order to assess the age of a work, both physical and aesthetic issues should be considered. Is the work of the period to which it would be logically assigned based on its style, shape, material and other factors; is it a faked work in the style of an earlier period; does the entire carving date from one period or is there evidence that it has been worked on or added to at a later time?

However, a note of caution is essential here. Respectful as most collectors are to any carving thought to be old, it is well to remember, as Brian Morgan has pointed out, that 'at every period there has been good and bad . . . quality and date cannot be equated . . . . Early does not necessarily mean great, or even good'.[17] Nor does the phrase 'Han jade' as used by some dealers necessarily mean works datable to that period: often the term is loosely applied to any excavated jade, or a jade that looks as though it has been buried!

As a general rule, archaic jades (Shang to Han)[18] not only can be dated with some accuracy but also are highly valued because of their very antiquity and their place in ritual in the formative eras of Chinese culture. Many older jades are carved in what seems naïve fashion from inferior material and have been badly eroded or 'calcined', yet these adverse factors seem to add lustre to the objects, assuring the viewer that such jades are true representatives of an ancient and revered period (see, for example, Fig. 12).

Having said this, it must be emphasized strongly that there are many copies of early pieces, some deliberately created to mislead the potential buyer, others carved in respectful imitation of older forms. It is essential to acquire as much hands-on experience as possible with genuine archaic works in order to gain an appreciation for their shapes, decoration, relief work, colours and discolorations and, more elusively, their 'feeling' or aura.

Compounding the difficulties of assessing ancient jades, there are a number of surprises arising from new archaeological finds which make it clear that our ideas of what was possible in early periods have been far too limited. Many recently excavated artefacts appear unique in configuration, have an outstanding aesthetic impact and are of historical significance.

Carvings from the late Han through late Ming periods are more frequently encountered than archaic jades. The hapless appraiser, confronted with a work that appears post-archaic and yet pre-Qing, is not at present in a position to state categorically that the work is of some specific era within this middle range[19], although James Watt, Brian Morgan, Craig Clunas and Brian McElney have all contributed to this field of scholarship in recent years[20], and they, together with some mainland Chinese and Taiwanese scholars, are beginning to make a dent in distinguishing middle-period styles[21]. As McElney has pointed out, however, there are few excavated works for the period AD 200-1400 and there is a scarcity of literary records so that one must fall back on the 'style of carving, the type of object, its colour, its aesthetic quality and comparison with objects in other materials'[22] in order to begin to assign dates, factors that Na Zhihliang brought to bear when assigning a Ming-early Qing date to a handsome yellow archaistically styled nephrite tripod (Fig. 8).[23]

Early Qing jades may prove difficult to verify as belonging to that era (late 17th- to very early 18th-century)

although more experts are feeling comfortable in assigning a Kangxi date to works that might have previously simply been called 'early Qing'. Such a characterization is, again, best left to the handful of experts who seemingly have a grasp on what a Kangxi work should or should not be.

Mid-Qing works are usually identifiable by virtue of the material – the new size of nephrite material available to carvers and the newly imported jadeite from Burma – as well as the expanded repertoire of shapes and designs and increased technical facility. Many works are datable to the Qianlong period (AD 1736-95), when the palace workshops were particularly active, but so famed were the products of the imperial workshops (and so desired by later collectors) that some 19th- and 20th-century jades bear an apocryphal Qianlong reign mark or poem by that prolific if relatively uninspired emperor-poet. In this regard, the cautious wording of auction catalogues is helpful to the assessor: the phrases 'Qianlong reign mark' or 'in the style of the Qianlong period' are markedly different in implication from 'Qianlong reign mark and of the period' or 'Qianlong style and of the period'. One clue to jades considered by the auction houses to date from some period after the Qianlong era is the absence of a specific reign name or century date in the catalogue, the assumption being that works of undesignated period were the products of 19th- and 20th-century workshops.

Considerations of Shape, Subject, Colour, Proportions and Size

A jade's colour may be strong or weak, uniform or altering to another. If colour is the dominant emphasis of a carving, it should be brought out well by the carver, rather than be undermined by distracting decor.[24] The shape of a carving may follow in a long-established tradition, as in Fig. 2, or be a new reflection of modern life (if so, will it become a classic?). Fig. 3 illustrates a most desirable fine jade thin-walled bowl. In contrast to this timeless work, a number of the Cultural Revolution jades, with their specific political-social content, seem very dated today, even though technically they can be spectacular. Their overt Party-line approach to content will appeal to a very limited audience and thus their value is affected.

Jade designs may be standard, unusual, a minor or dominant aspect of the carving, pleasing, interesting, or cunning (as in a rebus work). Does the shape to some degree follow the configuration of the original boulder? Is the size impressive, just right for its period, or unusually small, making it intriguing? Does the work have substantial presence, the result not of inept carving but its sheer mass and shape (Fig. 6), or is it so thinly carved as to be lightweight?[25]

FIG. 9 **SNUFF BOTTLES** *Chinese, 18th/19th-century. These three jadeite bottles are well hollowed-out, have finely polished surfaces, and exquisite subtle natural colour gradations that have been kept free from obfuscating ornate decor. On the right is a famous bottle with a type of colour combination known to some as 'melting snows in spring'; it has also been described as 'crushed pine needles in snow' (height: 2½ in/6.5 cm).*

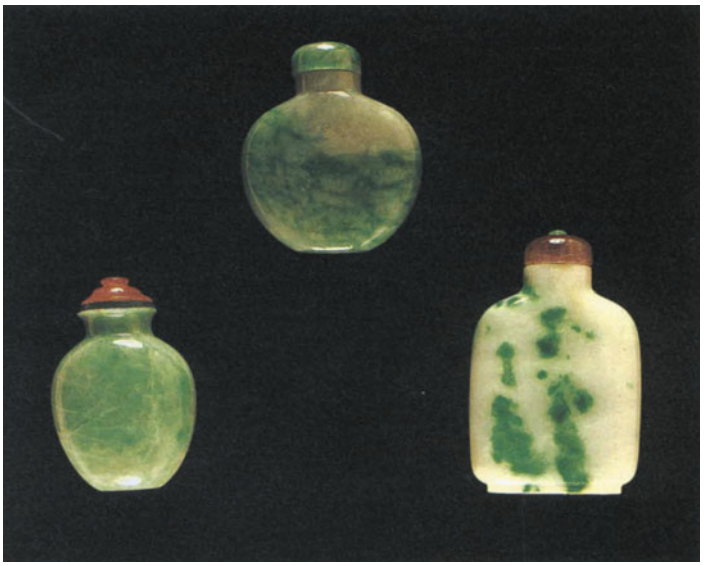


FIG. 9

The Chinese penchant for archaizing must be recognized as a paramount issue in jade carvings, and is particularly important in terms of shapes and decor patterns. Both in the Song and Qing there are many works carved in imitation of jades or bronzes of the Shang, Zhou and Han periods. One instance of this is the 1970s/early 1980s practice of exporting Korean nephrite, which beautifully combines chocolate-brown and apple-green blend tonalities (the brown not a rind but integral to the stone), to Taiwan, where it was carved into traditional bronze vessel forms. The finished products were then taken to Hong Kong where many were sold to unsuspecting tourists as 'genuine older jade, as can be told by the brown discoloration from ageing'. This practice, and others with which everyone in the field will be familiar, indicate the desirability of establishing the provenance of a particular carving.

Whatever the hard facts and the answers to these more speculative issues, it is well to remember that for every piece of jade there is probably an appreciative audience. Where a connoisseur might blench at the idea that a particular jade might be someone's treasure, an appraiser called on to assign a value to the work cannot afford to let personal bias affect an appropriate valuation.

EXTRANEOUS PROPERTIES

FIG. 10 **BOWL WITH CICADA RING HANDLES** *Chinese, 18th-century. Length across handles: 9½ in (24.3 cm). A circular bowl that is a very good example of its type, and with unusual ring handles in the form of cicadas. The base of the bowl is worked in low relief with fish and water weeds. A side view is illustrated on page 150.*

FIG. 10

The term 'extraneous' may seem to imply issues of lesser importance in the consideration of a jade carving, but in fact they are of tremendous relevance. There are three main issues here: provenance or pedigree, market volatility and local taste.

Provenance

Documentation of a jade carving can take many forms. There might be dealer 'authentication papers', presenting the dealer's best opinion as to the work's age based on his or her familiarity with many carvings of similar period. If the dealer is considered reliable and experienced in the field of Asian jade carvings, such documentation can be a useful guide.

There might be auction records, establishing a track history for the sale of particularly distinguished jade carvings. Such information follows the body of the description of the carving in the auction catalogue, and aids an appraiser in establishing or confirming a valuation trend. The familiar custom of grouping undistinguished jade carvings under the name of a glamorous locale or personality (a notorious example being 'from a Palm Beach Collection') or a type of title ('Property of a Lady') helps sell many routine works to a susceptible public.

Some jades are documented through books or exhibition catalogues, a factor that adds lustre to any carving included (particularly if it is reproduced in black and white or, preferably, colour). In his comments about a long dark green blade that realized an astounding £68,358 (U.S.$132,000), as opposed to an estimate of £7,770-10,400 ($15-20,000), Roger Keverne at Spink & Son noted that he was 'still not sure why it made so much but it did have a good pedigree of exhibitions and was similar to one in the Palace Museum, Peking, so this could have helped'.[26] If an exhibition was held at a highly reputable institution with a firmly established tradition of reliable taste, then the catalogue record is a real asset for that carving, establishing it in the art historical literature. If the institution does not

have a reputation for scholarly research or a strong presence in Asian art, then the catalogue presentation, while certainly an advantage, probably has little long-term value for the work.

The most important type of provenance, however, is where there is irrefutable evidence that a carving came from a particular site or collection or series of collections. The work's pedigree can be established by excavation reports, which reliably place the work at a particular site of verifiable date; this is not, however, an eventuality that today's collector can expect to encounter very often, given the many international and national laws governing traffic in excavated antiquities.

Collection information may well be forthcoming, as some of the older collectors, both in China and abroad, compiled scrupulous records about meritorious works in their collections. These dated inventories are invaluable for two reasons. They establish the existence of the carving at a certain date, and thus the work will not date later than that period (although of course it does not establish the date when the work was in fact created). Secondly, the family or collector might be illustrious for some social or political reason; if so, that fact adds interest to the carving and thus its value. If the family or collector is known for exemplary connoisseurship skills in the selection of art, and specifically in selecting only superlative examples of jade carving, then the value soars. The established opinion of a reliable collector, who may also be of note in society, adds a great deal to the value of the work.[27]

It is worth noting that, just as one cannot rely on all older jades to be superior, one cannot rely on renowned collectors to be infallible. There are myriad reasons why an inferior work might occur in an otherwise impeccable collection, as recounted by Bo Gyllensvard with respect to the famous collections of the late King of Sweden.[28] A piece might have been purchased early in the collector's career, before his or her aesthetic sensibilities were developed, or it might have been purchased from a friend as a favour or received as a gift. Thus, the assessor's own experience and personal aesthetic responses must be called into play to isolate less meritorious works from the otherwise impressive context. Nonetheless, even if well-known collectors include what are obviously second-rate carvings in their collection as well as the major carvings that have made their reputation, these inferior works tend to have more value than second-rate works with no provenance, simply because of their good pedigree.

Many jade carvings come with verbal pedigrees that take the form of undocumentable and often apocryphal, albeit interesting, tales. One common example is 'The grandfather of the owner was one of the soldiers who looted the Summer Palace, where he picked up this work' or, a

FIG. 11 **BIRD HEAD *GE*** *Chinese, Early Western Zhou period. Length: 2 in (5 cm). A miniature* ge *blade with a central double line to delineate the spine of the blade; the handle is formed as a sharp beaked bird head with small crest and large raised disc-form eyes.*

FIG. 12 **CEREMONIAL *KO*** *Chinese, Shang Dynasty. Length: 8 3/16 in (20.5 cm). A blade of slender, tapering form. The stone is an oatmeal tone with brown-black markings. Now in the Marcia Israel Collection, this is a good example of an archaic jade of the standard ceremonial dagger-axe* ko *type; it exhibits classic Shang characteristics of 'bi-conical' drilled holes, and a simple, elegant profile finished by bevelled edges. The encrustation and deterioration add flavour to the otherwise plain surface.*

favourite, 'My father won this carving in a gambling game with some of the members of the imperial Manchu family still living in the Beijing palaces after the fall of the Qing'. Even if true, the lack of concrete documentation means that this is essentially useless information, and cannot be employed to establish merit or value.

Market Volatility and Local Taste

The periods represented by diverse types of jade carvings will appeal to different audiences. It is unlikely, for example, that a collector of archaic jades of superlative quality will own any modern workshop production pieces, unless they are truly outstanding works. Conversely, devotees of the modern light, bright, bedecked pieces may find it difficult to appreciate older works that appear in poor repair, fashioned from unappealing, distressed material and without frills in terms of ornamentation. Early in this century, Western collectors were enthusiastic about spinach-green jade, as witness the Vetlesen Collection in the National Museum of Natural History (Smithsonian Institution), Washington, D.C. Today, the taste is for 'fine white stones', 'lavender blushes' and strong emerald-green jadeite, a taste that has been particularly in evidence in the Hong Kong jadeite jewellery auction sales in the last few years.[29]

The diversity of interests among collectors is certainly a factor to be recognized by appraisers, and will affect the market in which they search for 'comparables' to facilitate the establishment of a price level. Works of certain periods usually appear in one market rather than another, and a knowledge of the regional taste for jade carvings is essential. The market for older works is always sparked by a new, spectacular find on the mainland: even when there is probably no chance of acquiring similar pieces, a collector may well be stimulated to search for additions from that period for his or her collection.

An assessor routinely confronted with the necessity of assigning an appropriate valuation to an important and/or highly decorative Chinese jade carving is well advised to subscribe to catalogues detailing jade sales run by the major auction houses since, after all, their income is based on their supposed knowledge of local taste in the three major venues of New York, London and Hong Kong. Roger Keverne's summary of trends of yearly jade auctions worldwide, printed in each issue of *The Bulletin of the Friends of Jade*, is a useful tool by which an appraiser can begin to learn about local taste and market volatility. This knowledge, so essential for an appraiser, is perhaps of less concern to a connoisseur, since it reflects current trends based on some commercially driven impulse of no predictable duration rather than a sustained system of discernment.

FIG. 13

FIG. 13 **NECKLACE AND SADDLE RING** *Chinese, 19th-century. Necklace: 21 in (53 cm). Saddle ring diameter: 1 in (2.5 cm). An unusual necklace, composed of 11 gradated large open-work beads, each carved with a swirling dragon. There is a bell-shaped finial to either side, and it is mounted on a silver-link chain. The large jadeite saddle ring has an arched top carved with a playful liondog pawing a brocade ball. The top is a brilliant green; the shank a white colour. Such strong tones and sculptural working were popular with Westerners at the turn of the century.*

CONCLUSION

FIG. 14 **THREE JADES** *Chinese, 18th-century. Top: a boulder worked in relief with figures in a landscape. This jade is typical of the best 18th-century examples, where fine detailed work combines with the shape of the stone (height: 5½ in/14 cm). Middle: a cup of plain rounded form, the handle with a large bifid-tail dragon, two smaller examples to the sides (length: 4¾ in/12 cm). Bottom: a waterpot in the form of a duck with its head turning back to a duckling stopper. This superb and rare example is worked from yellowish-green stone with chestnut markings (length: 4 in/10 cm).*

FIG. 14

Obviously there is no simple way by which to arrive at a conclusion about a jade carving's quality or appropriate valuation; there are numerous criteria against which an individual carving must be measured to establish its particular level of merit. This is a field in which there is no substitute for years of experience, which ideally would include attending important jade sales at auction houses, visiting major collectors and dealers to appreciate their approach to jade connoisseurship, reading important texts in the field (and learning to take many of the volumes with the proverbial grain of salt), keeping *au courant* with new discoveries and their significance, visiting as many private and museum collections, gem and mineral trade fairs and jade-producing workshops as possible, and, finally, handling as many carvings as permitted.

Connoisseurship is only gradually acquired, and involves extensive eye-training culminating in an ability to discern quality. Connoisseurs also delight in discoveries and challenges, and, at their finest moments, graciously accept the occasional slip-up. Appraisers, conversely, confronted by time and client constraints, prefer not to be too challenged by rarity, oddity or plain inscrutability in carvings, since they need to establish, with a modicum of speed, comparables upon which valuations may be based. The novelty of new discoveries, while certainly of interest, is rarely relevant to their work. Above all, appraisers need to be keenly aware of contemporary market values. Jade connoisseurship and appraisal are certainly the most demanding and rewarding areas in the field of fine art and while no expert is infallible, no novice is hopeless.

FIG. 1

FIG. 1 **TABLE SCREEN** *Taiwan, 20th-century. Diameter: 8 in (20 cm). A circular screen with a composition of a dragon and phoenix curling around a Shou character. The dragon and phoenix were symbolic of the emperor and empress in Chinese imperial history, and the Shou 'long life' motif was frequently used. Carved from Canadian jade of a strong green tone.*

CHAPTER 8

JADE OF THE PACIFIC RIM

Taiwan, Japan and Korea

LI-PING TAN

KAZUYA CHIHARA

ROBERT FREY

JADE OF THE PACIFIC RIM

FIG. 2

FIG. 2 *Map of Taiwan, Japan and Korea.*

A peculiarity of jade sources in the world as a whole is the abundance of finds around the Pacific Rim. There is no equivalent Atlantic Rim or Mediterranean Rim. Starting at the top of the Pacific Rim (the Bering Straits) and going clockwise, the first jade-bearing area is Alaska, then comes western Canada – both important sources of nephrite. Farther south are the states of Washington, Oregon and California, in all of which either nephrite or jadeite (or both) are found; in California nephrite predominates and much has been extracted.

Farther south is Central America, where three deposits of jadeite have been traced. The Olmec, Aztec and Maya civilizations were all famous for their working of jadeite and closely related stones and trade patterns have been found all the way to Panama. In Costa Rica some small nephrite deposits have recently been found.

From that point, swinging out southwest, as some of the trade winds and ocean currents do, you find jade reports from New Caledonia and, farther south, in New Zealand. The latter has some of the finest green nephrite deposits in the world, worked for generations.

Still moving clockwise, but turning north, there are very heavy nephrite deposits in Australia – so heavy that mining is only done for about one week per year, lest the market be flooded. From there north are reports of jade finds in New Guinea, in Sulawesi, in Indonesia, and Taiwan, whose nephrite is plentiful but expensive to extract.

On to Japan where jadeite deposits were verified a half-century ago, just across the Straits from large nephrite deposits in Korea, both South and North. Then on into eastern China, where there have been some recent remarkable finds of worked jade from the Hongshan Culture.

Continuing along the same parallel of longitude, one reaches the Siberian nephrite deposits so favoured by Fabergé and other gemstone workers in Russia. Some of this material, when compared with Canadian nephrite, defies the viewer to tell the difference, completing a full circle.

A century ago, when many of these jade finds around the Pacific Rim were news, much academic discussion was stirred up. Some felt that the western finds, particularly the Meso-American jades, proved that the Chinese traded with the west coast of North America long before. Jade had always been associated with sources in China and the jade question became an academic controversy. Particularly puzzling were the parallel motifs used in carving jades in areas as far apart as Yucatán in Mexico and Anyang in central China.

The combination of scientific archaeology and geological investigation finally solved the jade question. There were separate sources of raw material and separate civilizations, but the human mind and hand moved in the same direction over the centuries.

In the historic study of jade in each of these Pacific Rim areas there are certain curious parallels. Over the past century 'new' finds have received much publicity and stirred up much controversy. The finds in Canada and Japan were news in the 1930s, in Korea and Taiwan in the 1950s, while the pinpointing of jade sources in Meso-America was as late as the 1970s. However, carefully controlled archaeological excavations in nearly all of those areas have found jade used all the way back to Neolithic times.

This volume has individual articles on the jade sourced (and worked) in all of the principal locations around the world. This chapter covers the Pacific Rim group of Taiwan, Japan and Korea.

JADE IN TAIWAN

LI-PING TAN

FIG. 3 **GUANYIN GROUP** *Taiwan, 20th-century. Height: 10¼ in (26 cm). A group of Guanyin with attendants over a curling imperial dragon, the whole elaborately pierced and worked from Canadian jade of strong green tone. A technical tour de force, the composition is a classic one; Guanyin, the goddess of mercy, was a favourite domestic shrine image from earliest times.*

FIG. 3

In a span of less than 40 years Taiwanese nephrite jade has been 'discovered', mined to the point where it represented the majority of the world's nephrite jade production in one peak year, and has then died an early death. This is the story of that rise and fall.

In the autumn of 1957 Professor S. G. Davis of the University of Hong Kong was studying the engineering geology of the Central Cross-Island Highway in Taiwan. He consulted the author about a letter from H. S. Liew, a student from the National Cheng Kung University. Liew stated that he had found nephrite in the mining concession of the China Mining Company at Fengtien, Hualien. After the highway study was completed, Davis and this author visited the mine and were given an uncut piece of nephrite some 121 lb (55 kg) in weight for research purposes.

The piece was cut and examined by the author who confirmed that it was true nephrite. The China Mining Company asked Professor Davis to take back a part of this first sample to Hong Kong to find out if it could be carved and polished as jewellery. Nearly a year passed before he wrote back to the author to say that the sample was too fractured for commercial carving. Several years later the lapidaries in Taiwan found satisfactory ways of carving and polishing other samples of the nephrite jade themselves. The rejection of this first Taiwan material by the Hong Kong lapidaries has been a puzzle to this day; it is possible that the sample piece of nephrite was damaged by the crude concrete saw used by the Highway Department for its cutting. The vibrations could have fractured the sample badly. The proper tool would have been a large diamond saw but there was not one available in Taiwan at that time.

The China Mining Company has had an interesting history. Its origins date back to the accidental discovery of tremolitic asbestos in 1917 by a hunter in the Hualien area. Asbestos has always been an important strategic mineral and the mine was developed by the Japanese, who occupied Taiwan at that time, as a source of asbestos for the Japanese Navy. During World War II this was the largest and most productive mine in the entire Japanese Empire. The Japanese evidently completely overlooked the nephrite occurrences; no mention of nephrite has been found in the literature until 1960, long after the end of the Japanese occupation in 1945. From that point on, the important mineral extracted from the mining concession had been talc, whose primary use was as a mixture in fertilizer.[1]

In the first few years after 1959 the nephrite discoveries[2,3]

FIG. 4

FIG. 4 **CIRCULAR PLAQUE**
Taiwan, 20th-century. A round plaque depicting a figure seated beneath a tree, pierced and worked in open-work. The stone has an icy white and green tone.

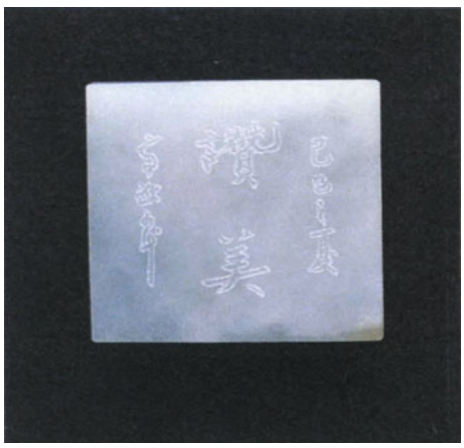


FIG. 5

FIG. 5 **SQUARE PLAQUE**
Taiwan, 20th-century. A square plaque worked in low relief depicting a figure in a landscape, the reverse with calligraphy. The stone a white tone with markings.

FIG. 6

FIG. 6 **BOULDER CARVING**
Taiwan, 20th-century. An irregular rock of plain form, carved to show a fisherman below a cliff. The stone a pale white and green tone with brown flecks.

were confined to alluvial finds of cobbles and boulders close to or in the small creeks near the talc mines; it has been estimated that less than 100 tons of nephrite were found in the years 1959 and 1960. The biggest boulder ever found weighed about 3 tons. However, the price of raw jade at that time was very high, so from 1961 onward the China Mining Company started to mine the nephrite by digging passageways (adits) into the hills[4,5].

The usual adit had an entrance about 6½ ft (2 m) square and could extend from 99 to 528 ft (30 to 160 m) in depth. A team of six to eight miners used mine cars on rails and their average production was about 2 tons per month. By 1965 there were about 20 teams at work in these mines.

The economic motive for this mining was strong. Prior to these finds, the most productive nephrite source in the Far East had been the mines and alluvial finds on the south and north slopes of the Kunlun Mountains in Xinjiang Province in the very far west of China. Those mines had not been worked for decades and the unpredictable alluvial finds had to be transported enormous distances to workshops[6,7].

The early miners in Fengtien recall that, in 1959, an average ring-size nephrite cabochon stone sold for about US$25. At that time a university graduate in Taiwan earned about $7.50 a month; a miner could make five times more than a professor. As the volume of extraction increased the price per ton of nephrite dropped from about $12,500 to about $6,000. Nevertheless, since each mining team cost only about $200 per month in wages, the profits were quite high and mining was probably one of the largest businesses in Taiwan at that time.

Export of nephrite from Taiwan also became big business, with material being sent all over the world. Dozens of mining claims were registered with the Taiwan Bureau of Mines and it is estimated that about 150 teams of miners were at work in the 1970s. In addition, there were some 400 jade thieves, called 'rats' by the miners, who patrolled all the adits between Fengtien and Linyuang. By day they picked over the small pieces of nephrite thrown out of the adits by the miners and by night they filched larger pieces from the adits themselves.

Almost every household in the Fengtien area became a small lapidary factory – carving and polishing equipment was set up in living rooms, kitchens and backyards. Soon there were some 150 lapidary operations all the way from Fengtien to Linyuang, Hualien City and on into Taipei. It has been estimated that at the peak of this trade there were nearly 700 lapidary shops with about 9,000 workers. A primary school in Linyuang even started lapidary courses for the students. These were most popular as they enabled the students to acquire the necessary skills and help their parents in the lapidary shops at home.

In 1975 Taiwan produced 1,461 tons of usable nephrite. Canada in contrast produced some 110 tons and the balance of the world probably less than 50 tons. Thus Taiwan was responsible for more than 90 per cent of the total world output in that peak year[8]. Actually Taiwan produced more than 3,000 tons that year but, because of excessive use of dynamite, more than half of that total was blasted into small fractured pieces that were thrown into mining dumps as unsaleable. The 'rats' picked over these dumps and found pieces that they cut and polished and sold as 'Scenery Stone'. Other residue was left on the dumps and in the stream beds. Ironically, when the author took a team of jade experts, including Russell Beck and Stan Leaming, to visit this area several years ago these experts proclaimed that some of those 'waste' rocks contained some of the finest nephrite they had ever seen[9].

The China Mining Company produced about 90 per cent of Taiwanese nephrite and their S3 adit had the best brilliant green nephrite. The United adit of the Huafeng mine produced a very desirable apple-green nephrite. Both of these adits were noted not only for good colour but also for minimum fractures. Raw material from such adits could even be carved into large objects, a rarity in Taiwanese nephrite. Of the 1,461 tons of nephrite produced in 1975 probably less than 20 per cent was suitable for bigger carvings; the balance was usable for ring-stones, small souvenir objects and the like.

This nephrite boom of the 1970s created such a demand for raw material that the Taiwanese lapidaries began to search elsewhere for imports. Other sources included Canada (green nephrite) and South Korea (white nephrite), whence substantial tonnages were imported to Taiwan, and

FIG. 9

FIG. 7

FIG. 8

FIG. 10

FIG. 7 **WRIST-REST**
Taiwan, 20th-century. A wrist-rest of rectangular shape in the form of a bamboo section. The stone pale white, green and russet.

FIG. 8 **BOULDER CARVING**
Taiwan, 20th-century. A rock and pine spray worked and pierced in relief. A sensitively rendered group allowing the stone to show its colour – a green tone with markings – and quality to the full.

FIG. 9 **BOULDER CARVING**
Taiwan, 20th-century. An attractive and well rendered jade rock carved in relief to show sprays of lotus. The stone of white, green and russet tones.

FIG. 10 **BOULDER CARVING**
Taiwan, 20th-century. A rock group worked in relief depicting a crane and a pine. Well modelled and sculptured, this group is very much in the style of earlier 17th- and 18th-century examples. The stone of white, green and dark brown tones.

FIG. 11 **NEPHRITE EARRING**
Taiwan, Neolithic. Zoo-anthropomorphic nephrite earring excavated from the Neolithic Peinan site in southeast Taiwan.

FIG. 12 **NEPHRITE EARRINGS**
Taiwan, Neolithic. Split nephrite earrings with four projections, excavated from the Neolithic Peinan site, southeast Taiwan.

FIG. 13 **NEPHRITE EARRING**
Taiwan, Neolithic. Nephrite earring of composite type excavated from the Neolithic Peinan site, southeast Taiwan.

FIG. 11

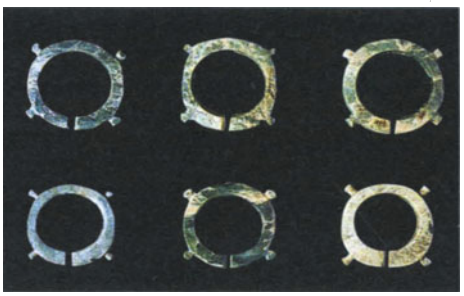


FIG. 12

FIG. 13

minor sources such as Siberia and the USA (Alaska and Wyoming). This became a two-way business as the nephrite, once carved and polished, was often re-exported to other countries, including the USA and Japan.

In the 1980s Taiwan began to produce its own lapidary machinery and diamond tools. High-speed machinery has also been developed and is now exported to many other countries. Yet the 1980s also saw the end of all nephrite mining in Taiwan for economic reasons.

Nephrite from the Taiwanese mines that sold for about US$6,000 per ton in 1961 was realizing only about US$1,500 per ton by 1975; an average cabochon stone that sold for US$25 at the earlier date was selling for pennies by 1975. In that interval labour costs for a team of miners rose from US$200 per month to about US$2,000 per month. Today a team would cost about US$10,000 per month. That is why nephrite mining in Taiwan ended, with the exception of the continuing search for cat's eye nephrite, which is discussed opposite.

There is plenty of nephrite left in the Taiwanese mines and the author estimates that the probable reserves are about 15,000 tons and the possible reserves up to 600,000 tons[10]. There are other potential areas of nephrite to explore as well. However, at the time of writing, it is unfortunately not economically feasible to either further search or mine in Taiwan. However, if new mining methods could avoid fractures, the recovery rate of nephrite could increase from 20 per cent to 100 per cent. The price of the rough material would increase by a factor of from two to five because of the suitability of the material for sawing and carving. This possible event could put new life into the nephrite mining industry in Taiwan in the future.

The boom in the nephrite and lapidary industry in Taiwan has had beneficial effects for the country as a whole; a new gemstone industry has arisen. Carving in both nephrite and jadeite has increased, as well as that in agate (particularly by the Lin interests) and coral (fished out of the nearby oceans) and other gemstones, both natural and synthetic. The so-called Russian diamonds (cubic zirconia) should now be called Taiwanese diamonds, as the yearly production in Taiwan is more than 100 tons, over half the entire world output of this man-made gem.

The weekend Jade Market in Taipei is unique. There are over 500 stands selling jade, antiques and other gems.

As with all such markets, the buyer should have his own expertise or bring an expert with him if he contemplates an expensive purchase.

Ancient Nephrite in Tombs at Peinan

Strictly speaking, H. S. Liew was not the first person to discover Taiwanese nephrite. Recent archaeological excavations, under the supervision of Professors W. H. Sung and C. M. Lien of the National Taiwan University, have found carved nephrites that date back 5,000 years.

In the southeast corner of Taiwan, just west of the city of Taitung, is the small village of Peinan. In that Peinan area a cluster of at least 10,000 unusual tombs has been found, about half of which have been dug up. Unfortunately most of this digging has been random and illegal and many of the artefacts have been stolen. Professors Sung and Lien have conducted scientific excavations of some of these tombs and have recovered but a fraction of the nephrite artefacts in the area, yet they have more than 7,000 pieces in their collection. These jade pieces range from earrings and bracelets to all kinds of head decorations.

Professors Sung and Lien found the tombs in terraces at different levels above the small stream running through the Peinan area. Carbon dating techniques have determined that the higher the terrace, the older the tombs. The lowest levels date back about 2,000 years and it is believed that the highest level will date back about 6,000 years, but this has yet to be tested.

There are only a few places in the world where nephrite artefacts of that age have been discovered; only in the eastern parts of China and Siberia are older nephrite objects to be found. The shapes of the Peinan earrings are very unusual and closely resemble some found in mainland China, indicating close connections dating back 5,000 years.

A new National Museum will be erected at the Peinan site and this project is currently being organized by Professor Lien. Professor Sung has been honoured for his work by election to the Academia Sinica.

Cat's-eye Nephrite

A young high school student, T. H. Yang, found fibrous nephrite stones in the mine of the China Mining Company in 1962. These stones tended to break when he attempted to carve them but after some months of lapidary experimentation he managed to carve and polish them into cabochons that displayed a stunning chatoyant 'cat's-eye' effect. Thus were born the 'cat's-eye jades' and since that time more than 100,000 cat's-eye cabochons have been produced. In the 1970s the wholesale price of an average cat's-eye cabochon was about US$1 but better stones could fetch $25 and those with exceptional beauty as much as $250. At retail the latter reached as much as $5,000, with black stones being the most desired and honey-yellow coming in second. Today just an average cat's-eye jade cabochon would cost more than $100.

The chatoyancy, or 'cat's-eye' phenomenon, of these cabochons is due to the fibrous structure of these scarce nephrite finds. The cat's-eye rays are perpendicular to the fibres. However, if the nephrite is cut perpendicular to the fibres the stone tends to break. Thus the only way to make a cat's-eye cabochon is to cut the fibre at an angle somewhere between 30° and 45°. Then the stone is carefully ground into the cabochon shape and finally polished. Though most lapidaries understand the principle of this technique only a few in Taiwan, including T. H. Yang, can make the best class of cat's-eye nephrite cabochons.

The Taiwanese cat's-eye stones very much resemble the Sri Lankan (Ceylonese) cat's-eye or cat's-eye chrysoberyl. The colours of both range from black, honey-yellow, brown and yellowish-green to greenish-white. The rare black cat's-eye nephrite stones have either yellow or white rays but the latter are the more desirable. The rays themselves can vary from quite broad to very sharp. Again, the latter are the more treasured.

In the early days of mining nephrite at the China Mining Company concession the author, who was a consultant to the company at that time, asked the miners to save more cat's-eye nephrite by mining more carefully and using less dynamite in blasting. They refused, in their search for what (they thought) was the more valuable green nephrite. The cat's-eye nephrite was thrown on the dump heaps, only to be reworked some 15 years later when the market demand for these cabochons rose. Much of the material was of top gem quality.

As a side note, black cat's-eye nephrite was found in some of the dumps of Canadian nephrite lapidary factories and brought back to Taiwan for carving and polishing. These were easier to cut and fetched very high prices. They can be distinguished from Taiwanese cat's-eyes by the characteristics of the rays. If a Canadian cabochon is rotated from right to left, the rays remain in the centre of the stone. When better-grade Taiwan cat's-eye cabochons are similarly rotated the rays 'float' to the right and to the left.

These cat's-eye nephrite cabochons are now without question the most valuable native gemstones exported from Taiwan. They are especially favoured in the American and Japanese markets. Since they cost but a fraction of similar stones from Sri Lanka, and since even the experts have much difficulty in distinguishing between the two sources, they will grow in importance and rarity.

JADE IN JAPAN

KAZUYA CHIHARA

FIG. 14

FIG. 14 *Japanese jadeite is found in a wide variety of qualities and colours. These polished cabochons show a range of tones from dark green to pale, from blue-black to lavender.*

Probably the least known source of jadeite in the world is Japan. The famous Bishop volumes on *Investigations and Studies in Jade* (1906) quoted Mr Wada, who had been Professor of Mineralogy at Tokyo University, as stating without reservation that jade had never been found in Japan. The small number of worked jade artefacts on hand in Japan at that time were thought to have come from China.

Japan's most famous museum, the Shōsōin repository in Nara, whose relics and artefacts correspond with the Tang Dynasty (AD 618–907) in China, had jadeite jewels but their local source was not recognized.

As far back as 1922 Professor Hamada published selected items from the archaeological collection of Kyoto University, among which were a number of jade objects. Archaeologically speaking, these were known to be Japanese artefacts but the origin and working of the jade itself were still unknown.

In 1939 the sources of the rough jadeite stones were discovered, or re-discovered, around Niigata Prefecture on the northwestern coast of central Japan. It was at last possible to pinpoint the origin of the jadeite used for many of the tomb burial jades and it has been found that these go back as far as 4000 BC, making Japan the oldest jadeite culture in the world.

The Gemology of Japanese Jades

The Omi-Kotaki area of central Japan is one of the rare jadeite-bearing regions of the world. It is situated on the outside of the Hida metamorphic terrain, and occupies the northeastern extremity of the Sangun metamorphic belt.

Jadeite is found here as jadeite rock, jadeite-albitite and jadeite vein, all of which are enclosed in serpentinite masses. In all cases, soda-rich calciferous amphibole aggregates are developed outside of the jadeite. In the case of jadeite-bearing albitite, the inner part is composed of albitite and quartz, and jadeite occupies the outer part. The typical, quite regular, zonal arrangement is, from inner to outer, albitite (with or without quartz), white jadeite rock, green jadeite rock, soda-rich calciferous amphibole and host serpentinite.

The colour of jadeite is varied: white jadeites are most

abundant, green less so. Violet and blue jadeites are also sometimes found. Very little of the material is of gem quality but some choice pieces have been found and Fig. 14 illustrates the range of colours and qualities of Japanese jadeite that has been cut into cabochons.

The History of Japanese Jades

Although pre-dated by the Chinese nephrite culture by some 3000 years, Japan's is the earliest jadeite culture. No evidence has been discovered of jadeite pieces in the Paleolithic era, but remains have been found in archaeological sites known to date to c.4000-1600 BC (the Jōmon period). It is known that in the middle stage of the Jōmon era (Jōmon means 'straw-rope pattern') a distinct jadeite culture developed in the city of Itoigawa and in the town of Oumi in the Niigata region of the Tohoku district. The representative carved item of the period was a *taishu* (a large pendant with a hole). It is considered that jadeite was adopted as a medium by artists already producing artefacts in the Jōmon style, probably using cutting skills first developed in northern Japan. This area then remained a centre of influence in jade production and distribution until the first half of the later Jōmon era – though this later period is characterized in a shift from *taishu* pieces to *ohdama* (large-sized ornamental stones).

During the first half of the later Jōmon period production of *ohdama* decreased dramatically, and with it the influence of the original producing territory of Tohuku. Little is known about jade in the rest of the Jōmon era, except that there was a significant trend away from the larger pieces to smaller items such as *magatama* (comma-shaped ornamental pendants/beads), *marutama* (sphere-shaped ornamental beads) and *kodama* (small-sized ornamental beads), and that production was spreading into almost every region of Japan. All pieces known to date from this period are of the smaller type, and in the next era – Yayoi – the only known pieces are *magatama*.

Knowledge of production during the period following Yayoi – the Tumulus (Kofun) period – is similarly vague. Indeed no jadeites from the period had been identified at all until discoveries published by Takeuchi in 1967 and by Ohba and Teramura, also in 1967, proved that *magatama* had been made in the Toyama prefecture during the fifth century. It is now thought that these discoveries of *magatama* in the west reflect a general shift in political power to that region: jadeite objects, as well as being ornamental, were symbolic of authority, and would naturally therefore be found in centres of government.

It is evident that throughout the history of its production and development, jadeite carving has been linked with changes in the political structure of the country. An instance of this is the generalization of production during the first half of the later Jōmon era, when the influence and power of the political authority centred in the Hokuriku region spread widely through the country as a whole. This allowed greater movement between districts, promoting the easier passing on of skills, and creating a more broad-based need for jadeite objects in their role as authority symbols.

Classical jadeite carving died out in Japan in the second half of the seventh century, though more recent jadeite finds, some in the Kotaki area of Niigata and others more randomly collected from river beds and sea coasts, have been exploited by lapidaries in the modern era – principally as cabochon stones for pendants and rings.

FIG. 15

FIG. 15 *A cut section of raw Japanese jadeite, of blue-grey tone. It was thought until relatively recently that no jadeite existed in Japan; in fact jade has been mined and carved, on a small scale, for thousands of years.*

FIG. 16

FIG. 16 **JADE MAGATAMA** *These decorative comma- or cashew-shaped pendants were a feature of the Jōmon era and obviously of much significance, though there is much yet to be discovered regarding their full function and symbolism.*

JADE IN KOREA

ROBERT FREY

FIG. 17

FIG. 17 **INCENSE BURNER**
Korea, 20th-century. Height: 8 3/1 in (22 cm). Width: 7 1/8 in (18 cm). An intricate incense burner and cover, the sides with dragon ring handles, the body with smiling dragons. Carved from Korean white nephrite by Chu-won Chang, one of the country's leading jade carvers, whose repertoire includes classically-inspired pieces, as here, as well as modern designs.

Jade in South Korea follows the Pacific Rim pattern mentioned in the introduction to this section. Deposits of unusual nephrite have been found not far from the capital of Seoul and have been worked for the past several decades – unusual because they are white nephrite, a kind of nephrite rarely found in deposits other than in China. More recently, it has been found that Neolithic tools discovered in South Korea were made from jade from these lodes; blades of white nephrite were used for cutting leather and the like. There are some of these on display in the National Museum in Seoul and a number come from Ch'unch'on, the area where the major mine is found today.

Geographically speaking, the Korean peninsula is a part of the land mass of China and other similar nephrite deposits have been found in North Korea and right on into northeastern China, in the province of Liaoning. Other white nephrite artefacts have been found as far north as what is now the far eastern coast of Russia, indicating trade between all of those areas long before political boundaries interfered with such interchange.

Both jadeite and nephrite have been used in Korea since Neolithic times but, curiously enough, neither of the stones used (except the white nephrite mentioned above) appears to be indigenous. Both minerals (as well as glass) were shaped into the comma or cashew form called *magatama* and were found both loose and dangling on gold crowns in tombs in the Kyongju area. These are from the Old Silla dynasty (c. fifth century AD). With just superficial inspection of these *magatama* the jadeite resembles the Japanese material from the Niigata area, which is only a few hundred miles southeast of Kyongju. The nephrite mostly resembles Taiwanese material from the Hualien area, considerably farther south from Korea. In both instances the finds and the sources are all on or very near the sea, indicating ocean trade patterns between all of those countries.

Professor Jeong-hak Kim, formerly of the Pusan National University, has written much about the archaeology done in South Korea since the end of the Korean War (1950–53). In about a third of the sites uncovered, jade has been found, mostly made into ornaments. Some date back to before 1000 BC but none is described as

white nephrite; most are dark green. Thus the trade patterns might have started even earlier than the fifth century AD.

As in Japan, jadeite was evidently first used for tools back in the Jōmon era (4000-1600 BC), and later acquired decorative, and possibly ritual, uses. Since the later Jōmon era decorative artefacts emphasize pendants (*taishu*) but the most famous have been the *magatama* which resemble the 'comma' or 'cashew' in shape. These *magatama* have been the subject of considerable study in both Korea and Japan, but their significance and symbolism have yet to be completely explained.

The famous Silla Dynasty (AD 668-935) of Korea produced gold royal crowns with scores of *magatama* dangling on them made of jadeite, nephrite, green glass, and other minerals (see Fig. 18). One tomb excavation in Korea yielded over 35,000 *magatama* made of jadeite and other stones, as well as glass.

More recently UNESCO has started a series of surveys on archaeological sites in South Korea and Professor Won-yong Kim of the Seoul National University has published studies of the sites, covering both ancient as well as more modern sites. One of the most unusual newer 'sites' he writes of is an early Qing Dynasty ship that sank in a storm while sailing along Korea's west coast. It was discovered in 1976 and much was recovered from the cargo with the aid of Korean Navy divers. Of all the ceramics recovered, the most popular colour (more than two-thirds of all of the pieces found) was celadon, a shade discovered and developed initially by the Chinese to imitate pale green jade. This colour was and is equally favoured in Korean-made ceramics to this day.

The most productive white nephrite mine today is located just northeast of the city of Ch'unch'on, which itself is about 60 miles (100 km) northeast of Seoul. To date about 1000 tons of ore have been extracted from a major lode there and the probable reserves are great. Only a small percentage of that tonnage is the best white grade, however. Unsaleable mixed green nephrite is so common in Korea that much of it is used for fireplace faces and floor tiles. There are also smaller deposits northeast of this major lode that have not been worked and probably never will be as they are now under water in a reservoir. Still farther north are small deposits too near the 38° parallel for comfortable mining. About 1 per cent of the better white raw nephrite from this major mine has light brown streaks running through it; this is a favourite material for carvers in the 'old-style', for the finished products can bear an uncanny resemblance to articles from Chinese dynasties of hundreds, if not thousands, of years ago.

The mining of the major nephrite source has been intermittent as its ownership has been the subject of a number of lawsuits. Also, it is in swampy rice-paddy land and water has to be constantly pumped out. A few years ago, just after the lawsuits had been resolved, the mine had been pumped out and extraction had resumed speed, the government passed a law restricting the export of raw nephrite from Korea. This was presumably to protect the domestic lapidary industry. Similar laws had been passed before, in New Zealand, but in that country the raw material itself is in short supply. The Korean mines could supply all local needs and still export hundreds of tons of nephrite a year with scant depletion of reserves.

With few exceptions this protected lapidary industry in Korea makes little of artistic merit. Most items are in the tourist souvenir class. Describing a carving as made of 'Korean Jade' once meant a cheap substitute stone, like bowenite serpentine, and indifferent lapidary work. One of the major exceptions is an artist, Chu-won Chang, who has established a kind of jade atelier in Mokp'o, a city at the southwest tip of Korea. Chang is one of the few Oriental carvers working in jade today whose range is from the very classical (see Fig. 17) to the very modern.

Despite the ban on the export of raw material some carvings in Korean nephrite are found today in galleries in Taiwan, from local carvers, and in Hong Kong (and even New York and London), from carvers in China. These objects are rendered in both contemporary and 'old-style' carving, so the buyer must beware.

FIG. 18

FIG. 18 **JADE AND GOLD CROWN**
Korea, Silla Dynasty. Height: 9½ in (24 cm). Excavated from 1973-5, tomb no. 155 in Kyongju was known as the 'tomb of the gold crown' and was highly significant archaeologically. The crown consists of a circlet of cut sheet gold with three tall parts in front, each of which has stylized branches like a tree. Attached to these uprights are 58 jade magatama *supended on twisted gold wire. Numerous gold spangles are attached in between.*

FIG. 1

FIG. 1 ***HEI-TIKI***

A hei-tiki, *carved from vivid green Westland jade. The* hei-tiki, *the most well-known Maori ornament, is a stylized human neck pendant of great symbolic importance.*

CHAPTER 9

JADE IN THE SOUTH PACIFIC

New Zealand, Australia and New Caledonia

RUSSELL BECK

FIG. 2 ***HEI-MATAU***
A Maori hei-matau, *a stylized fish and fish-hook form, made from dark green nephrite of the* kawakawa *variety. The Maori classified many types of* pounamu *according to colour and markings.*

FIG. 2

The Pacific Rim is unique for its number of jade occurrences and the cultural history associated with this material. The southern section has contributed much to the story of jade and continues to develop; considerable research remains to be done on the use of jade in the whole South Pacific region.

The dominant South Pacific jade occurrences are Australia and New Zealand. In New Zealand, jade assisted the Maori considerably by providing a totally stone-based culture with a material of metal-like properties. Although many other cultures possessed jade for a much longer period, the Maori, who were completely without metal, developed a jade culture of high technical and artistic worth in a relatively short time. As the European valued gold, so the Maori prized jade above all other possessions and this undoubtedly contributed to the many conflicts between tribes. New Zealand's part in the age-old jade story is less than 1000 years, but has followed a similar pattern of use to that of the other jade-possessing cultures; jade served the Maori as tool, weapon, ornament, item of trade and symbol of authority and ceremony.

Although the European colonization of New Zealand drastically changed the Maori culture, the appreciation for jade has survived and continues its development through the work of contemporary New Zealand artists.

The Australian jade story is geologically very old yet with the youngest human involvement. Reserves are large with considerable potential, but only relatively recently has jade begun to play a role in Australia. Unlike the New Zealand Maori, the Australian Aborigines did not utilize – or even recognize – the jade on the continent. Not until the 1960s were two occurrences of nephrite discovered, near Cowell in South Australia and near Weabonga in New South Wales; so far, mining has taken place only in the latter, and on a small scale. Just a handful of contemporary Australian carvers are working with the material, but no doubt the future will yield considerably more works of art in and possibly even occurrences of jade.

Further out into the Pacific lies New Caledonia, a large cigar-shaped island with several smaller outlying ones that include the Loyalty Islands. Although New Caledonia has been inhabited for several thousand years it is not known when jade was first utilized, but a significant appreciation for the stone was developed and still evident when European explorers visited in the early 19th century. The Kanak people produced beautifully ground and polished

nephrite adzes, chisels, axes and beads. Probably the most notable form is the ceremonial axe, a spectacular ornamental weapon that was a symbol of chieftainship. The blade was fashioned to an oval shape about the size of the human face, and the edge ground down thinly to allow light to pass through. Two holes were bored from both sides and secured with cord to an ornamental wooden stand featuring human motifs and shell decoration (see Fig. 28). Long elegant necklaces of many perforated jade beads were also prized possessions of the women.

In New Caledonia nephrite is recorded *in situ* on the small southern island of Ouen, and reported from the Blue River region on the mainland. Further occurrences are likely in the extensive ultramafic rocks of the main island.

New Caledonian jade artefacts vary in appearance from mid-green to dark green or white with green markings, while some are mottled olive green with bluish-grey patches or streaks. Much of the material could be described as a semi-nephrite and bears a striking resemblance to the stone from the Livingstone Mountains in New Zealand. Both countries have identical host rocks.

Northeast of New Caledonia lies the archipelago of Vanuatu (New Hebrides). One of the most southerly of the group is the island of Tana, where the Melanesian inhabitants wore pendants of polished stones. Most of the amulets are made of nephrite in the form of perforated discs, ellipses or rounded small adze shapes, seldom exceeding 4 inches (10 cm). They were worn suspended from the neck by both men and women and regarded as precious possessions. According to E. A. De La Rue who visited the island in the 1930s, the local people had no knowledge of their pendants' ages or true origins and many showed very worn suspension holes. Jade is not known to occur in Vanuatu and the source is believed to be New Caledonia.

There are several references to jade being used by the Melanesian people of New Guinea; Dr A. B. Meyer, for instance, mentions adzes, chisels and axes made from both nephrite and jadeite. He also remarks that nephrite pebbles occur in several rivers and bays on the southeast coast (Papua New Guinea). Chloromelanite, an iron-rich variety of jadeite, is also reputed to have been found *in situ* on the western side of New Guinea (Irian Jaya).

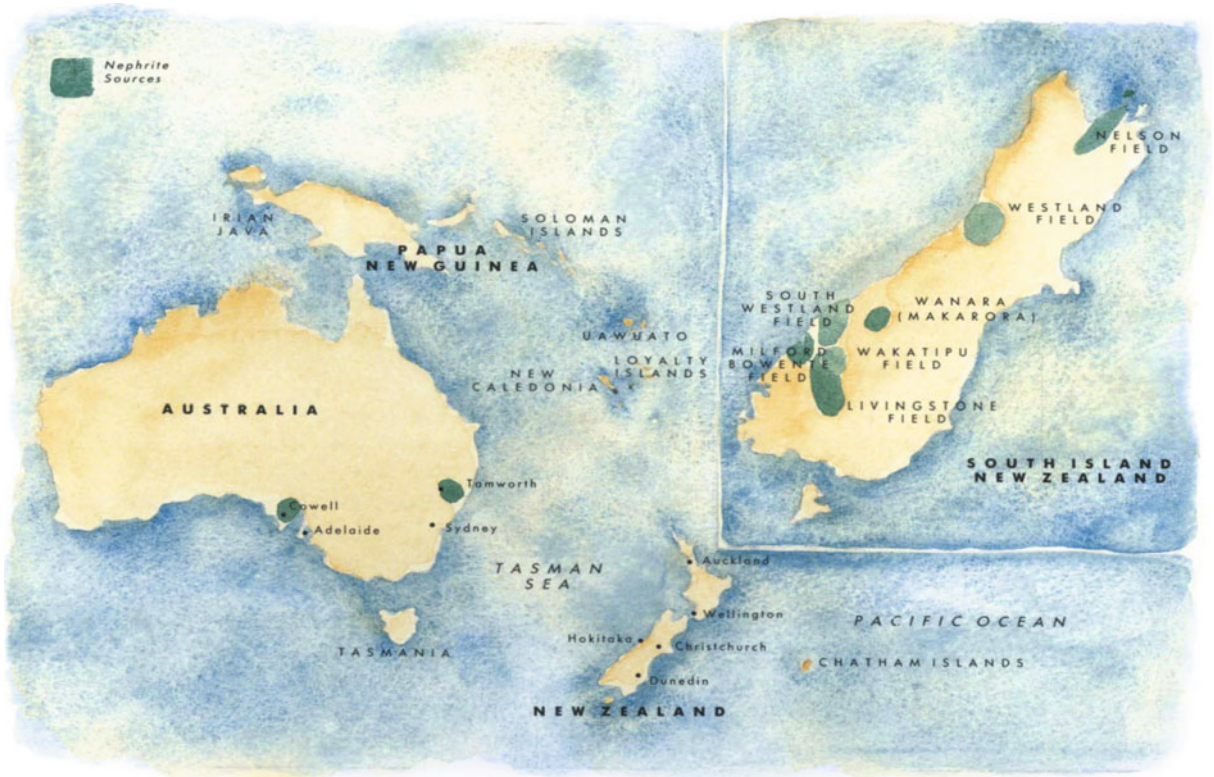


FIG. 3

FIG. 3 *The South Island of New Zealand, showing the main nephrite occurrences. 1. Nelson field. 2. Westland field. 3. South Westland field. 4. Wakatipu field. 5. Wanaka (Makarora) field. 6. Livingstone field. 7. Milford bowenite field.*

JADE IN NEW ZEALAND

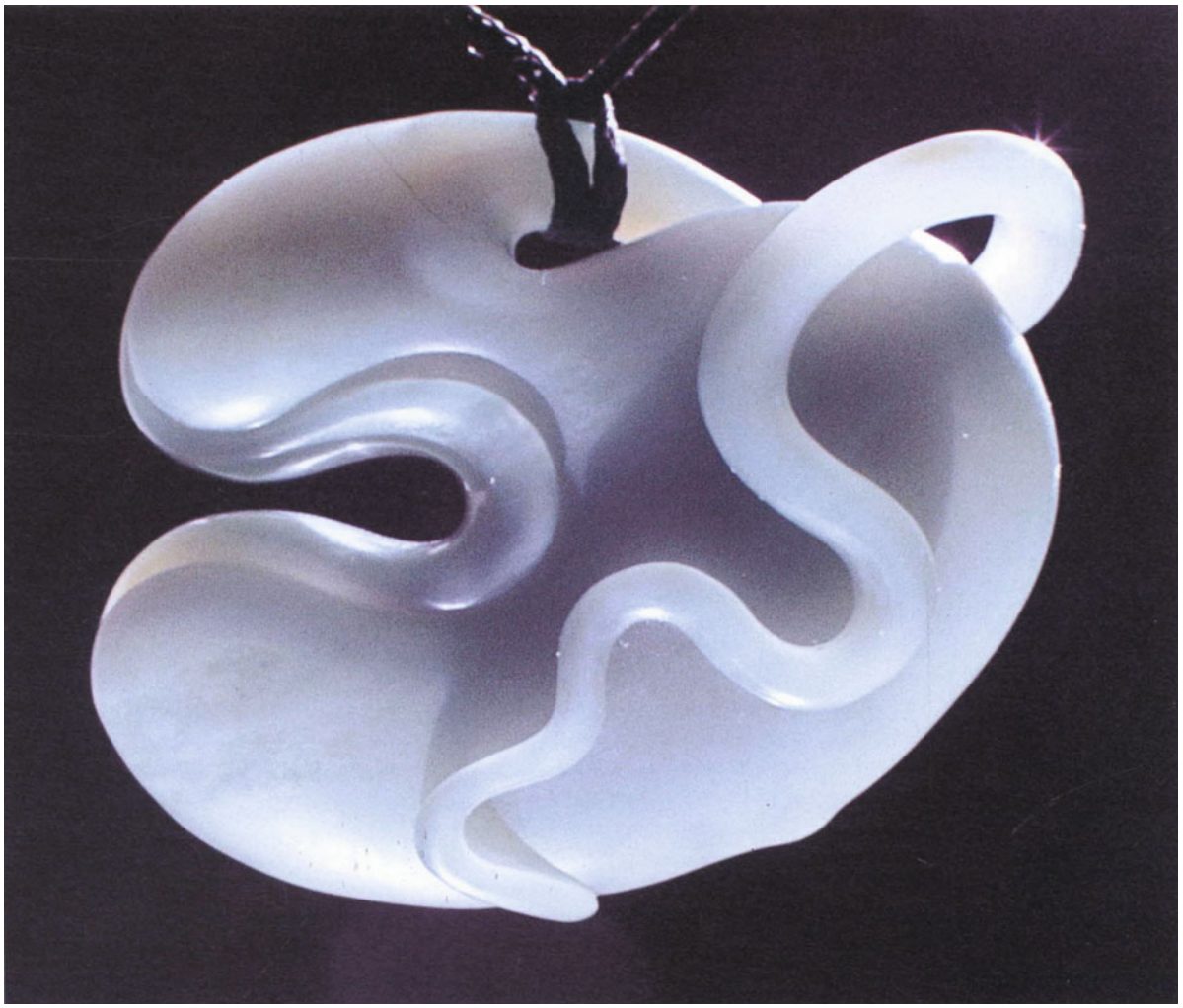


FIG. 4 **TENDRIL FORM** *Donn Salt, Auckland, 1982. Length: 2 in (5 cm). This suspended sculpture-pendant is carved from the pearly-whitish* inanga *type of jade, the most highly prized Maori* pounamu.

FIG. 4

Terminology

Jade goes under a variety of different names in most countries and New Zealand is no exception. There is considerable confusion among many New Zealanders about the meaning of the terms jade, nephrite, greenstone, *pounamu* and bowenite. 'Semi-nephrite' was also introduced by F. J. Turner of Otago University in 1935 as a term to describe specimens consisting partly of fine-grained, thoroughly felted, fibrous tufts (nephrite), yet which contained relatively abundant coarse crystals or large sheaves of unfelted fibres. Turner described five stages from tremolite rock to nephrite, and as these usually require microscopic analysis to separate them, the term semi-nephrite is used in the broadest sense for material between the outer limits.[1]

The widespread use of the term 'greenstone' generally applies to nephrite, but it can include bowenite. However, greenstone is not a satisfactory name for nephrite and New Zealand jade would be a more correct term. As jadeite does not occur in New Zealand, any mention of New Zealand jade must apply solely to nephrite. In the past many writers have used the term greenstone, not in ignorance of its incorrectness but because of its popular usage in New Zealand.

The origin of the word greenstone arose from general descriptions by the early observers. Captain James Cook described the *hei-tiki* and adzes of the Maori as being of a green, talc-like stone and stated, correctly, that they were 'of the nephritic species'. However, since this observation was made, the material of all jade-like Maori artefacts has been described as a green stone and this has led to the one word – greenstone.

Substantial recorded evidence favours *pounamu* as the Maori group term for both nephrite and bowenite. The Maori classified *pounamu* according to colour and named many varieties. There appear to be four main types with several diversifications: *kawakawa, kahurangi, inanga* and *tangiwai.* The first three are nephrite and the fourth is bowenite. Although the Maori placed *tangiwai* as a variety of *pounamu,* they knew well of its difference. Many colourful legends exist about the discovery of *pounamu* but there is still no strong evidence concerning the origin of the word. Because some ethnologists find it difficult to differentiate between nephrite and bowenite, they have kept to the group term greenstone. This seems a pity, for the term *pounamu* includes both minerals and would be more appropriate.

Bowenite was originally described by G. T. Bowen as nephrite. When this mineral was found to be a type of serpentine, it was subsequently named after him. New Zealand bowenite is highly translucent and is found mainly at Anita Bay and Poison Bay near the entrance to Milford Sound. The word *tangiwai* came from the Maori legend relating to the petrification of the tears of a lamenting woman; hence, 'tear-water' or *tangiwai.* The exact meaning of *tangiwai* is, however, confusing. Many writers describe apparent tear-like globules of water contained within the stone – but these inclusions are usually most unlike tears, making this explanation difficult to accept. The commonly found, nearly transparent, water-rolled bowenite pebble is so like a clear drop of water when viewed against the light that this is more likely to be responsible for the term *tangiwai.*

Although New Zealand jade has a colour range similar to that of jade of other countries, it is particularly noted for its strong green shades and its high degree of translucency. Iron is the chief colouring pigment in New Zealand nephrites and varying amounts of it are responsible for the wide range of green shades.

The numerous shades of green found in jade are best described by matching them with common things of a similar shade – for example, pearly green, apple or lettuce green, grass green and olive green. The Maori also applied this system of colour description to their *pounamu.*

In the 1880s F. R. Chapman[2] found that there were discrepancies in the application of the descriptions. Because the long, narrow geography of the country spaced the population widely and there was no written language, it is understandable that such variations should occur. Local labellings of particular intermediate shades, rare colours and general appearances led to many variations, with several names sometimes being applied to similar types. Because the shades grade into each other there is some confusion in applying the correct identification. However, the following varieties – *inanga, kahurangi, kawakawa, tangiwai, auhunga, kahotea, kokopu, pipiwharauroa, raukaraka* and *totoweka* – are the types and descriptions that are widely recognized and generally accepted:

INANGA

Inanga (*inaka* in southern dialect) is a pearly-whitish or grey-green colour and is either very translucent or quite opaque. There is evidence that this variety was the most highly prized *pounamu* and was the desired material for making *mere* (a jabbing hand weapon). *Inanga* owes its name to the similar colour of the native juvenile minnow called *inanga* (*Galaxias attenuatus*), more commonly known as whitebait. Because *inanga* was so desirable and not always available, the Maori developed a technique for producing this colour artificially by heat-treating other varieties (see p. 246).

KAHURANGI

This is a highly translucent, lightish green shade, free from dark spots and other flaws. It was held in high esteem by the Maori and is one of the rarest varieties of *pounamu.* Its exact shade is difficult to define but it compares with a light apple or lettuce green. The word *kahurangi* (*kahuraki* in southern dialect) means distinguished, prized, a treasured possession or jewel; several valued objects, in particular ceremonial adzes, were made from it.

FIG. 5

FIG. 5 **PERFUME CONTAINER**
Donn Salt, Auckland, 1984. 3 × 1 × 1 in (7.5 × 7.5 × 2.5 cm). This inanga*-jade sculpture, which can be worn as a pendant, resembles a flame-like grey-green blossom. It can hold up to 2 tsp (10 ml) of concentrate, and has an 18-carat gold stopper and spatula.*

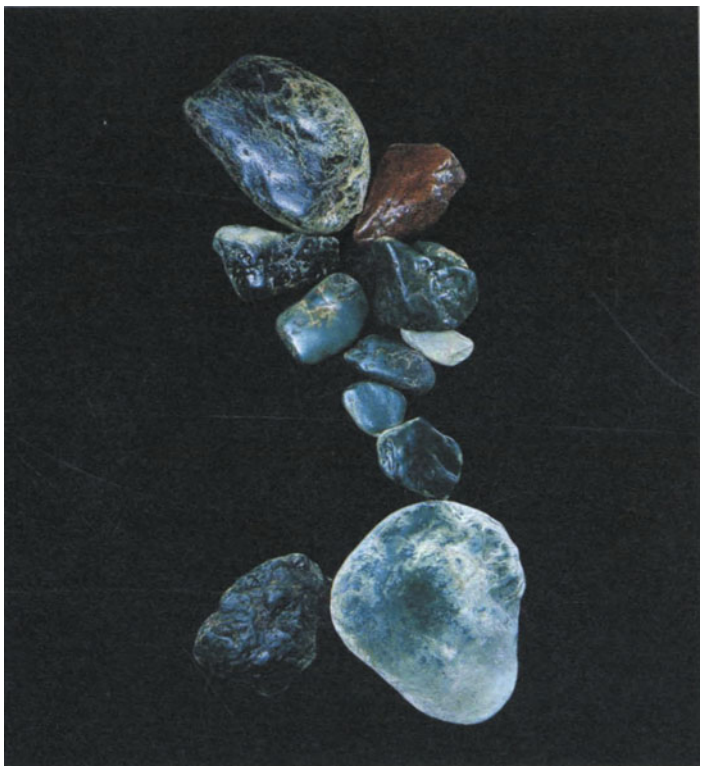


FIG. 6

FIG. 6 *An assortment of river-polished jade cobbles and boulders from different New Zealand localities shows the variety of colours in that country. Many New Zealand carvers collect pieces such as these because of their natural beauty and would never cut them. The largest boulder, bottom right, is 14 in (35cm) long.*

KAWAKAWA

Kawakawa is a strong dark to rich green with varying intermediate shades, and is so named because its colour resembles that of the leaf of the *kawakawa* or lofty pepper tree (*Macropiper excelsum*). This should not be confused with the pepper tree (*Pseudouintera colorata*), which has light green leaves blotched with red. The *kawakawa* tree is found throughout New Zealand, except for the southern half of the South Island, and extract from its leaves was important to the Maori as a pain reliever. It is related to the South Pacific species used for the intoxicating *kava* drink.

The descriptions grass green, rich green and dark green can all be applied to *kawakawa,* and this variety constitutes the bulk of the material used for today's gem purposes. *Kawakawa* is commonly flecked with small, dark inclusions which, rather than detracting from the stone's beauty, often add character and are seen as a desirable feature of New Zealand jade (see also *kahotea* variety).

TANGIWAI

Known as *takiwai* in southern dialect, *tangiwai* is a translucent to transparent olive green to bluish-green variety of serpentine known as bowenite, which must not be confused with nephrite. Some sources refer to it as *koko-tangiwai, koko* meaning ear pendant, and signifying its predominant use.

FIG. 7

FIG. 7 **DRAGON WING** *Donn Salt, Auckland, 1979. Diameter: 2⅜ in (6 cm). The dark-flecked, fine-grained* kawakawa *jade of this pendant was from Westland. It includes a mobius design on the rim.*

AUHUNGA
A pale green opaque variety, given as the intermediate shade of *inanga* and *kawakawa.*

KAHOTEA
This variety was given by one authority as 'dark green with black flecks and streaks'. It is now considered that this name applies to a type flecked or streaked with white. The name *kahotea* derives from *kaho,* meaning light-coloured, and *tea,* meaning white or clear.

KOKOPU
A variety not originally recorded; the term appears to be of recent origin. *Kokopu* is the Maori name applied to three species of small native freshwater fish of the *Galaxiidae* family. They occur all over New Zealand in creeks and rivers and are of dark brown, olive green and yellowish colourings. Nephrite with similar colour and markings, or with brown spots, is referred to as *kokopu* or trout-stone.

PIPINHARAUROA
This variety, given by only one authority, takes its name from the shining cuckoo (*Chalcites lucidus*), whose green and white plumage matches the colour of the stone.

RAUKARAKA
Raukaraka is a term used by the Maori of the Cook Strait region for the *kawakawa* variety that is streaked with a shade of olive green. The term has also been used to describe a yellowish tinge in some green varieties. The origin of the word is recorded as *rau,* meaning 'leaf', and *karaka,* a native forest tree (*Corynocarpus laevigatus*): hence, 'colour of the leaf of the karaka tree'. But karaka leaves are dark green and the olive shade is not permanent; a more likely meaning of the term would be that, since the berries of the karaka ripen from green to olive, then to yellow and orange, the jade is of the olive and yellowish shades of the berries among the dark green leaves.

TOTOWEKA
Totoweka is given as a green nephrite of the *kawakawa* type, with small reddish spots and streaks. Recorded by only one authority, this variety is quite rare. The reddish iron oxide inclusions were likened to the colour of the blood of the *weka* (native bush hen), hence *totoweka.* A more appropriate meaning of the word may be that the colour of a weka's feathers is a ginger-brown and the prefix *toto,* meaning blood, is added to describe a particular reddish-brown shade. Some completely brown and reddish-brown specimens, thought to be the result of accidental heating in a fire, were known as *totowera* – *toto* meaning blood, hence red; *wera* meaning heat or burning.

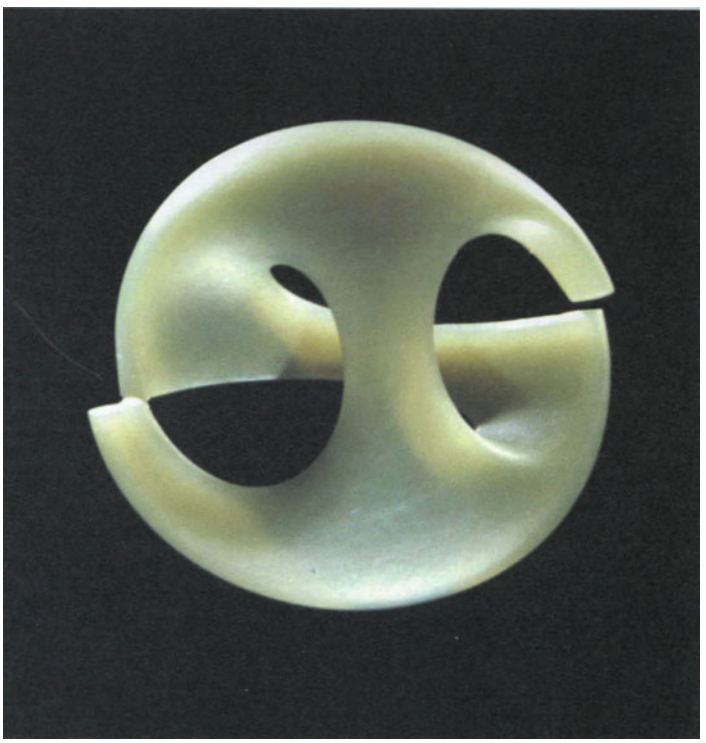


FIG. 8

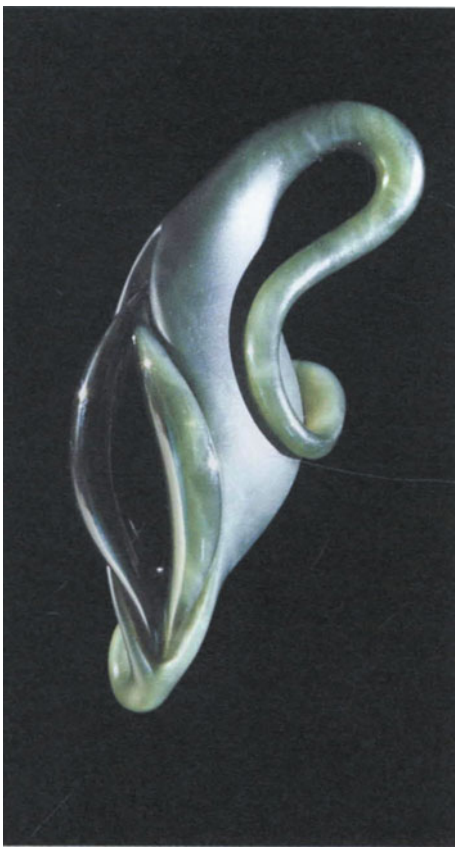


FIG. 9

FIG. 8 **PENDANT**
Mimo Diana, 1989. Diameter: 2 in (5 cm). This piece of inanga *jade has been carved into a complex, overlapping pendant.*

FIG. 9 **HAND SCULPTURE**
Donn Salt, Auckland, 1989. 4 × 2 × 1¾ in (10 × 5 × 4.5 cm). Also called a fondling piece, this undulating sculpture is of light green kahurangi *jade, which is a highly translucent, flaw-free jade. Its Maori name means 'prized' or 'jewel', and it was much esteemed by ancient carvers.*

FIG. 10

FIG. 10 **MATAU**
Hepi Maxwell, 1990.
2 × 1¾ in (5 × 4.5 cm).
The name of this vivid, lettuce-green pendant, carved from kahurangi *jade, means 'fish hook'.*

No name has been preserved for the yellow-brown to yellowish-grey variety that has been found in artefacts in some Canterbury Maori sites, and to classify these under either *totoweka* or *raukaraka* would be misleading. Some specimens approach a definite rich, even yellow and others are quite patchy in colour.

Many minor terms for describing the general appearance of *pounamu* were used, including *hauhunga,* meaning frosty appearance; *tutae-koka,* meaning discoloured flaw; and *tuapaka,* an inferior green and black variety.

These are the main recorded Maori varieties that are concerned only with the broad classifications; many local names must have existed, especially for stone with mixed or unique colours and markings. The Maori terms are slowly gaining in popularity and are to be encouraged. The words *kawakawa* and *inanga,* for example, are much more original and pleasant than terms such as grass and milk for describing such beautiful material as *pounamu.*

FIG. 11 **FISH**
Russell Beck, 1987.
Length:7 in (18 cm).
The carver, who is also the author of this piece, has fashioned a highly abstract, smiling piscine form out of inanga *jade.*

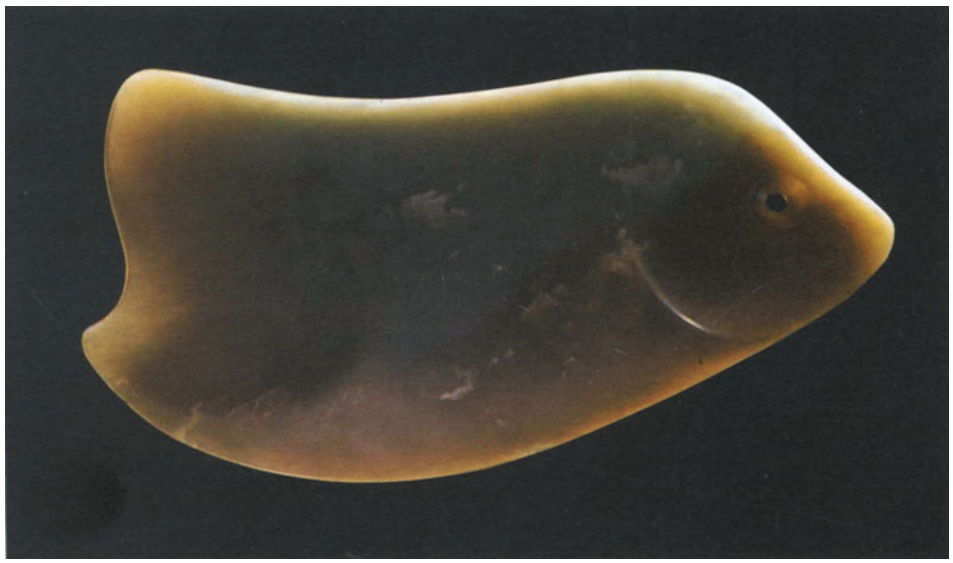


FIG. 11

FIG. 12

FIG. 12 **MANAIA**
Neil Brown, 1990.
4 × 3 in (10 × 7.5 cm).
Of kahurangi *jade, this sculpture comprises overlapping scroll or crescent forms.*

NEW ZEALAND JADE LOCATIONS

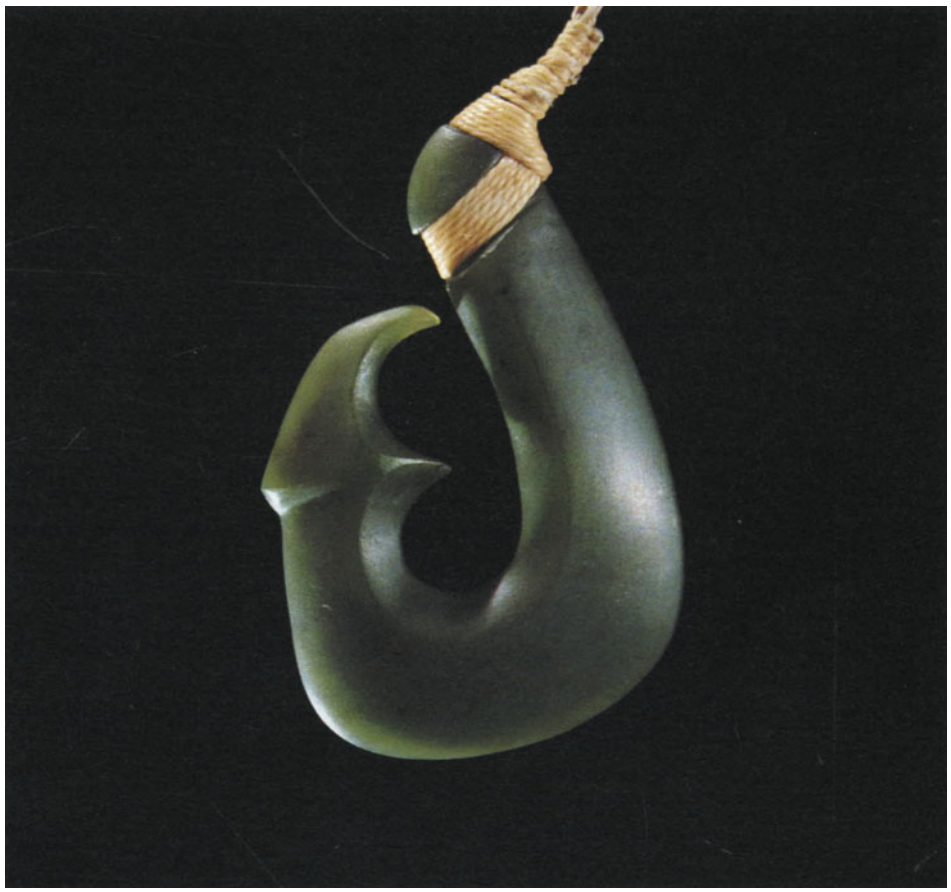


FIG. 13 **MATAU**
Mimo Diana, 1989, 2½ × 1⅜ in (6.5 × 3.5 cm). Rich-coloured kawakawa *jade has been carved into a fish-hook pendant.*

FIG. 13

Maori artefacts made from nephrite have been found from the top of the North Island to Stewart Island. This widespread distribution illustrates the wide range of Maori habitation and the value that was placed on jade, for the sources of the stone are confined to the South Island (see Fig. 3); the principal deposits that provided the Maori with their jade are in the districts surrounding the Taramakau and Arahura rivers in Westland and the Lake Wakatipu area in Otago. Several other minor deposits also exist, some of which have been found in recent years, and undoubtedly more remain to be discovered. The following locations are listed according to provincial boundaries and importance.

Westland

The rivers between Hokitika and Greymouth are the main sources of New Zealand jade and make up what is commonly referred to as the Westland jade field. Westland jade originated in the foothills of the Southern Alps in a discontinuous belt of rocks that extends approximately 50 miles (80 km) south from Jacksons on the Greymouth-Otira road to the Cropp River, a tributary of the Whitcombe River. Still farther south in the Waitaha River watershed a possible isolated extension has been mapped. These rocks were suitably named in 1906 by the geologists James Bell and Colin Fraser as the Pounamu Formation. This has since been renamed Pounamu Ultramafics.

Contained in this belt are parallel lenses, or pods, of ultramafic rocks seldom exceeding 99 yd (90 m) in width and ¾ mile (1.4 km) in length. Numerous streams and rivers, assisted by erosion and ancient glaciers, have cut into or completely eroded these nephrite-bearing lenses, freeing the tough jade and distributing it through the gravels over a large area to the west. The subsequent harsh action of the rivers over a long period of time has tumbled the jade, giving it the characteristic water-worn or polished surface and at the same time producing concentrations together with gold. Hence, almost every river and stream west of the

source rocks, and as far north as Stillwater behind Greymouth, has the potential for alluvial nephrite. More prolific areas are the Arahura, Taramakau and New rivers, and their tributaries. These rivers were the main Westland collecting grounds for the Maori and remain the primary source for present-day collectors.

Many alluvial boulders of nephrite have an oxidized brownish or grey rind covering the surface. This makes them very difficult to distinguish from the surrounding weathered rocks. The Maori must have developed a skilful eye for recognizing jade, since today's jade hunters the world over agree that it can be the most difficult stone for the untrained eye to detect.

With the introduction of sluicing and dredging during the Westland gold boom era (1865-1908), vast areas of jade and gold-bearing fluvioglacial gravels that would otherwise have remained hidden were exposed. Strangely enough, during the early part of this period of dredging, sluicing and prospecting, miners placed relatively little value on the then plentiful jade and in many cases the boulders were reburied as quickly as they were uncovered after the extraction of gold. There were several reasons for this: the inability of the early miner to recognize nephrite; an undeveloped market for the material; the difficulties of transporting heavy boulders from the field to the few buyers; and the lack of an easy method of sectioning boulders for an appraisal of quality to justify the effort. In spite of this, many tons were taken for both New Zealand and German lapidaries.

Because jade is so tough and durable it can, with the aid of nature, travel great distances. Only the best material can survive such hazardous journeys, and some of the most beautiful stones are found near the outer fringes of the jade-bearing alluvium. In Westland, many fine specimens are found in unexpected localities as well as on sea beaches from Hokitika to as far north as Punakaiki, where they have been transported by the northern current. Jade cobbles and pebbles occur more plentifully in the lower reaches of the rivers, especially the Arahura.

Charles Heaphy[3] was the first European to record the location of the Westland jade source when, in 1846, accompanied by Thomas Brunner and a dog, he walked from Nelson to the Taramakau and Arahura rivers. At the mouths of these rivers he visited Maori settlements where the inhabitants were busy collecting and working nephrite.

Westland nephrite deposits can be grouped into four general regions containing several sub-locations. The Arahura, Taramakau and Marsden areas are the principal producers, with the Hokitika district less important. Jade from each of these regions can have visually distinguishable characteristics, and some experienced prospectors are able to localize specimens with some degree of certainty.

ARAHURA

The large Arahura jade field has supplied both Maori and Europeans with many hundreds of tons of jade. The field is principally confined to the Arahura River and its tributaries, which cut through the ancient river terraces and also to the creeks that drain the ultramafic belt (Pounamu Ultramafics) near the headwaters. Small, flattish nephrite pebbles are found on the sea beaches surrounding the Arahura River mouth and upstream as far as Olderog Creek. The larger cobbles and boulders, as can be expected, are more plentiful above the first gorge, and it is from this point upstream that the main collecting grounds lie.

In 1860, when the Crown purchased Westland from the Maori, there was a verbal agreement that the latter would retain the rights to the Arahura River, but in 1979 the Crown returned this to the descendants of the original owners. The river, from source to sea, is now regarded as Maori land administered by the Mawhera Incorporation, and permission is required to collect nephrite.

Arahura jade offers the widest selection of types and colours, although it is generally quite distinctive to the area. Very dark greens through to the silver-green of *inanga*, including the yellowish-brown shades of the *kokopu* variety, are represented. Some pieces are water-polished while others possess a greenish to almost white rind that can sometimes be quite thick. This makes it difficult to differentiate between many of the plentiful weathered serpentinite boulders.

The Olderog/Jade Creek deposit lies at an altitude of 2300 ft (700 m) and higher above sea level in some of Westland's most spectacular but difficult country. Jade boulders were reported in Olderog Creek in 1906 but the resource was not exploited until nearly half a century later. Commercial mining operations have been active in both Olderog Creek and a tributary, Jade Creek, since 1962, with many tons of good quality stone recovered. Portable diamond saws, core drills, crow bars, hammers and wedges are used to reduce the large boulders to manageable-sized pieces, which are then airlifted by helicopter to the nearest road.

Nephrite *in situ* is rare in New Zealand; however near the head of Jade Creek on the Dalziel claim, nephrite and semi-nephrite occur as pods up to two feet thick within the rocks of the Pounamu Formation.[4]

The steep nature of the land has, so far, discouraged exploitation. In the late 1970s some tons of dark green nephrite were recovered from what was believed to be an *in situ* occurrence on a spur lower down beside Jade Creek.

The quality of the 'Olderog jade' is generally good, but its location at the source naturally increases the incidence of poorer-grade material (semi-nephrite), which grades into dense nephrite, sometimes within the one stone. Many pieces are rather fibrous with a decided grain, and have

FIG. 14

FIG. 14 *The gravel bed of Big Hohonu River, in Westland on the South Island of New Zealand, is re-sorted during each flood, after which prospectors search it for jade.*

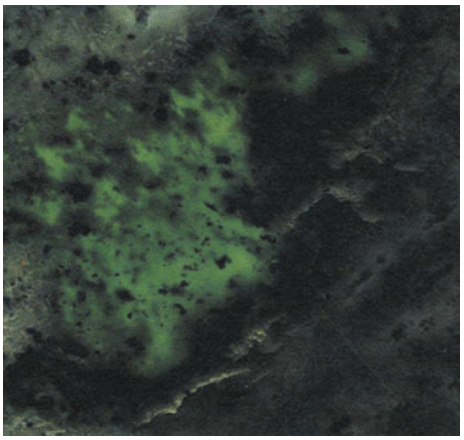


FIG. 15

FIG. 15 *This back-lit detail of opaque mottled nephrite, with a translucent core of the* kawakawa *variety, shows typical black spots. This is a portion of a sawn slice from near the centre of a Westland boulder.*

soft spots or smaller, harder blebs which are troublesome for the lapidary.

Dark green and *kawakawa* varieties are well represented, but the locality is more noted for the paler shades of green, especially the *inanga* variety. Some *inanga* boulders are of truly magnificent quality – highly translucent and pale green, with a definite bluish tinge. These stones are keenly sought after by carvers and command high prices. The *kokopu* variety with its mottled markings often occurs with *inanga* and silky chatoyant bands are frequently found.

Since the bulk of the jade found in the Arahura River is in many ways very similar to Olderog jade, it is most likely that this deposit is responsible for a large portion of the nephrite found in the Arahura River. Another contributor to the Arahura field is the Kawhaka Creek, particularly noted for fine specimens of the *kokopu* or trout-stone variety as well as examples of the other types.

TARAMAKAU

The Taramakau source of nephrite was well known to the Maori who, as Charles Heaphy found in 1846, maintained

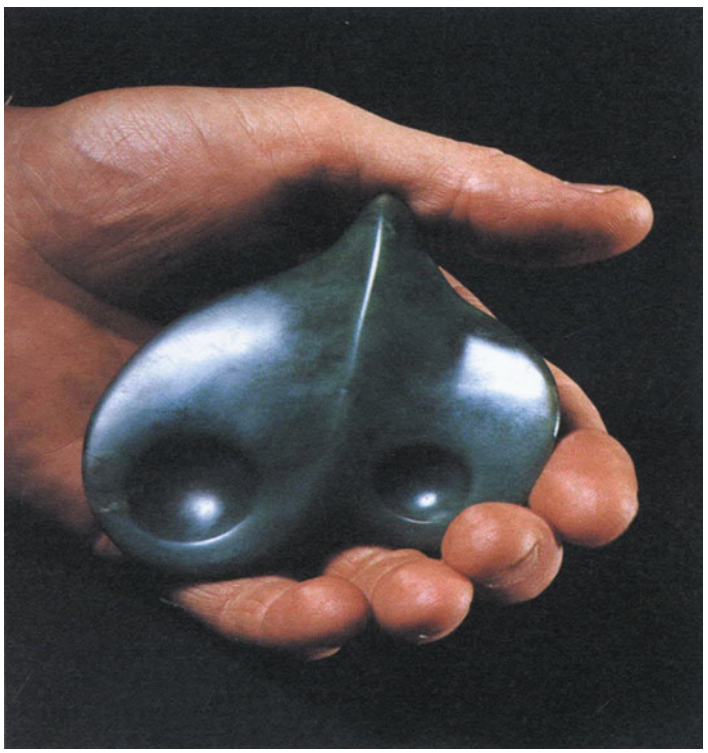


FIG. 16

FIG. 16 **SKATE** *Russell Beck, 1980. Width: 3 in (7.5 cm). Carved into a fondling piece that exploits the tactile properties of the material, this stylized skate is of* inanga *nephrite, from Westland.*

a permanent jade-cutting workshop at the river mouth. The years that followed saw the end of this village and its inhabitants, but when the early European explorers walked from Canterbury across the mountains to the Taramakau it is said that they used the still-definable tracks made by the East Coast Maori in their treks for *pounamu*.

The Taramakau River is some 43 miles (72 km) from source to mouth, but nephrite is confined to approximately the lower half of its length. Taramakau jade is generally thought to have originated in the ultramafic pods of the Griffin Range area. In 1906, the geologists Bell and Fraser[5] recorded nephrite *in situ* at the headwaters of Griffin Creek. Another outcrop is mentioned nearby in Griffin Creek itself. Little attention was paid to this deposit until 1974 when mining operations recovered several tons.

The Taramakau field affords all types and qualities of nephrite and has produced many boulders of the fine, flawless *kawakawa* variety. Generally the colour is rich green to dark green, but the paler shades found in the Arahura field are rare. A greyish-white to brown rind is often encountered but several specimens have no rind at all and are smooth, river-polished boulders and pebbles of great beauty. Unfortunately, these are not preserved and are being sacrificed to the lapidary's saw. Many boulders are particularly hard and fine-grained, but when they have suffered severe treatment by glaciers and rivers they exhibit a very distinctive fractured or bruised exterior, although they usually have a sound centre.

The largest contributor to the Taramakau, the township of Kumara is situated on the south bank of the Taramakau River near the mouth of the Big Hohonu River (sometimes known as the Greenstone and like most West Coast towns was an active gold-mining settlement. The gold was recovered from the surrounding dry gravels by hydraulic sluicing and the river bed and steams were worked by several dredges. However, with today's almost complete absence of gold-mining activities in this district, parallel nephrite recovery has been drastically reduced to the occasional boulder.

Another important contributor to the Taramakau jade field is the area surrounding the Big Hohonu or Greenstone River. In 1864 Albert Hunt, a track cutter and prospector, reported a payable goldfield on the Greenstone River. The local Maori knew of the existence of gold at this locality and it is said that Hunt attached himself to a small party of Maori prospectors who were working the river for gold and probably jade. A gold-rush followed this discovery and miners flocked in overnight. They encountered nephrite throughout a large section of the river, and the small mining settlement that sprang up was named Greenstone, or Pounamu. As a large section of the river was eventually dredged and the surrounding creeks and terraces worked over, a considerable amount of jade was found, especially in the vicinity of Maori Point where quite large boulders occurred. Most of it was saved and sold, probably because the area presented no great transportation difficulties. Little remains for today's prospector.

MARSDEN

About 1¼ miles (2 km) north of the Taramakau River bridge near the township of Camerons is the mouth of the New River. The river and its numerous tributaries constitute a large gold-mining area often referred to as the Marsden district. As in the Taramakau goldfield, sluicing and dredging of the ancient glacial gravels won the bulk of the gold from this district and likewise produced the occasional boulder of nephrite. There is little doubt that the Maori, who left few places unexplored and unexploited, collected jade from this locality.

The remnants of the township of Marsden, near which considerable dredging took place, are situated on the north bank of the New River. A further 5 miles (8 km) east lie the remains of the settlement of Dunganville, which was a centre for the extensive surrounding sluicing and dredging claims. Considerable ground was turned over during the gold era and many specimens of nephrite, from pebbles to large boulders, were exposed. Poor roads and the bushclad, hilly terrain added to the difficulties of transporting any jade found, and consequently few sizable pieces were saved.

Nephrite from this field usually has a very thick, rusty buff-coloured rind, making it difficult to distinguish from the surrounding similarly coloured stones. This and many other obstacles hindered the development of the area's jade potential, although the quality of the stone is possibly the finest in New Zealand. Several of the early claims were operated by Chinese miners who, in their spare time, experimented with fragments of jade, polishing one or two faces by hand. Interesting examples of their work have been found by present-day prospectors in the old deserted mining camps. Evidence of the lack of value placed on the nephrite boulders during this period is illustrated by the fact that many specimens were used as fireplace hobs; one large specimen was found to have served as a blacksmith's forge. It is said that nephrite is the only stone that will not break under intense heat, and for this reason modern jade hunters closely inspect the fireplaces when exploring the old mining camps.

Several boulders approaching a ton or more have been reported from this area, but generally they weigh much less than that. The colour and texture of many of the specimens are magnificent, the shade being of intense rich greens (*kawakawa* to *kahurangi* varieties) and the structure being dense and free of fractures. Occasionally, partly or wholly rindless river-polished specimens of this quality are

found, and these are undoubtedly New Zealand's finest examples of jade.

Generally, the Marsden boulders are elongated or slightly flattish and have the customary 1–3 inch (2.5–7.5 cm) thick rusty buff-coloured rind. When sawn in half several specimens display a colour range from brownish-yellow directly beneath the rind, to olive-green toning, then a beautiful rich green centre. These multi-coloured examples are most attractive and have great potential for carving. Other specimens appear to be oxidized brown right to the core of the boulder but they may still retain the dense texture and hardness of jade.

Distinctive in many Marsden stones are the contrasting cream-coloured markings known as 'flower jades'. These are usually found on the outer edges of the boulders but are sometimes throughout or in the vicinity of fractures. They are believed to be part of the oxidizing process and thus reveal the hidden structure of the specimen. The *inanga* variety is rare in Marsden nephrite, and very dark greens are also uncommon; inclusions range from tiny black flecks to occasional large, spongy, soft patches that are difficult for the lapidary to work.

For obvious reasons the jade from the Marsden field is in strong demand, and today most of the productive areas are pegged out as jade claims. The reworking of old tailing heaps by bulldozers for gold and for the occasional nephrite boulder that the miners have reburied is also common.

It would appear that the nephrite in the Marsden field has been subjected to a long period of severe weathering and oxidization. The ferrous oxide content that produces the green shade in nephrite has, in many cases, oxidized to ferric oxide, giving full multi-coloured boulders of brown and yellow shades.

FIG. 17

FIG. 17 **WAVE FORM**
Alfred Poole, 1989. Width: 5⅛ in (1.3 cm). The artist has recognized the natural structure of the stone and duly emphasized it in this fondling piece, carved from Westland nephrite.

FIG. 18

FIG. 18 **SPHERICAL FORM**
Russell Beck, 1983. Diameter: 3 in (7.5 cm). The opposing grooves on this Westland nephrite form represent the Earth and the glaciers that carved its landscape. The design was also inspired by the method used by the Maori to cut jade.

HOKITIKA

The Hokitika River is some 34 miles (56 km) long and its source lies deep in the Southern Alps. Of the many rivers that make up the Hokitika, the most important are the Kokatahi and Whitcombe rivers. Pods of the Pounamu Ultramafics occur within the Hokitika watershed and are cut by the Cropp River, the main Hokitika River branch, Diedrich Creek, Toaroha River, Kokatahi River and a branch of the Styx River. For this reason it is not surprising that nephrite occurs in the Hokitika field and, although not a prolific jade producer, the lower reaches of the river have in the past yielded many fine specimens. At the mouth of the Hokitika River lies the town of Hokitika, the capital of Westland and the former centre of the West Coast gold-fields. It is now the centre of the New Zealand jade industry.

The alluvial gravels surrounding the settlements of Kaniere and Rimu, southeast of Hokitika, were worked for gold by sluicing and dredging, and the bulk of Hokitika

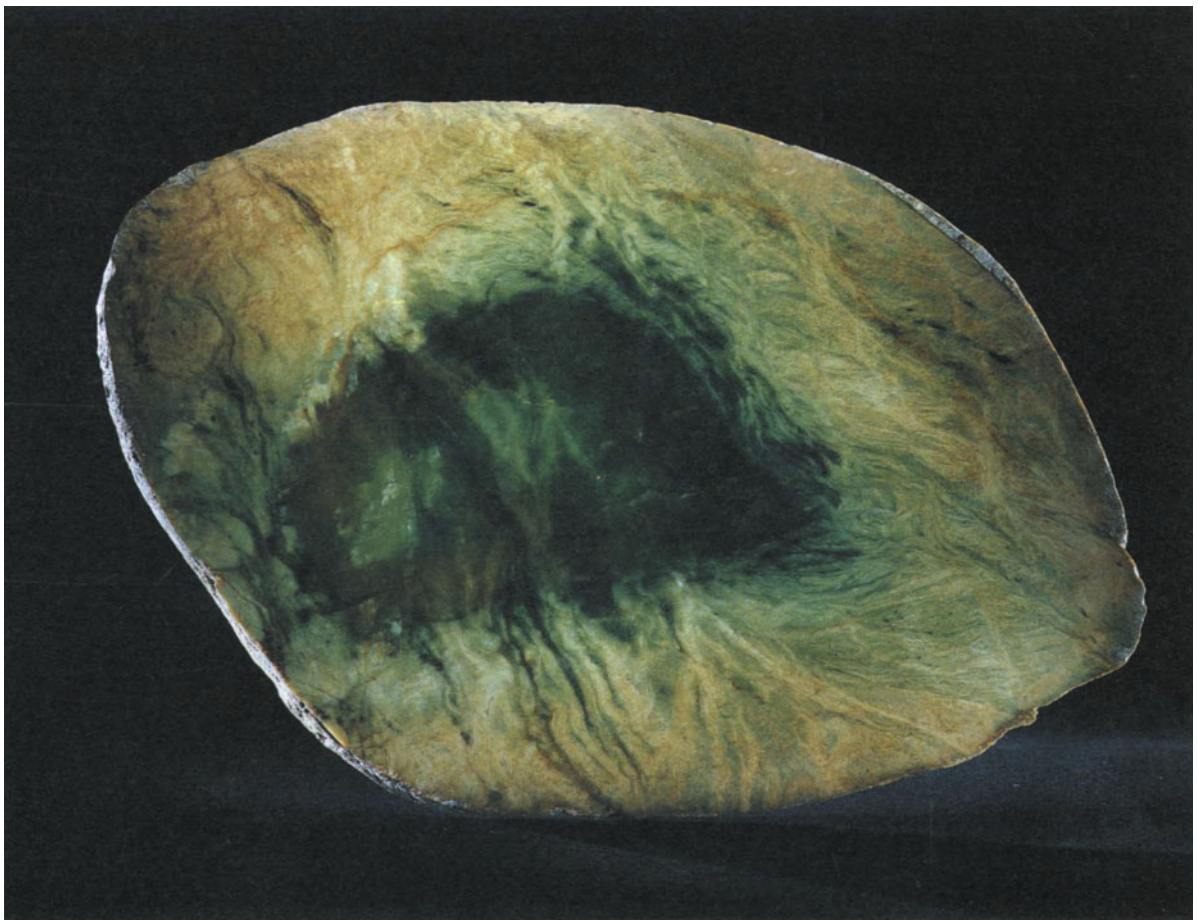


FIG. 19 *A thick oxidized yellow rind and green centre appear on this sawn slab of nephrite from the Marsden area, Westland. The colour change and markings in this variety are much sought after by contemporary carvers, who incorporate these features in their designs.*

FIG. 19

FIG. 20 **DETAIL OF FONDLE BOULDER** *Russell Beck, 1990. Width: 8 in (20 cm). The green core of this oxidized orange jade boulder, of Westland nephrite, has been carved to represent a boulder within a boulder.*

jade was recovered during the course of these operations. In the 1920s several large dredges were built, and some continued working for up to 30 years. The last of these, the 'Kaniere', was dismantled and transported north to the Taramakau River where it worked for many years.

Many square miles of ground were worked, leaving vast hills of useless tailings. No longer an embarrassment, these tailings have now been smoothed over by bulldozers and planted with forests. During bulldozing, several nephrite boulders were found, and gold prospectors reworking small patches of the tailings have also uncovered the occasional jade specimen.

The Government geologist P. G. Morgan, in his survey of this region in 1908[6], stated that loose boulders of nephrite were rather common in the Hokitika River from the Whitcombe River Junction to Granite Gorge (now known as Hokitika Gorge) and he also observed boulders in the Toaroha River. This occurrence suggests that the source is definitely within the Hokitika catchment.

While from time to time the occasional good piece is found, the general quality of nephrite from the Toaroha and Hokitika rivers is very disappointing. Its colour is mid-green to a very dark, opaque green, and it is commonly coarse-textured or softer than most nephrites, grading into semi-nephrite. The best stone by far is from the Kaniere-Rimu gold workings and is predominantly a rich, dark green.

These are the main known jade areas of Westland.

Other small, isolated regions have produced nephrite, and the possibility of others yet to be discovered cannot be discounted.

One important result of the increased appreciation of jade has been the utilization of its commercial potential. The buying and selling of jade on the West Coast is a specialized business and for the successful buyer it is a matter of being at the right spot at the right time, with the cash. Imported jade from British Columbia and Australia is less expensive but the policy of the local factories is to use only New Zealand jade which, as a diminishing resource, is always increasing in value. Consequently, many fine jade boulders are deposited in bank vaults or hidden away as investments – which no doubt they are. Collectors, carvers and amateur lapidaries visit the West Coast at various times of year to purchase jade. They have their regular contacts, but before long buyers are referred to quite a number of people who have stone available. The jade emerges and with a wet rag or sponge the quality is ascertained; then it's out with the kitchen scales or down to the local grocer to weigh the pieces. New Zealand adopted the metric system in 1967 but jade is traditionally sold here by the pound. Experience in buying, knowledge of the quality and a real desire for the stone are necessary factors for a successful transaction.

Hunting for jade in Westland is a pastime enjoyed by many. There are professional prospectors, but most people combine it with other recreational interests such as fishing, hiking and shooting. The more productive areas are held by legal claims but poaching is certainly not unheard of, especially in the more isolated parts of the country. On an overcast or drizzly day, particularly after a period of heavy rain, the rivers, creeks and tailings are alive with jade hunters of all ages: some are lucky, many are not. News of a good find spreads around the district in a flash; the stone is cut in half, evaluated and an appropriate price agreed upon. If the boulder is significant, it sometimes assumes the name of the finder. Because few stones are sold uncut, some beautiful water-polished examples which could be magnificent museum specimens are ruined.

Westland's high rainfall – about 10 ft (3 m) annually – and subtropical climate encourage the growth of the vegetation that is so hindering to jade hunters. Nevertheless, this climate also produces numerous flash floods in the rivers, and these in turn reshuffle the gravels and expose fresh alluvium to prospect. Westland is now the scene of some renewed gold-mining activity, and this has uncovered more jade, but generally finds of good-quality are becoming rarer, and the outlook for future reserves is uncertain. Unless the glacial gravels are worked for gold by large-scale operations it is apparent that Westland jade will remain in short supply.

South Westland

The area bounded by Jackson Bay, Big Bay, Red Hills Range and the Arawata River covers several thousand acres of what is frequently described as some of New Zealand's most rugged country. Within this region, although overlapping into northwest Otago, lies the South Westland jade field. Geologically it contains a large body of ultramafic rocks such as dunite, peridotite, serpentinite and associated altered rocks similar to those in other nephrite-bearing localities. This formation, known as the Red Mountain Ultramafics, emerges abruptly on the Alpine Fault in the Jackson River valley and extends southward for some 50 miles (80 km) before narrowing, thinning out completely, then reappearing near Cascade Creek in the Eglinton Valley. Although not continuous, the belt extends through the Livingstone Mountains to Mossburn in Southland, covering a total distance of approximately 111 miles (185 km). The complete belt, including its dislocated portion in Nelson, is known as the Dun Mountain Ophiolite Belt.

The existence of jade in this important field was first recorded in 1845 by the writer J. Brodie[7], who mentioned Barn Bay as a site for Maori greenstone workings. Professor F. von Hochstetter[8] quoted the neighbourhood of Jackson Bay, and later Professor A. Dieseldorff[9] listed Barn Bay and the Hope River as sources. Historian Herries Beattie[10], in discussions with the southern Maori, was also informed that good *pounamu* could be obtained at Barn Bay. Such evidence of the Maori's exploitation of this source is substantiated by recent archaeological investigations that show the resource was an important one and among the earliest to be utilized. It appears that general knowledge of the region as a jade source was forgotten until the 1970s when there was a jade-rush and the whole area from seashore to mountain tops was combed by prospectors.

Over a long period glaciers and rivers have carved into the ultramafic belt, releasing jade, and nearly all the rivers and creeks in this region have produced some jade.

Jade in these areas is generally found as smooth, water-polished, well-rounded or flattish cobbles and boulders. Colour ranges from a very rich to paler green, including olive, sometimes with distinctive, very pale green ribbons and veins throughout. In a few cases the quality of the colour equals that of the best Marsden jade. The exteriors often have a reddish-brown staining on part or whole of the surface, making them quite obvious and very beautiful when wet. These bear a striking resemblance to the nephrite boulders found at Kobuk, northwest Alaska. The pure white jade known as mutton-fat is quite rare in New Zealand, but about half of a large boulder of this variety was recently found in the Spoon River.

FIG. 21 *The Red Mountain ultramafic rocks can be seen on the skyline in this view of the Jackson River in South Westland. The river is typical of most in Westland which, with the high rainfall of the region, can change dramatically to raging torrents.*

FIG. 21

FIG. 22

FIG. 22 **WATER DRAGON**
John Edgar, 1979. Approx. 3⅛ × 2⅜ in (8 × 6 cm). This complex, highly detailed sculpture is free-carved from a flake of kawakawa *jade.*

The features that make South Westland jade so distinctive from other New Zealand jades are the accessory minerals. These show as numerous black flecks commonly surrounded with a soft, dark green or purplish-brown matrix. In addition, there are abundant ragged brassy iron sulphide crystals. When the softer inclusions are large or in concentrated swarms they can cause difficulties for the lapidary. The texture of some boulders is compact nephrite, while others grade into softer, more schistose semi-nephrite displaying numerous feather fractures.

The Jackson River cuts the Red Mountain Ultramafic Belt and flows north along the Alpine Fault to join the Arawata River. Small, flattish pebbles to boulders of predominantly semi-nephrite have been found in the river and become more plentiful upstream near Turnley Creek and the Big Bend.

Access to the field is now much improved with the extension of the road along the west side of the Jackson River and four-wheel drive tracks to the coast. With the exception of the ultramafic belt, the region is heavily clad with bush, has a high rainfall, is uninhabited (apart from the sandflies) and mountainous, thus yielding its secrets slowly. Probably no other area in New Zealand has such potential for further jade discoveries.

Otago

WAKATIPU

Apart from the Westland and South Westland sources the other significant jade field lies in the province of Otago on the northwestern side and head of Lake Wakatipu. It is acknowledged that the quality of Wakatipu stone is generally much inferior to the Westland material and has little practical use or potential for the lapidary industry. Nevertheless, the field was once most important to the Maori and indirectly contributed much to the development of their culture. There is ample evidence that the area was frequented by the Maori, and while no one yet knows when the nephrite was discovered and utilized, an early date is suspected. The occurrence is therefore significant from a historical and archaeological viewpoint, and recent discoveries in the area have endorsed this.

It is puzzling that nearly all of the early European discoverers in contact with the East Coast South Island Maori relate the source of all *pounamu* as a river near an inland lake in the South Island. Most place it somewhere in Otago, while others give more definite directions that suggest the head of Lake Wakatipu as the source. None, however, mentions the Westland deposit which, at the time, must have been well known to the Maori. The Maori, like the Chinese, favoured the pale, milky-green to grey *inanga* variety of jade above the rich greens so highly esteemed by

the Europeans, and this may be the basis for the popularity of the Wakatipu field where *inanga* is common. Although the Arahura field was without doubt also a source for *inanga,* the Wakatipu field was favoured and supplied the greater proportion of the variety to the Maoris, especially on the East Coast. Nevertheless, it seems strange that the Westland Maori frequently made the perilous journey across the mountains to Wakatipu when *inanga* was available in Westland. A possible explanation could be that the Wakatipu stone was available in more manageable sizes and, being predominantly semi-nephrite and softer, was more easily worked.

Nephrite in the Wakatipu field is derived from a series of ultramafic pods. These rocks have been recently studied by Yosuke Kawachi[11], D. G. Bishop[12] and other geologists, who have established that they are part of a continuous structural belt containing blocks of several rock types – pillow lava, serpentinite, meta-gabbro and sedimentary rocks, to name a few. The belt is sandwiched between altered sedimentary rocks and extends for many miles. Known as the Greenstone Melange, it was named after the Greenstone River and not for the fact that it contains 'greenstone'. In fact a very small proportion contains nephrite. The name Greenstone River is believed to have originated from the story that it was part of an old Maori trail from the east coast to the jade source at the head of the lake.

General erosion since the last ice age has formed many creeks and rivers that have cut this belt in numerous places, eroding the harder nephrite masses from the soft matrix and depositing them as boulders deep in the beds of the rivers.

Much of the stone is a tremolite-rich variety of nephrite, and a high percentage may be described as semi-nephrite. Semi-nephrite differs from true nephrite in one respect only – its fibrous structure is more open and not as densely felted, making a softer, more easily broken stone. The chemical composition of both remains the same.

The Routeburn occurrence is within the Mount Aspiring National Park and, because it was a Maori source, the site is now regarded as a 'Historic Place' and is protected. Very few Routeburn jade specimens are of gem quality throughout and practically all of the usable stone was obtained from dense patches and veins contained within the larger boulders. The general appearance is very schistose or strongly contorted; narrow, wavy bands of harder material are also common. Its colour ranges from silvery-pale to greyish and from dark green to a lighter shade, sometimes tending to olive. The strong bright greens of the *kawakawa* variety common in Westland are absent. Numerous inclusions of iron sulphides and soft talc together with fractures and areas of uneven hardness make the stone difficult to work.

As several characteristics of the Routeburn stone are present in many of the Maori artefacts assumed to be of Wakatipu origin, it was generally accepted that the Routeburn was the primary Otago source for the Maori. But several artefacts, although somewhat similar in appearance to the Routeburn stone, were decidedly different. This suggested that they originated from a source formed under similar circumstances to the Routeburn but in a different locality.

Such was the position until 1970. What was about to happen in the following years has since proved to be of national and international importance. In the summer of 1970 a commercial venison hunter, Tom Trevor, was shooting near a small tributary of the upper Dart River when a small boulder of a greenish, scaly rock caught his eye. Realizing that it was quite different from the surrounding rocks and that it resembled nephrite, he took a small sample to the Southland Museum. The sample was found to be semi-nephrite with characteristics similar in many respects to Maori artefacts in the museum collection; it immediately suggested that the occurrence could be of archaeological significance and that the ultramafic rocks previously mapped as terminating near the Routeburn extended farther to the north.

Where the original sample had been collected, specimens of serpentinite, talc, semi-nephrite and, sparingly, nephrite of the *inanga* variety were found. A large boulder of nephrite, estimated to be in excess of 20 tons, with one end buried in rubble,was discovered. The surface was pale green, water-worn and reasonably smooth, without the customary white rind that nephrite often has.

From detailed examination of the samples collected it became clear that they were identical in every way to the material of artefacts in museum collections and that the area was of immense archaeological potential. Detailed investigations into the many aspects of the deposit were carried out and as the facts were pieced together it became apparent that the deposit was indeed unique in that it was unspoiled, with little change since the Maori had last visited it. With its archaeological and scientific value and the obvious importance to New Zealand's heritage (particularly to Maori culture) established, positive steps were taken to preserve the area for all time. On the joint recommendation of the Mount Aspiring National Park Board and the National Parks Authority, 4045 acres (1618 h) were set apart as a 'Special Area'. This means that entry is by written permit only. Permits are not arbitrarily withheld from responsible persons who for any reasonable purposes require entry and will abide by the conditions. The deposit is similarly protected under the Historic Places Act.

The general appearance of the nephrite, or Dart stone as it is often termed, is quite distinctive and easily

FIG. 23 **FONDLING PIECE** *Alfred Poole, 1980. Width: 2¾ in (7 cm). Dark* kawakawa *Westland nephrite has been carved to represent a human heart.*

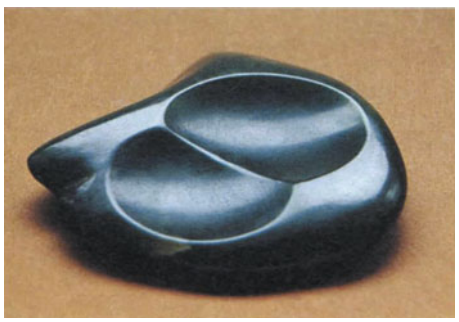


FIG. 23

FIG. 24 **LILITH** *Donn Salt, Auckland, 1979. 5¼ × 5¾ × 3⅛ in (13.5 × 15 × 8 cm). A large piece of* kokopu, *or trout-stone, jade has been carved into a daunting female head. In Jewish legend, Lilith was Adam's first wife who, when replaced by Eve, became an evil spirit.*

FIG. 24

distinguished from the other Wakatipu sources. The colour is a light or olive green to greyish-green, often with pearly pale bands (*inanga*). The schistose nature of the stone tends to lighten the colour where feather fractures are present, and some specimens display an internal scaly sheen not unlike the surface of a fish. Chatoyant streaks are not uncommon, especially in the greenish-grey stone. Occasionally, a thin, orange-red rust is present on the outside and many specimens contain talc. In keeping with the other Otago sources, Dart stone grades from a tremolite schist to semi-nephrite and, more rarely, compact nephrite. Most of the material is strongly folded or contorted into twisted lumps with knotty areas, and it is usually dominated by naturally polished fracture planes (slicken-siding). Invariably, minute crimp folds similar to those of a concertina are superimposed on the folds, and when viewed from above light reflected from each crest produces a distinctive silvery sheen. The larger folds are common in nephrite from other localities but the sharp crimp folds, a feature in many Maori artefacts, are rare outside the Special Area.

Additional diagnostic features are the tiny bands. These are usually less than ¼ inch (5 mm) wide and always at right angles to the background; they often are spaced parallel and regularly, but are sometimes irregular, with less definite borders. Their origin is uncertain, but probably they represent cross fractures that have healed during formation. The bands are not present in all specimens but, so far as is known, are exclusive to Dart stone. Like the crimp folds, these bands appear on many Maori artefacts and offer supplementary proof that this source was used by the Maori.

The large boulder found by Tom Trevor is rectangular in shape and is the largest documented unspoiled alluvial boulder existing in New Zealand to date – and among the largest surviving in the world. Although much larger ones have been found, especially in British Columbia, they hold such commercial value that they are soon cut up and gone forever. In this respect the boulder in the Special Area is becoming more significant every day.

The colour of the boulder qualifies for the *inanga* variety, and the quality of the stone is generally schistose with some talc. One end of the boulder is broken and jagged, while the remainder is relatively smooth. It has been suggested that the Maori could have attempted to quarry the broken end, hence its appearance. For this reason, the boulder could well be regarded as an artefact.

The nephrite source lies some distance away from the boulder within the Special Area and is quite small in extent. Natural erosion of the whole region is extremely rapid owing to the easily decomposed nature of the surrounding rocks, and it appears as though the large boulder represents a considerable portion of the original deposit.

Some unfinished Maori artefacts are identical in appearance to the small pieces found near the source and this, supported by archaeological field evidence, suggests

that the Maori also collected nephrite from the source area.

In 1920 Herries Beattie[13] published information that he had recorded from old Maori informants on the origin of the southern Maori's nephrite. When we look closely at these early directions, they fit perfectly with the Special Area, and the combined weight of geological and archaeological evidence clearly indicates that this was a major nephrite source for the southern Maori. Worked and unworked pieces of typical Routeburn and Dart stone have been found in archaeological sites on the east coast of the South Island, but in the Foveaux Strait area nearly all of the material appears to have originated from the Special Area. Finished artefacts of the Dart stone type have been found as far north as the top of the North Island, indicating such preference for the stone that it was used as an item of trade during the prehistoric period.

A programme of further exploration and recording in the Special Area is ongoing, and the scientific team is gradually piecing the information together. There is probably no other nephrite deposit in the world that was utilized by a stone-age culture and has not subsequently been destroyed by exploitation. The continued protection of the Special Area is, however, dependent on public appreciation and respect for a unique archaeological storehouse of national and world importance.

WANAKA (MAKARORA)

Slab-like, river-polished semi-nephrite boulders of up to 44 lb (20 kg) have been found, mainly in the Makarora River, but on the whole the schistose structure renders these unsuitable for lapidary purposes. Small dense portions in some boulders are gem-grade nephrite, being flawless and either pale green or grass green in colour. These, however, are rare.

The boundaries of the location appear to be the Muddy Creek delta, and the Makarora River from a little upstream of the Blue River and Muddy Creek confluences to a few miles downstream. The *in situ* source of the semi-nephrite recently located lies at a high altitude in the headwaters of Muddy Creek and occurs in a lens-shaped body in association with meta-gabbro and talc.

A few Maori artefacts of jade similar in appearance to the Makarora stone have the typical fuchsite inclusions that rarely occur in nephrites from other localities. This suggests that the Maori knew of this deposit. Furthermore, the Haast Pass and the Blue and Okuru valleys were used as east/west routes and there is ample evidence of Maori occupation in the general Wanaka area.

In Douglas Creek, some distance beyond the Haast Pass, there occurs an attractively coloured and marked serpentinite that is derived from high up on the western side of the creek in a large lens of ultramafic rocks. The serpentinite is often mistaken for nephrite and is sometimes sold as such or as 'Haast greenstone'.

Nelson

One would suspect considerable deposits of nephrite in the Nelson area, since its geology is an extension of the jade-productive South Westland rocks that have been separated by movement along the Alpine Fault. To date, however, the amount of nephrite that has been found in this region is disappointing. Known locations are restricted to D'Urville Island, the Dun Mountain complex, the Cobb River area and the Matakitaki region.

Little is known of the quality of these Nelson occurrences but it is doubtful that any approach gem-grade nephrite suitable for lapidary purposes. On the other hand, a few isolated finds of boulders and pebbles from the Nelson field are of reasonable quality. Probably because the stone is so durable, these represent the best part of an occurrence long since eroded away. Conversely, one must also consider the possibility of their having originally been transported by the Maori from other locations beyond Nelson.

The argillite associated with the Dun Mountain serpentinites was extensively quarried and worked into tools by the Maori from an early period. Any accompanying nephrite would have been utilized and this may explain the origin of semi-nephrite fragments and artefacts recovered from the archaeological sites in the Heaphy River and general Nelson area. The serpentinite was certainly recognized and some exceptionally fine artefacts were made from this material.

To the east of Nelson lie the Marlborough Sounds, visited in 1773 by Captain James Cook. In Queen Charlotte Sound he recorded that the Maori obtained their nephrite in the channel of a large river or lake far to the south. He later mentioned that it could be found at the head of the sound and J. R. Forster, who was Cook's scientific officer, described a 2-inch (5-cm) wide vein of nephrite in talc schist on a tiny islet near Motuara Island in Queen Charlotte Sound. This occurrence has never been relocated. Further prospecting of the Nelson ultramafic rocks and the Marlborough schists is warranted and may yield new occurrences of better stone.

Southland

LIVINGSTONE MOUNTAINS

The Livingstone Mountains are a long chain of high mountains running approximately north and south and rising between lakes Te Anau and Wakatipu.

There are three distinct varieties of Livingstone nephrite, each quite different from the other. The most unusual

FIG. 25

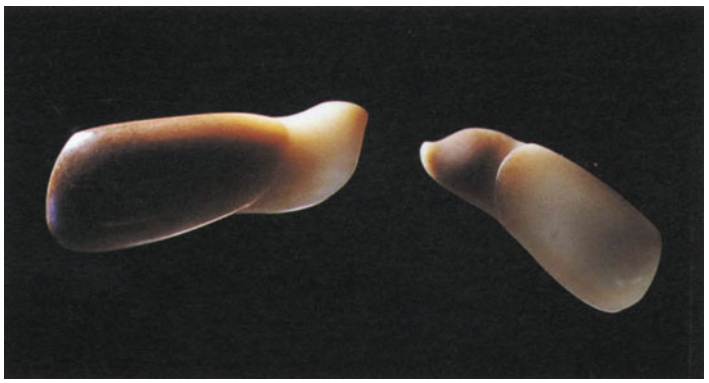


FIG. 26

FIG. 25 **CONCORDANCE**
Rob Lynes, 1990. 10 × 3⅜ in (25 × 8.5 cm). A dramatic profile emerges from this free carving of long-flake 'flower jade'.

FIG. 26 **TOHEROA**
Russell Beck, 1987. Approx. size of larger piece: 4 × 2 in (10 × 5 cm). The artist has carved a two-part hand-fondling sculpture out of Korean jade.

FIG. 27 **FONDLING PIECE**
Alfred Poole, 1990. Height: 3½ in (9 cm). Of inanga *nephrite from Westland, this simple, sensuous sculpture has a soft satin polish.*

FIG. 27

variety is basically white or milky-green with bands of dark olive green to vivid green. The stone, which could be described as a semi-nephrite, is unusually hard but is quite short-grained and has numerous cross fractures. A similar colouring occurs in New Caledonia and Monterey, California. Selected pieces contain the bright green colour that resembles Burmese jadeite but, of course, the physical properties for jadeite are quite different. Examples of this variety are not plentiful and only a handful of good stones has been found. Although some quite large boulders of varying quality occur as float in the rivers and creeks at the head of Lake Mavora, the source is as yet unknown. Again, the region has been glaciated and they could have been transported for some distance.

The second variety is even rarer but is found over a wider area. The general colour is olive green to a very dark brownish-green, often with small veins or inclusions of a distinctive light green colour surrounding chromite grains. Dentrites are also common in the fracture planes. The stone is frequently completely peppered with brassy iron sulphide crystals, and some specimens show zones of colour – an olive-green outer region with a small bluish-grey centre. A few examples are strongly folded while others are splintery and schistose but reasonably hard. Boulders are invariably quite rounded, and have a whitish to rusty exterior.

The third group is more plentiful and is not unlike the semi-nephrites found in the Wakatipu field. This variety occurs unpredictably throughout the field and is found both as stream boulders in some of the creeks and rivers that cut the ultramafic belt, and as *in situ* occurrences located near the contacts with adjacent rocks. Tributaries of the Windley River and the Windon Burn have small outcrops of this material and a few other isolated outcrops exist throughout the field. The stone is quite soft and, on the whole, not suitable for lapidary purposes.

There are no Maori artefacts recorded that have the hallmarks of the two former varieties so distinctive of the Livingstone field. However, this does not necessarily mean that the Maori were unaware of this deposit. We know that they preferred flattish pieces that could be more easily worked into tools, and the rounded boulders occurring here would have been much more difficult to work. Certainly, the Maori visited the general area, using it especially as a walking route to Lake Wakatipu, by way of the Mararoa River to its source, then via Greenstone River to the lake.

These, then, are New Zealand's known jade fields. The Westland area is clearly the major producer, but other regions, especially South Westland, have the potential for further discoveries. So far jade has not been reported from the North Island, even though ultramafic rocks are present at North Cape, in the Silverdale-Wellsford area, in North Auckland and near Piopio in the King Country.

MAORI HISTORY AND LEGENDS

FIG. 28 **MAORI ADZE**
Approx. length of blade: 10 in (25 cm). Adzes (toki poutangata) *like this beautiful nephrite and wood example were symbols of Maori authority and chiefly rank, and were used exclusively for ceremonial occasions. In the collection of the Otago Museum, the adze has an ornately carved haft and a blade of* kahurangi *nephrite from a Westland source.*

FIG. 28

No one knows whether the first Polynesian to step ashore on New Zealand was from an intentional expedition or from an accidental drift voyage, but it is certain that both types of voyage took place over a period of time, and slowly a small population grew. New Zealand, called *Aotearoa* by the Maori, was populated very late in the world's history. Archaeological evidence has shown that the date of arrival was about 1000 years ago.

While these early settlers of the archaic period, sometimes referred to as Moa-hunters, found themselves in a world totally different from their tropical Polynesian homeland, they soon adapted to the new environment. The opportunity to live by hunting seals and the then-plentiful *moa* (a now extinct giant flightless bird, *Dinornithformes*), especially in the South Island, enabled a rapid exploration of the land, and stone types suitable for tools were soon found.

It is not known precisely at what date nephrite or bowenite was discovered and used by the Maori, but the earliest dated layers in archaeological sites with which nephrite is associated are from the 12th century. Certainly by the 14th century the use of nephrite was well established. These very early specimens appear to be semi-nephrites and an Otago or South Westland source is suggested.

The climate in the North Island and northern part of the South Island was suitable for the cultivation of sweet potato and other plants introduced from Polynesia, and gradually a stable communal society emerged based largely on horticulture, fishing and catching birds. This later society, often referred to as the Classic Maori, became highly cultured and developed a unique art heritage. *Pounamu* accelerated this development, and as its use became widespread throughout the country so its far-reaching cultural significance deepened. With the accumulation of desirable possessions (including land) warfare developed, and when Captain Cook arrived in 1769 war between tribes

was a prominent occupation. The Maori's skill in warfare was demonstrated later when European settlement of several parts of the North Island met with long resistance.

Because of the colder climate in the south, nomadic tendencies prevailed and the inhabitants preserved much of the early culture. Here stone tool-making technology developed to a greater extent than in the north and jade and other types of stone were manufactured into implements and traded with the northern people, possibly for sweet potato and textiles.

In the 1790s the arrival of the early European sealers in the far south began the period of exploitation of New Zealand's resources, which later led to permanent settlement and colonization. Here, and in other parts of the country where mutual respect for each other prevailed, both Maori and European (*Pakeha*) integrated relatively smoothly. During these years the Maori were quick to take advantage of the new European technology, and although it dismantled their stone-age culture and changed their way of life dramatically, they survived colonization better than most indigenous people at that time. Unfortunately, however, much of their culture failed to be recorded for posterity.

As the Maori did not possess a written language, their history was recorded by way of legends, which were narrated down through the generations. Explanations of the discovery and formation of *pounamu* are colourful and varied. Many different versions of the several myths exist, but the following are the most popular.

The personified form of grindstone known as Hine-tua-hoanga (lady of the grindstone) lived with Poutini, the personified form of nephrite often referred to as a fish. The two became enemies, and a voyager and resident of Hawaiki (the original Polynesian homeland), Ngahue, fled overseas with his fish Poutini. They arrived at New Zealand and settled at Tuhua (Mayor Island, in the Bay of Plenty, where obsidian occurs in abundance). The lady of the grindstone followed Ngahue and Poutini to Tuhua, and the pair was once more forced to leave. They travelled southward but were met with similar rebuffs from other personified forms of different stone types, and eventually Ngahue found a refuge for Poutini in the bed of the Arahura River on the West Coast of the South Island. Ngahue broke off a piece of Poutini and returned with it to his homeland. From this fragment adzes were made for building the migratory canoes. (Sandstone is the main material used for fashioning *pounamu* and so in this legend the grindstone occurs as the enemy of nephrite.)

In another legend Tana-ahua, a Maori warrior, sailed around the South Island in search of his missing wives, who had been abducted by Poutini. He found them at Arahura turned into *pounamu,* and the different varieties of nephrite bear their names.

Yet another legend records that a Maori named Tumuaki, who lived at Okato, Taranaki, travelled to Arahura and found a boulder of *pounamu.* But he violated a prescribed ritual and for this forbidden act he was turned into stone. His wife, Hine-tua-hoanga, went in search of him but was drowned.

A further variation of this tale states that the warrior Tama was deserted by his three wives and set out in search of them. On finding one of them turned to *pounamu* at Piopiotahi (Milford Sound) he wept, and this gave rise to *tangiwai* (tear-stone). Tama continued up the West Coast and on hearing voices at the Arahura River he made his way upstream. Unknown to him, the canoe in which his wives had escaped had capsized and both canoe and crew were turned into *pounamu.* The canoe lay under a waterfall and the crew became the nephrite boulders in the river bed. Tama, accompanied by his slave Tumuaki, travelled farther inland, still searching for his wives. Upon killing some birds for food, the slave prepared to cook them and, accidentally burning his fingers, thrust them into his mouth to ease the pain. For this forbidden action he was turned into a mountain. The birds were cooked to cinders and the charred remains became the flaws in the *pounamu.*

The Takitimu people relate that the voyager Kupe arrived at Arahura and discovered *pounamu.* The tale records that the first variety found was *inanga.* An unusual stone was picked out of the river for a sinker while netting inanga (whitebait) and was subsequently called after the fish.

The stories given to Captain Cook and other early explorers of how and where *pounamu* was found all relate to it being a fish. One says that when the fish is taken from the water it is so vexed that it turns into stone. Another states that the *pounamu* stone is found in the stomach of a large, shark-like fish. When the stone is first taken from the stomach it is soft but becomes hard on exposure. Certainly the connection between the fish theme and *pounamu* was very deep-seated and is also evident in the forms of the various artefacts that have been recorded.

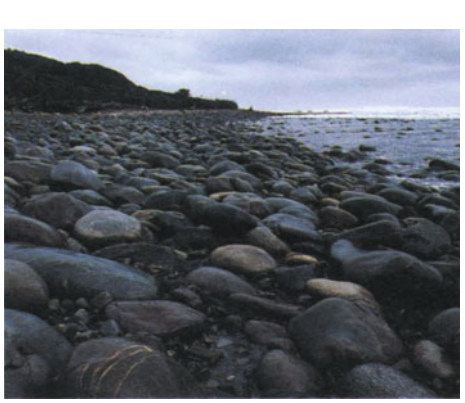


FIG. 29

FIG. 29 *Boulder Beach, at Barn Bay, Westland, was an important early source of jade for the Southern Maori. Today helicopters have assisted jade exploration and collection from this very remote Tasman Sea region, which is pictured here on an unusually calm day.*

MAORI LAPIDARY

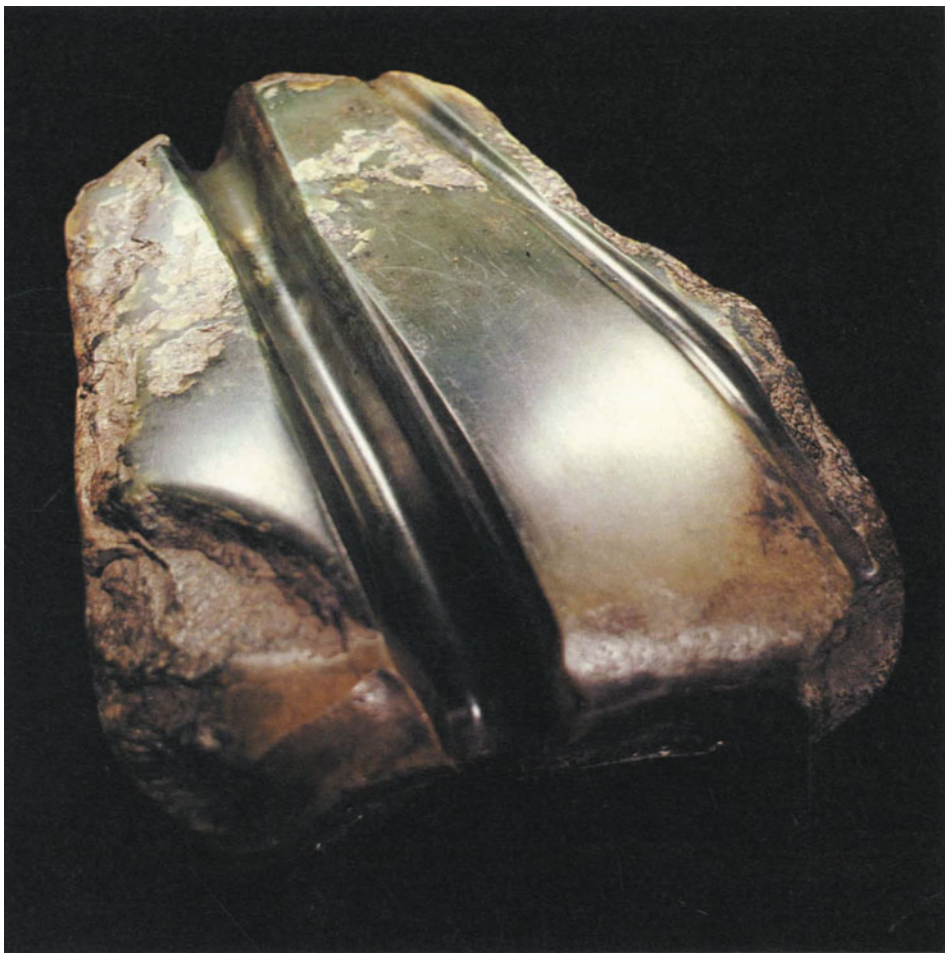


FIG. 30 **MAORI SCULPTURAL BLOCK** *Width: 12 in (30 cm). Maori craftsmen have cut deep grooves on both sides of this sculptural block of Westland nephrite. Although intended to be cut through, the grooves have been polished from fondling. The sculpture is in the collection of the Canterbury Museum.*

FIG. 30

Most Pacific islands are of volcanic origin and the favoured stone types available to the inhabitants for making adzes or tools were usually fine-grained basalt and other brittle igneous rocks.

The early people who came to New Zealand from one or more of these islands carried the art of adze-making with them and recognized and used the stone types that they knew. Evidence from archaeological excavations shows that the early New Zealand Polynesian was a proficient geologist and was continually searching and experimenting with new materials. As a totally stone-age culture, their survival and progress depended upon this highly developed geological knowledge, which was gradually extinguished when the European introduced iron tools.

It was inevitable that eventually the early New Zealand Polynesians exploring their new country would stumble across nephrite and realize its potential. The discovery in some South Island sites of flakes and adzes made from Otago and South Westland jade shows that their process of manufacture was by the percussion (hammer) method. Many other tools, believed to be of a slightly later date, show that the stones were collected as naturally occurring fragments of roughly adze shape, which were only slightly modified before being sharpened on grindstones. Certainly this was one of the advantages of the nephrite that occurred in the Wakatipu field and other places. It also indicates that nephrite, which was a new medium to the Maori, presented some initial manufacturing difficulties and that the technique of sawing had not at that stage been applied to the working of jade.

Some nephrites and semi-nephrites frequently have a decided grain or foliation (schistosity) which, if subjected to prolonged hammering, would develop fracture planes and separate before the tool could be finished. Moreover, compact nephrite is nature's toughest material and is almost impossible to shape by the hammer technique. For these

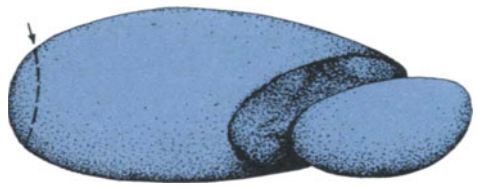


FIG. 31 *Maori method of obtaining a spall or cutter from a greywacke boulder.*

FIG. 31

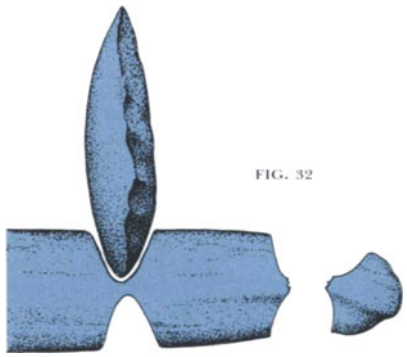


FIG. 32 *Maori technique for sawing nephrite using a greywacke cutter.*

FIG. 32

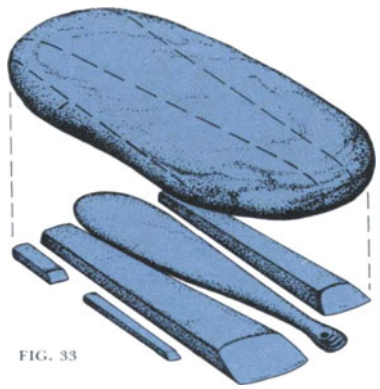


FIG. 33 *A thinnish, slab-like boulder cut with the stone's plane of schistosity parallel to the faces of the artefacts. With this example only three main cuts could produce several artefacts.*

FIG. 33

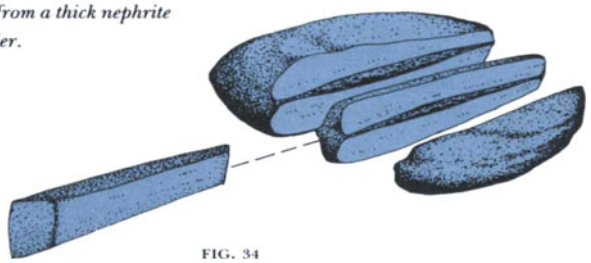


FIG. 34 *One Maori technique of cutting an adze from a thick nephrite boulder.*

FIG. 34

reasons the early Maori were forced to adopt the sawing and grinding method of working jade and further developed it over the centuries.

Little has been recorded of how the Maori worked nephrite, and with the sudden change to metal implements after the arrival of the European a great deal of detailed knowledge of the skill was lost. However, from the accounts related by the early European explorers, evidence from the inspection of numerous artefacts and practical experimentation, a general method of manufacture has been established. It can be separated into several operations: sawing, grinding and polishing, drilling and heat treatment.

Sawing

Today we associate a saw with a blade and a series of teeth but the Maori saw used for jade-cutting was composed of stone and instead of teeth relied on the effect of abrasion to grind its way through. For stability, the nephrite boulder or slab was mounted on wood or perhaps half buried in the ground, and the craftsman either knelt by or sat astride the work. Grasping the saw in his hands and using water as a coolant, he drew the narrow cutting edge of the saw back and forth across the stone with long, slow strokes and an even pressure. To speed up the operation, quartz sand, which is harder than nephrite, was sprinkled into the cut to act as an abrasive. Sawing was a favourite pastime for the older men of the tribe, and several accounts relate that every spare opportunity was taken to continue the work.

It has been suggested that when sand was not available quartz pebbles were hammered to a powder and used as the abrasive. It is also possible that garnet sand, which is slightly harder than quartz and is commonly found on the west and southwest coasts of the South Island, could have occasionally been used.

A few large blocks of partly sectioned jade with deep, opposing grooves have been found in Maori habitation sites and are preserved in museums. At first glance one is immediately aware of the labour they consumed, but more obvious is their great sculptural beauty. Most have quite wide round-bottomed, typical 'U'-shaped grooves, straight or sometimes twisting, or cambered or undulating. The highly polished surface of these grooves frequently makes the specimens quite irresistible to the touch. Judging from the polish it is obvious that their makers thought so, too, and they would have had little incentive to complete the cuts.

The sawing technique of cutting jade was also practised by the other civilizations who possessed this material. One culture very similar to the Maori in many respects was that of the Canadian Indian of the Northwest Coast, where

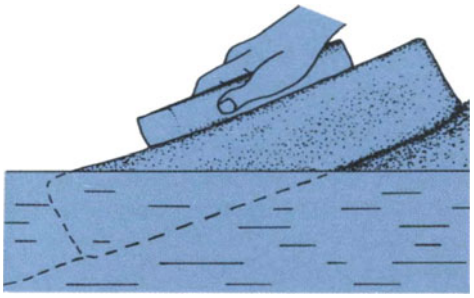


FIG. 35

FIG. 35 *Grinding down the sides of an adze on a sandstone block partly immersed in water.*

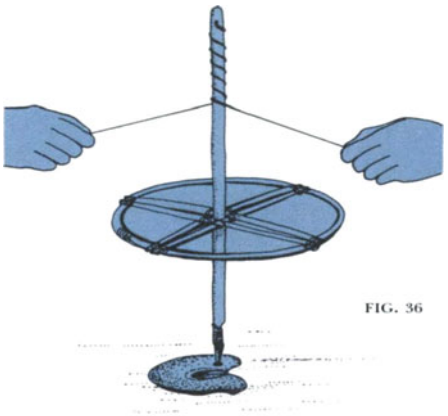


FIG. 36

FIG. 36 *Maori drill with a twig flywheel.*

nephrite boulders from the Fraser River and other places were worked with traditional methods identical to those used by the Maori.

Grinding

Once the article was sawn to shape, the next stage of manufacture was to finish it by grinding down all the rough portions and irregularities and then polishing. This was done by the use of grindstones (*hoanga*) and rasps, usually sandstone or occasionally quartz schist of different grades – coarse, medium and fine. As New Zealand is well endowed with sedimentary and metamorphic rocks, the Maori obtained the sandstone and schist from many localities. Grindstones in museum collections are frequently angular or brick-shaped from usage on all faces, and they vary in size from hand-stones to blocks measuring 18 × 8 inches (45 × 20 cm). As the tribes were frequently nomadic, grindstones of these sizes were easily carried. Larger grindstones exist, but were confined to the permanent workshops.

Like the sawing process, grinding was a slow task. The grindstone block was either partly immersed at a slight angle in a pool of water or was placed on the ground with a drip water supply directed on to it (see Fig. 35). The work was then rubbed back and forth on the stone; in the case of smaller hand-stones, the position was reversed and the artefact was placed on the bottom. According to Heaphy's account[14] it took six weeks to grind a *mere* to proper shape.

Finally, when the article was ground to shape, it was polished with fine mudstone slabs and probably burnished with hardwood burnishing tools. The polish on some artefacts, especially the *mere,* was continually improved by constant handling and rubbing with natural oils.

The technique of carving is associated with grinding. The finer features achieved on the *hei-tiki* and other ornaments were made largely with the use of small sandstone and schist rasps suitably shaped to carry out the work. Rasps were used in a fashion similar to the modern European file, with the stone being frequently dipped into water to aid its cutting ability. It should be mentioned, however, that the manufacture of the rasps themselves was not an easy task. Flattish slabs of abrasive rocks were selected and a shallow furrow was made on both sides, often by hammer pecking or bruising, then snapped with a sharp blow. The rasp blank was then shaped to the desired profile on a grindstone block. Little has changed, as the silicon carbide rasps used by present-day carvers for finishing work are identical in shape to the early Maori ones, the only difference being their composition.

Other carving tools using sand abrasives were made of stone, and sometimes the carver used a pointed piece of wood. It is also possible that some kind of core drill, perhaps a hollow dentalium shell or a portion of tubular bird bone mounted in a drill and used with sand, was used to achieve the almost perfect round shape of the eyes in some *hei-tiki.* These would have been ideally suited for the task and are often found associated with Maori sites. Perhaps, too, a simple form of lathe, with the drill mounted horizontally, could have been used, but decisive evidence is lacking to show that such a device or the core drills were employed.

It is obvious that the grinding of *pounamu* was a considerable task for the Maori, yet it was accomplished with a great deal of satisfaction. This is well illustrated by Heaphy's observation on the West Coast: 'A native will get up at night to have a polish at a favourite *mere,* or take one down to the beach and work away by the surf. A piece of *pounamu* and some slate will be carried when travelling, and at every halt a rub will be taken at it.'

Drilling

The drilling of a hole was successfully achieved by many stone-age cultures. However, the Maori became very proficient at this work and were able to perforate jade and other materials with great accuracy, achieving holes as small as

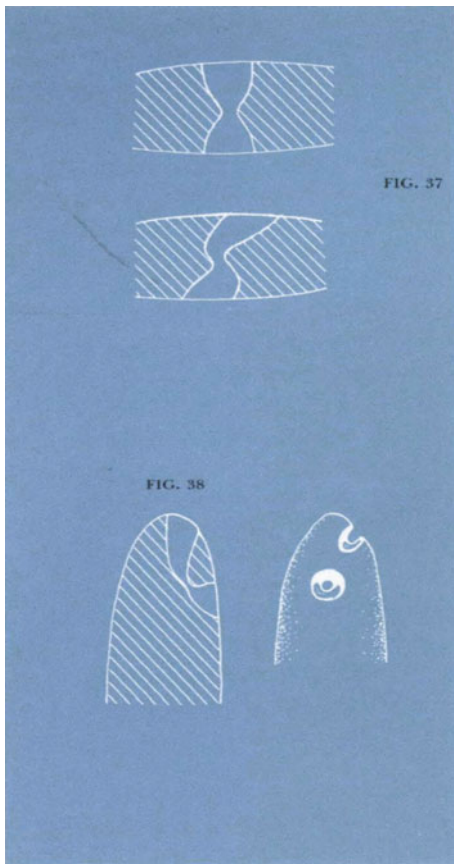


FIG. 37 *Cross sections of holes drilled by the Maori showing an hourglass shape and an oblique hole.*

FIG. 38 *Cross sections of drilled holes showing a concealed right-angle hole on a* hei-tiki *and the eye effect produced from the countersunk hole.*

1 mm in diameter. The Maori drill (*tuwiri, porotiti*), sometimes known as the cord drill, was of simple construction and relatively easy to operate, but it took considerable time and effort to produce a hole. It consisted of a vertical wooden shaft, a flywheel, an attached drill point and two pulling cords (see Fig. 36). Usually the flywheel was made either from twigs bent around with spokes in a cartwheel fashion, or from two to four equally weighted stones lashed to the shaft. In one reported case, a whale's intervertebral cartilage disc fixed to the spindle was used.

Once the two opposing bored depressions met, the hole was reamed out with small rasps that rounded off the sharp edges. This resulted in a hole countersunk on both sides and hourglass-shaped in section. This effect was used to advantage in many artefacts of fish-like form, for the countersunk hole served the dual purpose of a suspension hole and a realistic eye, with the inner hole as the pupil (see Figs. 37 and 38). In effect, the hole became a necessary part of the design – something that the modern carver could learn from. In many artefacts, especially the *hei-tiki,* the artists' sensitivity and skill were such that where a hole would obviously spoil the design it was ingeniously bored at right angles, from the top to the back.

Heat Treatment

The general Maori lapidary methods for working jade were widespread in New Zealand, but various refinements and technical skills were developed independently. Some of these have been recorded; others have been lost, but one technique that has become apparent only recently is the practice of heat treatment.[15]

Although some nephrite has distinguishing characteristics that allow reasonably accurate sourcing, many locations produce a variety of specimens whose appearance is similar to those deriving from other sources. Complicating the sourcing task further is the presence of a group of artefacts whose physical appearance has changed through natural weathering or as the result of suspected heating in a fire.

Upon heating to 650°C, a Westland sample displaying a natural olive-coloured rind became dark brown, with the inner portion turning silvery whitish-green. Similarly, an Otago sample with the natural colouring of pale green and olive green became silvery greenish-white with broad dark brown areas on firing. Its appearance closely matched that of an artefact previously believed to be from an unknown source because of its unusual, supposedly natural colouring. Semi-nephrites show a decided increase in hardness upon heating, and there were obvious advantages in shaping a softer material that could be hardened later. Many heated examples show a veining effect, where tiny cracks are conspicuous by the presence of a dark-coloured residue. A further diagnostic characteristic is a series of concentrations of large circular feather fractures.

There are strong indications that a predominant reason for the Maori to heat nephrite was to facilitate the colour change; yet, one may ask, why transform an attractive, translucent green object to a milky-white colour? The Maori, like people of other cultures, deeply appreciated the aesthetic qualities of nephrite, and the various types and colours were named and prized for their beauty and rarity. Although New Zealand is world-famous for the bright green shade, the Maori held the rarer, silvery-pale green *inanga* variety in high reverence. The fish theme that was an important part of Maori mythology on nephrite, together with the beauty, character and relative rarity of *inanga,* makes it hardly surprising that artefacts of this material were held in great esteem.

With suitable specimens, the firing technique can produce a material closely resembling *inanga* in appearance, and an opportunity to do this would have been seized upon by the Maori. The increase in hardness provided a dual benefit. Undoubtedly many artefacts suffered accidental heating and a few show overheating to the point of destruction. Some indicate signs of slight heating, and it is

possible that valued pieces were fired carefully in stages to obtain the desired colour, because there was no guarantee that the anticipated effect would be achieved. In addition, other colours, such as an attractive yellow-orange and a variety with reddish markings, were both possible and appreciated.

A most interesting account of heating nephrite was communicated to Auckland Museum ethnologist D. R. Simmons by an old Maori who remembers the following technique being used when he was a boy. On a vertical clay bank a niche was hollowed out so that it would hold water. Directly underneath a larger hollow was made and in here a fire was started. The top niche held a nephrite *mere,* horizontally immersed in fresh water. When the water boiled dry it was replaced with salt water and allowed to boil dry again, then it was left for a while so that the *mere* would become quite hot.

The heating of jade in China is well documented, and examples are known as chicken-bone jade. These have usually been fired to relatively high temperatures, but in comparing the characteristics of those produced from lower temperature heating, many Chinese carvings in collections are very similar to Maori examples and appear to have been heated slightly to produce subtle colour effects. It is also interesting to see that quite a large number of Indian nephrite artefacts from British Columbia show these typical heating characteristics as well.

In conclusion, the traditional Maori methods of working jade were very similar to those of other jade-possessing cultures, except for one factor: the Maori remained totally a stone-age culture until the introduction of metal by the Europeans. Thereafter they quickly took advantage of the new European technology and for a short while adopted many refinements to their methods of working jade. Among these were the pump drill, rotary grindstone and metal saws. Regarding the latter, fencing wire and the two-handled crosscut saw were used with sand abrasives, which accelerated the operation considerably.

It has sometimes been said that the Maori lapidary never attained the degree of intricacy achieved by Chinese jade-carvers. The intricate jade carvings from China were produced after many centuries of a culture that specialized in this art. The Chinese tools included mechanical machines made of bronze, and their cutting agents were the superior diamond and corundum (emery) abrasives. In comparing these with the only tools available to the Maori – a drill, sandstone and quartz sand – we must marvel at how the Maori managed to carve anything at all. Yet, despite the primitive tools, they still managed to produce most skilfully worked artefacts of outstanding artistic and technical worth.

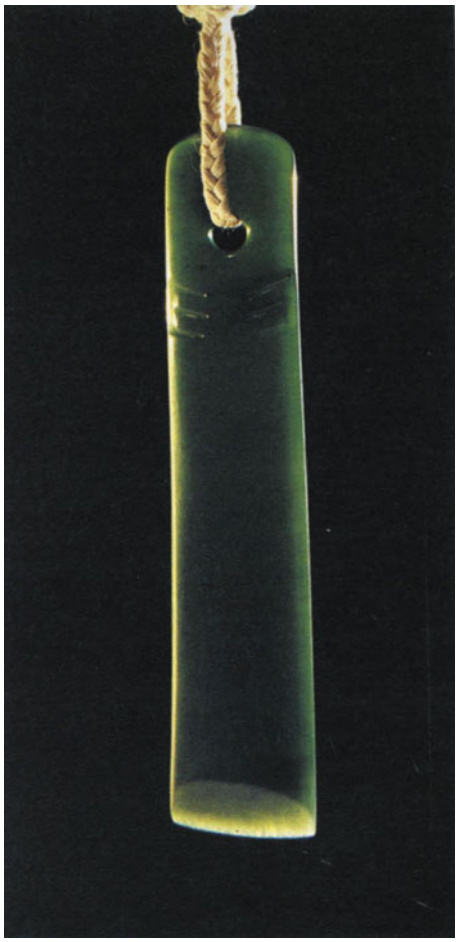


FIG. 39

FIG. 39 **OHOMAIRANGI** *Alan Brown, 1987. Length: 7½ in (19 cm). The design of Maori ceremonial adzes inspired this contemporary pendant-sculpture of* kahurangi *Westland nephrite. It is in the Southland Museum and Art Gallery, Invercargill, New Zealand.*

MAORI ARTEFACTS

FIG. 40 **MAORI BLADE**
Length: 14 in (35 cm). The colour and inclusions of this superb nephrite ceremonial adze blade (toki poutangata) *suggest a South Westland stone source. The sawing scarfs can still be seen on the left-hand side.*

FIG. 40

Tools

Jade Maori artefacts are of great beauty and value, and can be classified as implements, weapons and ornaments. The Maori's first and most consistent use of nephrite was for tools. Consequently, the majority of artefacts preserved today are adzes and chisels. Throughout much of Polynesia adzes were the predominant woodworking tool, and in New Zealand their efficiency was put to use in the felling of large trees, of which there was an abundance, for conversion into canoes of all sizes. Similarly, adzes (*toki*) were necessary for the shaping and dressing of timber in the construction of buildings. Often misnamed as the 'Maori axe', the adze head was attached to a wooden handle and used in a similar fashion to the present-day adze. The axe as we know it appears not to have been used by the Maori before the coming of the Europeans.

Adzes were employed for many general purposes such as felling trees, hollowing out a canoe and shaping a door lintel, and the use of the different sizes and shapes was suitably varied to fit the task. Some nephrite adzes have a straight bevel or cutting edge while others are slightly hollowed or curved. The proportions vary considerably from short and wide to long, narrow blades. Possibly many of the stubby adzes were once longer and have become shorter through repeated sharpening.

The method of manufacture has, to some degree, dictated the overall shape of the nephrite adze, which is generally quite rectangular. It tends to lack the sweeping compound curves and the pronounced hafting shoulder on the butt so evident with the earlier stone adzes. Some very large nephrite examples – in excess of 2 ft (65 cm) – were made, and these are believed to have been employed in tree-felling operations. As well as the attribute of a sharper

cutting edge, nephrite adzes had the added advantage of being heavier for their size, thus providing more kinetic energy when in use.

The hafting of adzes or the binding of the head to the handle was done with cordage, usually flax fibre (*Phormium*), and the different adze types would have required various specialized methods. Unfortunately, very little information on this aspect of adze manufacture has been preserved. Basically, the adze head was lashed to the handle many times, in such a way that the blade remained firmly secure while in use. The handle was usually fashioned from a secondary branch of a tree so as to incorporate part of the thicker branch and produce a small elbow, usually at less than a right angle, to which the adze was secured (see Fig. 41).

In contrast to this method is the one adopted by the Eskimo, who used bone or antler, drilled and butted directly on to the jade adze with animal hide thonging. In other cases the blade was secured into a carefully prepared socket carved from bone, and this was lashed to the handle.

The Maori ceremonial adzes (*toki poutangata*) differed from the ordinary adze in that they were designed for appearance and not practical use. The blade was preferably made from flawless *kahurangi* jade, frequently thinly ground to take advantage of the translucency of the stone, and usually with holes at the butt for lashing on to the elaborately carved haft. These quite magnificent artefacts were symbols of rank, and were used exclusively for important occasions such as the initiation of the first chip at canoe-building ceremonies. Occasionally the blades have a series of small notches along the edges. The significance of these is unknown, but they could be a genealogical record.

Chisels and gouges of all sizes and profiles were developed and used specially for the production of intricate wood carvings. Normally, a chisel (*whao*) had a straight cutting edge and the gouge a curved one. Sizes ranged from less than ¾ inch (2 cm) to over 7 inches (18 cm) in length, but the average was about 3 inches (8 cm). They were held by hand and were tapped with a wooden mallet or hafted to a straight piece of wood and used in the same way as a modern chisel. The gouges were usually cylindrical in cross section and elegantly tapered toward each end like a cigar, with quite a small, curved hollowed cutting edge. Some were sharpened at both ends, usually at right angles to each other and with differing profiles – chisel at one end, gouge at the other. Many of the smaller chisels and gouges made from particularly fine nephrite were perforated at the butt and worn as ear pendants. This was a convenient method of keeping a valuable tool safe and was probably the origin of the purely ornamental ear pendants.

Whalebone was an important material to the Maori, and many items such as clubs (*patu-paraoa*), fish hooks, and abalone (*paua*) levers for removing shells from rocks, etc., held in museum collections in all stages of manufacture, show that they were often shaped by the use of sharp chisels and gouges. So efficient were these tools that even today they are still used by some Maori wood carvers.

Nephrite knives and scrapers are not common but are particularly interesting as it is possible that they are among the oldest nephrite artefacts in New Zealand. The Eskimo name for a similar implement is *ulu,* and these are widespread, especially in Arctic America, parts of Asia and Oceania. In New Zealand the *ulu* is generally associated with the early moa hunting period, when it was used effectively as a knife, probably for butchering and cleaning the skins of moa and seals. Hence it is more common in the south. *Ulu* could be produced from a flake but were often made from naturally slab-like stones, especially slate. Likewise the jade examples were made from schistose nephrite that was split into a thin sheet, the overall shape being somewhat oval with about half of the periphery sharpened for the cutting edge. Additionally, a few have holes bored at the top for securing some kind of hand grip. These were very efficient knives and along with similar implements were probably also used for scraping the fibrous flax leaves that were an important raw material used for cordage and textiles.

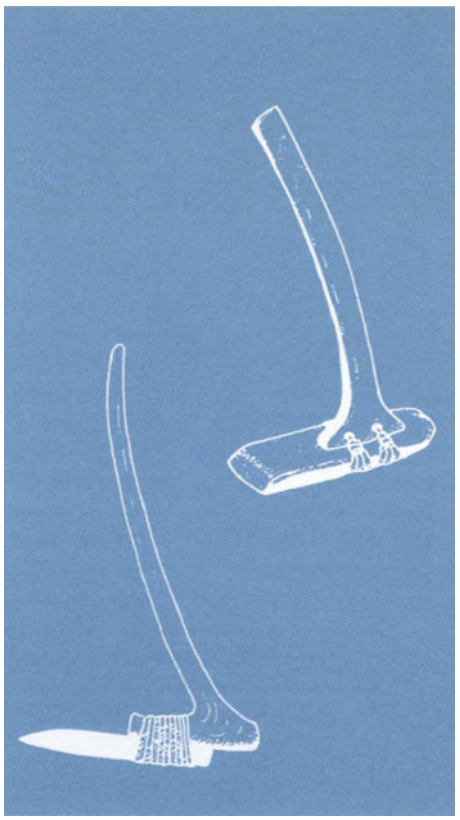


FIG. 41

FIG. 41 *Eskimo jade adze (right) lashed to an antler handle with hide thonging, in contrast to a Maori adze (left) hafted on to a wooden handle with flax cordage.*

Bone was the usual material for cloak pins, but some were fashioned from whale ivory and nephrite. These were more for social value and were often worn just as ornaments. The jade pins were quite long and slender and tapered to a sharp point with a hole at the opposite end. Some small versions with very sharp points and tiny holes, regarded as decorative pendants, would have made excellent needles.

Although not common, other useful items made from nephrite included fish-hook barbs of several types, awls for making holes in wood and animal skin, hammerstones, drill points, and leg rings for the native parrot, the kaka (*Nestor meridionalis*). These rings (*poria*), which were also made from bone, were often quite decorative and were used to secure one leg of a tame kaka that acted as a decoy to attract other birds to a snare. The jade rings are believed to be a late innovation and were often worn as ornaments.

FIG. 42

FIG. 42 **MAORI MERE**
Length: 16 in (40 cm). Made from the inanga *variety of nephrite, probably from the Lake Wakatipu source, this is a beautiful but fearsome weapon. Its only decoration comprises of soft, graduated grooves above the wrist-cord hole.*

Weapons

The only weapon fashioned by the Maori in jade was a short, club-like weapon commonly known as a *mere* but also termed *patu pounamu* or *mere pounamu* (see Fig. 42). The *mere,* often a symbol of rank, was the most valued possession of a Maori warrior, and for this reason was frequently made from the prized *inanga* variety of nephrite. Usually measuring about 16¾ × 4½ × ¾ inches (40 × 11 × 2 cm) the *mere* varies in proportions but is spatular in shape and tapers from the butt in section. The butt end is usually somewhat rounded and contains a hole for the wrist cord. Where the weapon was grasped by hand it is slightly waisted, but gradually widens toward the flattish, rounded end. The lower edges are quite thin and sharp and, depending on the quality of the stone, can give a translucent glow around the periphery. *Mere* decoration is minimal – perhaps just soft grooves above the hole.

As with the adze, a *mere* was often fashioned from a natural, slab-like piece of nephrite that generally presented any grain longitudinally, which tended to minimize cross fracturing when in use (see Fig. 33). The *mere* was not used strictly as a club – that is, with a downward blow – but as an upward jabbing weapon usually intended for the enemy's head and sometimes the ribs. Similar weapons were made from greywacke, hard woods and whalebone. While the latter two materials were often elaborately carved or had decorative butts, the jade *mere* was not carved except for a few near-parallel grooves on the end of the butt, usually behind the hole. Most have a distinctive satin polish, no doubt from continual handling, and the simplicity of design, together with the excellent craftsmanship, made the *mere* a beautiful but fearsome object.

Ornaments

Personal ornaments were important to the Maori. Both sexes wore a wide variety of materials and forms that were suspended by a cord from the neck or ear. Archaeological excavations have revealed that during the early period the archaic Maori possessed beautiful amulets that often depicted a strong association with the whale. There are necklaces of stylized whale teeth cut from whale ivory and moa bone, or large single copies of a sperm-whale tooth carved in serpentine, as well as intricate whale-ivory chevroned pendants, sometimes as matched pairs. Many other forms such as carved reels, sharks'-teeth necklaces and pectoral amulets were also worn. Much later, in the Classic Maori period, completely different amulet forms evolved, and many were rendered in jade. These became very fashionable around the period of contact with the European. Immediately after, production of jade ornaments and, to a lesser degree, weapons, grew into a flourishing enterprise largely for the purposes of trade. During this phase several modifications of form, plus a few completely new designs, are thought to have been introduced.[16]

The most well-known ornament is the *hei-tiki, hei* meaning tie around the neck or neck pendant, and *tiki* meaning human – thus, the stylized human neck pendant, *hei-tiki* (see Figs. 1 and 43). The *tiki* concept originated in Polynesia but evolved to its present form in New Zealand. The earliest versions of *hei-tiki,* of which no examples survive, were probably made from wood or bone, but jade would soon have become the ultimate medium for this form of ornamentation. The few examples that suggest more open features and an erect head are probably the earlier designs, with the later versions being much more stylized. Several variations in design occur, sometimes distinctive of particular regions, and sizes vary considerably. The early *hei-tiki* were quite small, usually less than 4 inches (10 cm) in length, but later somewhat impractical giants of 7 inches (18 cm) and more were made.

The typical *hei-tiki* has a large, angled, rounded or pointed head, usually just slightly less than half of the total length and with the mouth on either the left or right side. The eyes were inset with *paua* shell (*Haliotis iris*) but later, after the arrival of the Europeans, red sealing wax was used. Usually the remainder of the body featured a relatively large abdomen and the legs in a squatting position, with the heels together and both hands resting on the thighs. There are, however, examples with only one hand on the thigh and the other to the head or breast. Finer features such as the mouth, hands, feet, breasts and so on, vary considerably, some being detailed, others less clearly defined. Several *hei-tiki* show clearly that they are female; the remainder are presumed to be male.

FIG. 43

FIG. 43 **MAORI HEI-TIKI** *Approx. length: 3⅛ in (8 cm). The Maori craftsmen would have used only sandstone rasps and a stone-tipped drill to fashion this neck ornament. Now in the Canterbury Museum collection, the piece is carved of* inanga *nephrite, probably from the Lake Wakatipu source.*

The suspension hole ranges from a cleverly concealed hole bored at a right angle from the top to the back of the head, to rather unsympathetic holes near the eyes or through an out-of-character projecting tab. A skilfully plaited cord and bird-wing-bone toggle with incised line decoration provided the suspension.

The general outline of many *hei-tiki* conforms with the proportions of the adze, and in several cases partly completed *hei-tiki* show that they were carved from already finished adzes. Certainly in the later period, and probably long before that, the adze form thus dictated to a large extent the stylization and evolution of the *hei-tiki* design.

On his first visit to New Zealand Captain Cook displayed considerable interest in the *hei-tiki.* They were not common at this time, but when he and others came to New Zealand on later visits *hei-tiki* were plentiful and freely offered for barter. Obviously the Maori appreciated the wants of the European and were quick to develop the market, for from this time on *hei-tiki* were manufactured by the Maori as trading commodities to exchange for metal tools and other articles that the visiting sealers and whalers could supply. The demand was high but fresh supplies of raw stone were not easily obtained, and so with the promise of iron tools many faithful adzes were converted to *hei-tiki.* Of course not all were intended for trading, and many treasured heirloom *hei-tiki* have accumulated much prestige and have passed through several generations of Maori families to the present day.

The production of *hei-tiki* continued well into the 19th century, but the quality of craftsmanship declined and the work was finally taken over by European lapidaries. Much has been written about the *hei-tiki* and its magical powers and other properties, but such theories are unfounded, for evidence suggests that it was a rather late development and

simply an ornament in the shape of a human. One early account mentions that *hei-tiki* were neither connected with superstition nor worshipped but were worn in remembrance of their deceased owner or owners. Another interesting observation was made by Stephen Edson of the Waikato Museum of Art and History, who found that quite a number of *hei-tiki* in museums and private collections have broken limbs or heads. These may have been accidentally damaged but evidence suggests that many were broken purposely, although the reason for this is uncertain.

Another uncommon neck ornament was the stylized Maori fish hook known as the *hei-matau, matau* meaning hook. It was made in many different styles from bone or nephrite and, like the *hei-tiki,* was worn suspended by a cord from the neck. The *hei-matau* is a superb example of Maori art in that it combines fish hook and fish motif in one simple design. It also incorporates the physical attributes of jade with the Maori's mythical understanding of this material. It is believed that the *hei-matau* and many other fish-like amulets, more common in the south, may have been worn as talismans during fishing expeditions.

Many ornaments were worn suspended from holes pierced in the ear. These included feathers, teeth, bones, fingernails and carved *pounamu,* although there is strong evidence that many of the ear ornaments in nephrite and particularly bowenite were the product of a late fashion.

Quite diverse designs evolved that can be grouped into several types, some of which are peculiar to certain districts of New Zealand. A few designs, especially the long pendant, owe their origin to the practice of suspending small chisels or gouges from the ear for safekeeping. These ornamental pendants are either straight and pencil-like (known as *kuru*); flattish or lens-shaped in section (*kurupapa*); or have a curve at the lower end, similar to that of a hockey stick (*kapeu* or *tautau*). The latter amulets, approaching 6 inches (15 cm) in length, were frequently made from the finest *inanga* variety of nephrite and are decidedly fish-like in appearance. The slight curve in the shank and more abrupt curve at the end, together with a lens cross-sectional shape allowing light to pass on the thin edges, make these very beautiful objects indeed. The straight pendants were frequently made from the rare bluish-green transparent bowenite and their attractive appearance was soon noticed by the Europeans, who often preferred this material because of its clarity. Sizes averaged from 1½ inches (4 cm) to 4 inches (10 cm), but longer examples reached as much as 14¾ inches (37 cm).

A variation of the *kuru* pendant is a group with very bird-like characteristics. These thinnish pendants, either long and slender or relatively wide, have a distinctive beaked top, with the hole serving as an eye and the bottom resembling a pointed tail – giving an overall appearance of an elongated bird. Many of these amulets are reasonably long and the gracefully proportioned shape makes them a most attractive pendant.

A rarer group of pendants is one that has been described as resembling a human leg. These are straight and slender but are kinked at the mid-point like a knee.

Flat, tabular forms in several shapes but with semi-circular serrations on the bottom or sides form another group, and although some have human characteristics the meaning or origin of most is not obvious. Thin, squarish, adze-like forms, too thin for use and with drilled or slotted holes often inclined to the plane of the cutting edge, are believed to be amulets and were probably worn for special reasons.

Although relatively rare, beautiful and intricately carved amulets known as *pekapeka* and *marakihau* were made predominantly by the Maori of the Northland and Auckland districts. The *pekapeka* is believed to represent the native bat (*pekapeka*) by its outline shape, but H. D. Skinner, who made a comprehensive study of Maori amulets, suggests that it represents two bird forms, especially about the heads. *Marakihau* means sea monster but this design also has a bird-like head. One interpretation of these forms is that the *marakihau* form is a development of the *pekapeka* design. Adding further complications, two seahorses with their tails entwined are very similar to both these carvings (see Fig. 44).

The *koropepe,* with its coiled snake or eel appearance, was a form frequently produced by the early European lapidaries and few authentic versions exist. As there are no snakes in New Zealand it is more likely to have represented the eel. Although not common, the *poria,* or kaka (parrot) leg ring, was also used as an ear ornament, and, like a nephrite version of the mako shark tooth and several other forms, is believed to have been rare in pre-European times.

Finally, there are a number of abstract jade ear ornaments that appear to be unique in design and shape. They are possibly experimental pieces fashioned from off-cuts or fragments of jade and show the individual expression of the artisan. What stylized forms they represent is not clear.

Reproductions

The manufacture of reproduction Maori artefacts by Europeans began at an early date but reached a high point during the late 19th and early 20th centuries. As New Zealanders became increasingly appreciative of both Maori art and jade, and as the number of overseas visitors increased, there developed a greater demand for nephrite jewellery, souvenirs and artefacts. By this time the Maori

had long since discarded their traditional stone-tool culture for the European way of life and few Maori artisans remained who could fashion jade, or even pass on the knowledge of how it was done.

The European lapidary industry flourished, and virtually all lapidaries at some time or another produced copies of artefacts. It should be noted that these were not 'fakes' in the true sense as no deception was intended. The lapidaries were merely meeting the demand by providing reasonable copies. The brothers Andrew and Thomas Devlin of Dunedin were responsible for a large number of copies that were sold to North Island Maori. At least once a year Andrew Devlin, and sometimes his brother as well, visited various Maori communities, particularly in the central North Island, with a supply of *hei-tiki, mere* and pendants. Often these were resold to Europeans who believed them to be genuine artefacts, and many have found their way into museums and private collections worldwide. The Devlins – especially Andrew, who spoke Maori – developed a strong friendship with the Maori people and were aware of the need to supply artefacts that were made to order in the styles indicative of a particular region.

Another skilled craftsman was Trevor Lloyd of Auckland, who was a dealer in Maori artefacts. He has been attributed with developing the *koropepe* amulet design, which became a favourite form for lapidaries, probably because of the challenge inherent in its intricate design.

Copies of the *hei-tiki* and other items were also made by overseas lapidaries, especially by master craftsmen in the gem-cutting centre of Idar-Oberstein in Germany.

The souvenir items are easily distinguished because they are usually out of scale and roughly made, but the more proficiently produced copies of artefacts can present problems in positive identification. Fortunately, there are a number of general characteristics that usually arouse suspicion. Although made by skilled craftsmen, the works often have too straight an edge or wrong curves, are too highly polished and lack the elegance of the originals. Moreover, because the copies were made from stone reduced to parallel slabs by mechanical saws, the reproductions, especially of *mere, hei-tiki* and pendants, tend to be very parallel. Nevertheless, it must be remembered that during the early period European lapidaries occasionally supplied the Maori with sawn slabs and possibly unfinished artefacts that were then completed by Maori craftsmen, creating a further degree of difficulty in authentication.

The grain of nephrite in genuine Maori pieces is invariably oriented lengthwise, with any foliation parallel to the largest face. With the European lapidary it was, and still is, customary for jade boulders to be sawn the most convenient way – which often means across the grain. This wrong orientation of the stone is a further characteristic

FIG. 44

FIG. 44 **MAORI MARAKIHAU AMULET**
Width: 2¾ in (7 cm). This intricate form, as well as the more symmetrical pekapeka *design, was made predominantly by the Maori living in the north of the North Island. Although the carving features a bird-like head,* marakihau *in fact means 'sea monster'. In the collection of the Auckland Institute and Museum, the amulet is carved from very translucent* inanga *nephrite.*

to be examined in a suspected replica. Likewise, holes drilled by the Maori drill produced blunt cavities bored from both sides, whereas holes bored in copies frequently have parallel sides. Sometimes attempts were made to duplicate the genuine hole shape, usually by countersinking both sides, but there is often enough of the central parallel hole left to differentiate it.

The choice of stone variety is also important. *Inanga* was seldom used by the European lapidaries, who preferred the then-plentiful rich green *kawakawa* variety which was being produced by the gold-mining activities in the Kumara and New River districts of the West Coast. Similarly, bowenite was extensively used by European lapidaries for the reproduction of artefacts not normally made from this material. There are also several examples of the unethical practice of titivating genuine Maori artefacts. Additional holes or other features have been added, but seldom are they any improvement.

With the growing development of jade carving in New Zealand since the 1970s, many people are now capable of producing very good copies of artefacts. In order to avoid future problems of identification, legislation has been passed under the Antiquities Act requiring that any copies or replicas of artefacts must be clearly and permanently identified as such.

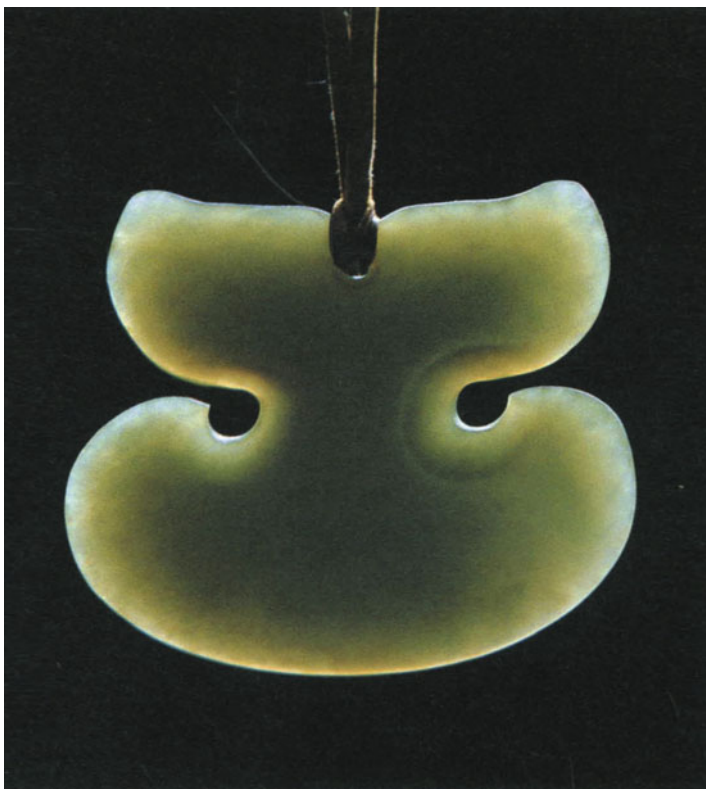


FIG. 45

FIG. 45 **WHALE'S TAIL AMULET**
Russell Beck, 1980. Width: 2¾ in (7 cm). Although not a traditional design, this stylized amulet, of inanga *Westland nephrite, with its two holes incorporates the negative shape of the Maori* koru *form. Contemporary neck ornaments are now worn by many new Zealanders of both sexes.*

Contemporary Carvings

The late 1940s onwards has seen a new era of lapidary factories. The increase in tourism and the exploitation of nephrite sources during the early 1960s provided incentives and today factories in Hokitika, Queenstown, Auckland and other places in New Zealand supply the jewellery and souvenir trade.

An increasing number of skilled professional jade-carvers have now established themselves as single or combined enterprises and are located at various places throughout the country. Their work is exciting, giving rise to superb original New Zealand carvings that incorporate all of jade's attributes. In general, their work is exciting with original designs that illustrate a deep understanding of the stone. The property of feel and simplicity of design has become important again as it was with the early carvings of many cultures. Some of these artists are, at last, continuing the rich heritage begun by the Maori who so ably expressed New Zealand's character in jade before being interrupted two centuries ago. In some respects these New Zealand carvers are ahead of their colleagues overseas, where all too often the achievements of earlier indigenous cultures are either just copied or ignored.

FIG. 46

FIG. 46 **MASK**
Ian Boustridge, 1990. Width: 12 in (30 cm). This sculptural piece, here juxtaposed with a piece of driftwood, emphasizes the colour and translucency of the kahurangi *variety of nephrite from Marsden, Westland.*

FIG. 48 **PENDANT**
Neil Hanna, 1990. 1¾ × 1 in (4.5 × 2.5 cm). A grid of Australian, Korean and New Zealand jades, divided by lines of sterling-silver laminate, comprises this handsome rectangular pendant.

FIG. 47 **ENVIRONMENTAL CONSCIENCE**
Rob Lynes, 1990. 7¼ × 6 × 4¾ in (18 × 15 × 12 cm). A dark green river cobble, weighing 8½ lb (4 kg), has been carved into a haunting head.

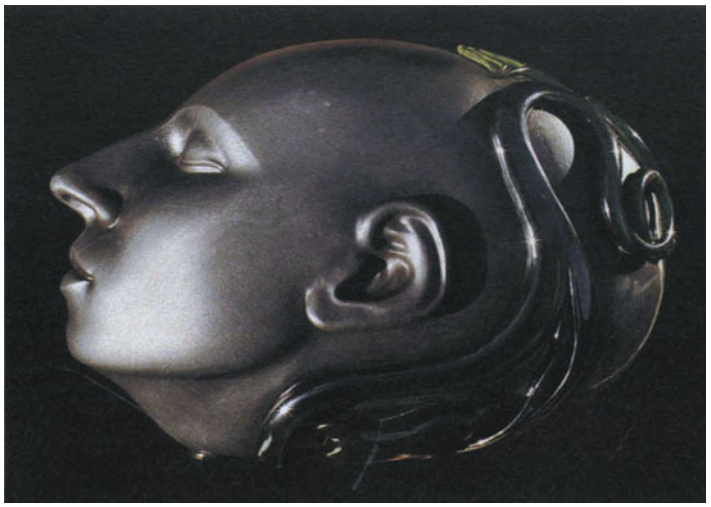


FIG. 47

FIG. 48

FIG. 49

FIG. 49 **KAREKARE**
John Edgar, 1969. Length: 6 in (15 cm). Much of the natural surface has been retained on this sculpture, whose sea-monster design has been carved into a water-worn cobble of Westland nephrite.

FIG. 50

FIG. 50 **RAM'S HEAD**
Richard Cotgrove, 1986. Length: 6¾ in (17 cm). Carved of olive green nephrite, this imposing sculpture is in the Southland Museum and Art Gallery, Invercargill, New Zealand.

JADE IN AUSTRALIA

FIG. 51

FIG. 51 **KANAK AXEHEAD**
Width: 7¼ in (18 cm). Such ceremonial axeheads were important symbols of chieftainship. This example, from New Caledonia, is in the Otago Museum collection.

Australia is one of the oldest major landmasses on earth and it is not surprising that its rich mineral resources would include jade. Two completely independent nephrite occurrences have so far been discovered, one in South Australia and the other in New South Wales. The greater deposit is found near the township of Cowell on the Eyre Peninsula some 140 miles (224 km) northwest of Adelaide in South Australia. Harry Schiller, a local farmer, discovered the nephrite in 1965 on his farm and adjacent property in the Minbrie Ranges.

Most nephrite occurrences are associated with ultramafic rocks, but Cowell jade is found in dolomitic marble and occurs as pods varying in length from 165 ft (50 m) to less than 3 ft (1 m). Over 115 outcrops have been recorded and some of these are spectacular jagged-toothed examples that so far have been preserved from mining.

Cowell jade occurs in a variety of colours but is predominantly darkish green with olive hues grading to black. The vivid greens typical of New Zealand or Canadian nephrite have not yet been found. The choicest material is an exceptionally fine-grained variety known as 'premium black', which is a superb carving stone. (Many New Zealand carvers use this material and have developed designs to specifically enhance its character.) Some Cowell stones exhibit interesting rind colours and patterns or have dentritic (tree-like) inclusions that offer special effects for carving. Stone textures range from medium- to fine-grained and sizable pieces free of fractures are available.

This deposit is very accessible and is regularly mined, with much of the production exported to the northern hemisphere. The South Australian government has provided considerable assistance in evaluating the potential of Cowell nephrite and has encouraged its commercial development; reserves are estimated at approximately 80,000 tons, making it one of the world's largest known jade deposits.[17]

The smaller nephrite occurrence was discovered in 1962 in rugged country near Weabonga, 25 miles (40 km) southeast of Tamworth in New South Wales. Here the nephrite occurs as boulders and outcrops of lenses up to

3 ft (1 m) wide in a sheared contact zone between serpentinite and quartz phyllite rock.

Tamworth nephrite is generally schistose, often with a strongly folded structure, but cores of the larger boulders are quite dense. There is a good range of colours from very pale bluish-green to olive to dark green, and the clarity varies from translucent to opaque. Specimens often exhibit black dentritic lace-like markings, especially near the rind and around fractures, which can be very attractive. Mining is presently only small-scale and spasmodic, with the better pieces quarried and sawn to size on the spot.

The Australian Aborigine people have occupied the continent for over 30,000 years and they utilized many different types of minerals for tools and other objects, but it appears that, unlike the Maori, the superior properties of jade were never recognized by them.

Australians have largely failed to appreciate their native jade as well, possibly because opal and other local gemstones are more spectacular than Australian jade, with its subtle colours. Some jade mines in the country were turned into a public corporation, however, so no doubt appreciation of the material will grow as more of it is successfully mined and marketed. Without an indigenous jade heritage it will take considerable time and effort before jade as an artistic medium reaches the status it now has in other countries. At present only a handful of contemporary Australian carvers work in jade. The level of craftsmanship is excellent but further development is inhibited by the competition from more popular gem materials. The great potential for expansion of jade in Australia remains unexploited.

FIG. 52

FIG. 52 *This quarry of black jade pod is located near Cowell, South Australia.*

FIG. 53 **TORTOISE**
Tim Thomson, Australia. Length: 3⅛ in (8 cm). The artist has used a mottled variety of Cowell nephrite to great advantage in this animated sculpture, in the collection of the Southland Museum.

FIG. 53

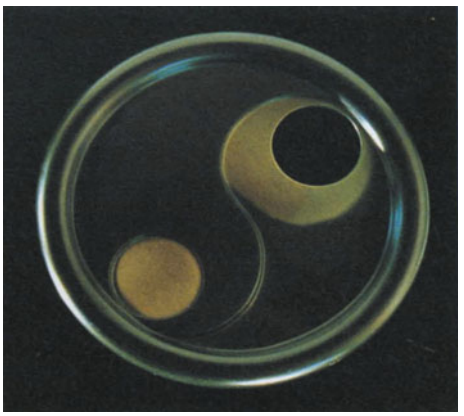


FIG. 54

FIG. 54 **PENDANT**
John Edgar, c.1980. Diameter: 2½ in (6.5 cm). Australian black jade has been carved into a round pendant.

FIG. 55

FIG. 55 **PENDANT**
Neil Hanna, 1990. 2 × 1¾ in (5 × 4.6 cm). The carver has combined New Zealand kahurangi *and Australian black jade in this open-work pendant, which is mounted in 18-carat yellow gold.*

FIG. 1 **JADEITE VASE**
Russian jade, early 20th-century. This vase is one of the famous Liu jades, a fine example of Russian jade sent to China to be carved into imperial-style 18th-century pieces. Its proportions are pleasing, nevertheless its compositional style reveals its later origins: the handles stand higher and prouder than an 18th-century example's would, and the curling leaf ornament on a plain ground would not be juxtaposed in this way. The mark across the frieze is also an unlikely feature. However, whatever its date it is a fine jade.

CHAPTER 10

JADE IN EUROPE

European and Russian Carving

ROBERT FREY
ROBERT SKELTON

JADE IN EUROPE

FIG. 2 **AXE-HEADS AND BEADS**
Britain, Neolithic. The longest axe-head (5 11/16 in (14.5 cm) has a smooth dark green tone with darker patches, one side with extensive calcification. The small axe-head, 3 5/16 in (8.5 cm), is dark green with black dots. The fine jade beads, their forms reminiscent of butterflies with outspread wings, are pierced in the centre for suspension. Of dark green tone with lighter green veins, their widths are 1 1/4 in (3.2 cm), 11/16 in (1.8 cm) and 3/4 in (2 cm).

FIG. 2

This section concerns raw jade finds in Europe and their uses, both ancient and modern. The main sites are listed below. Geological reports over the past few decades have included notices of small finds *in situ* in France, Germany and Finland but they are negligible in both quality and quantity. Many other pieces of both nephrite and jadeite, as rough stones and as finished objects, have been found all over Europe but the areas mentioned here are those where only verified local finds have been made. Others found may be of random occurrence as a result of natural causes such as the movement of glaciers or of human migrations.

Needless to say, if specimens of gem quality had ever been found in any of these European sources of nephrite or jadeite, there would have been much more interest in them and far more information in the literature. As it is, they are only curiosities in various museums and raw material for domestic lapidaries.

The exception in Europe to all of the above is Russia. Some carving has been done in European Russia, most famously in the workshops of Fabergé, though the raw materials come from Asiatic Russia. There are, also, some beautiful jade pieces worked in Prague in the 17th and 18th centuries, the significance of which is discussed by Robert Skelton.

Switzerland

Probably the most significant, and certainly the most utilized, sources of jade in Europe are in what is now Switzerland. The most extracted body of jade in Europe in this century

has undoubtedly been the deposit near the village of Poschiavo in Graubünden, the easternmost canton of Switzerland. At the peak point some 1,500 tons of nephrite-bearing rocks were removed per year from this deposit. Production ceased because of the danger of rockfalls. Much of the better material was carved in *heimatwerk,* or home-craft, shops, an activity much encouraged by the Swiss government. Poorer qualities of jade could be carved into objects such as ashtrays and better qualities into necklaces of 'Swiss jade'.

Switzerland is rich in deposits of actinolite and tremolite, both of which are precursors of nephrite. Deposits of talc and asbestos are also indications that nephrite might be found nearby. Swiss jadeite finds have been recorded, too.

In prehistoric times not only did the 'Swiss' lake dwellers use these stones themselves as tools, but it is very probable that jade stones were the first export from what is now Switzerland to all parts of Europe and the Near East. Jade axes and other tools from Neolithic times have been found thousands of miles from their Swiss sources.

A study done at the Museum of Natural History in London came to the conclusion that jade axes found in many different excavations all over Britain were made from raw material from Switzerland. For some inexplicable reason the tools made from jadeite have been found widespread over far more countries than those made from nephrite.

Italy

Astonishingly, the largest nephrite deposit in Europe is along the Italian Riviera between Sestri Levante and Monterosso. Outcroppings are found over a distance of about 14 miles (23 km). Evidently the quality of the finds is inferior and only of interest to academic geologists.

Poland

Silesia is a region on both sides of the Oder River, mostly in what is now southwest Poland. Close to the Czech border is an area called the Stone Mountains. More than 100 years ago some very large masses of nephrite were unearthed in that area and a number of them rest in various geological or natural history museums in both Europe and North America.

FIG. 3

FIG. 3. **AXE-HEAD**
Britain, Neolithic. Length: 9 in (23 cm). A rare tapering axe-head of triangular section, with a rounded head jagged with age. Of dark green stone with lighter and darker veins.

MANNERIST JADE-CARVING DURING THE 16TH AND 17TH CENTURIES

ROBERT SKELTON

FIG. 4

FIG. 4 **JADE CUP**
Prague, 1590-1600. Nephrite cup with lion head at one end, on a pedestal with circular base, carved by Ottavio Miseroni, now in the Kunsthistorisches Museum in Vienna (No. 1651).

As in other cultures, semi-precious stones have long been esteemed in European countries for their beneficial, talismanic or magical properties, but jade was not singled out for special appreciation as it was in Asia by the Chinese and Turkish peoples. Apart from the early use of both jadeite and nephrite found in Switzerland for the manufacture of prehistoric hand axes, European hardstone carvers appear not to have had access to jade and it was probably not before the Spanish incursion into Mexico in the early 16th century that Europeans became aware of what the Spaniards called *piedra de hijada*. After 1569, this term rapidly became known through the writings of the physician Nicholas Mondardes of Seville, so that in 1596 Sir Walter Raleigh was able to refer to it as 'a kind of greene stone, which the Spaniards call *Piedras Hijadas*, and we use for spleene stones'.[1]

It is probably due to the fact that jade was just one of many hardstones worked by Mannerist craftsmen in the late 16th and early 17th centuries that its study has been neglected by jade connoisseurs, hypnotized as they are by the jade carvings of China, and to a lesser extent by historians of Western art, for whose attention European nephrite objects must compete with the more plentiful and sometimes documented works in rock crystal and agate or other, often spectacular, minerals such as lapis, heliotrope, jasper and various other coloured quartzes.

Just as hardstone carving has a long history in Asia, it also reached an extremely high standard in classical antiquity, when different varieties of agate were carved, sometimes with astonishing virtuosity, in centres such as Alexandria during the Hellenistic period. During medieval times cathedral treasuries, such as that of St. Mark's in Venice, were the repository of many Roman, Sassanian, Byzantine and Islamic works in agate and crystal, where they usually received later gold mounts and were converted for use as chalices and reliquaries.[2] The carving of these minerals was also kept up at the courts of princes, such as the kings of France during the 13th and 14th centuries.[3]

With the revival of interest in the classical age on the part of humanists and princes of the Renaissance, late antique hardstone carvings were sought to embellish their collections. Cosimo de' Medici the Elder was already collecting such things in Florence by the middle of the 15th century and his son Piero continued this interest, but under Lorenzo il Magnifico the Medici collection of hardstones was greatly enlarged and Lorenzo's pride in these rare possessions caused the letters 'Laur. Med.' to be conspicuously engraved on many of them. In the following century under the Grand Dukes Cosimo I and his son Francesco the collection was enriched with the works of contemporary hardstone carvers working in the Mannerist style. The Saracchi and Miseroni families of Milan fashioned rock crystal and other semi-precious minerals into vessels of superb craftsmanship for these patrons, while other skilled artisans were invited to work in Florence in the newly built Casino di San Marco. This is where the Grand Duke Francesco liked to spend time with his artists and craftsmen, sharing their experiments in alchemy and the mechanical arts and working on rock crystal with his own hands.[4] By this time the craftsmen of Milan were in demand throughout the courts of Europe. Of those who worked for Cosimo I, Jacoppo da Trezzo and Girolamo Miseroni also spent time at the Spanish court, while Girolamo's brother Gasparo produced hardstone carvings for the Pope and the Habsburg Emperor Maximilian II.

When Maximilian died in 1576 he was succeeded by his eldest son, the Archduke Rudolph II, who had been brought up at the repressive court of Philip II in Spain to

develop a deeply disturbed but nevertheless complex and fascinating personality. Moving from Vienna to Prague in the years following his father's death, Rudolph sought respite from the problems of a Europe divided between Protestantism and his own strongly held Catholic faith by retiring further into a world of his own, dominated by speculations into philosophy, alchemy and science and enriched by his passion for every creation of man and nature that was strange, beautiful or rare. His Kunst-und-Wunderkammer in the Hradchany Palace became the archetypal exemplar of the microcosm through which intellectuals and their princely patrons of the day sought to exert control over the wider universe. Among other aspects of study these efforts to comprehend the worlds of nature and artifice promoted advances in the science of mineralogy and in mining technology. To further the investigations of alchemists in the archduke's service, to provide specimens for his collections of naturalia and to make rare materials available to his lapidaries, his agents and collaborators stepped up the search for rare and unusual minerals and geological specimens. The attitude behind these activities is well described by R. J. W. Evans: 'the Creator is approached through the harmony of His universe; everything must have its appointed place in that scheme, and this is the logic behind the great new search to classify animate and inanimate things, to view birds and beasts, plants, stones, and the rest in a systematic fashion. The collecting mania of the period was thus not of idle curiosity, but an attempt to organize diverse objects in a way that would reflect their original disposition, their place in the chain of creation.'[5]

Later writers building on the pioneering work of George Agricola, who published his *De natura fossilum* in 1546, included Anselmus Boethius de Boodt, who was Rudolph's herbalist and physician as well as his chief lapidary. De Boodt's *Gemmarum et Lapidum Historia,* originally published in 1609, was described by Dr Joan Evans as 'the most important lapidary of the 17th century' and is credited with being the first work in which the term *lapis nephriticus* appeared.[6] De Boodt gives his own eulogistic version of Rudolph's purpose in collecting stones as being 'not simply in order that he may thereby augment his dignity and majesty . . . but so that in them the excellence of God may be contemplated, the ineffable might of Him Who is seen to press the beauty of the whole world into such exiguous bodies and include in them the powers of all other created things . . .'[7]

A possible clue to the source of nephrite available to the Prague workshops is suggested by Rudolph's close association with the south Bohemian aristocrat Vilem Rožmberk, who had been the bearer of the crown at the archduke's coronation ceremony in Prague in 1575 and shared his enthusiasms for alchemical research and the hunt for precious stones and metals.[8] It therefore appears to be significant that one of Rožmberk's laboratories was in the castle at Reichenstein in Silesia, where Traube discovered boulders of nephrite in 1886.[9]

Whatever the sources of jade available to Rudolph's lapidaries, a significant number of nephrite vessels from the Prague workshops are still to be seen in the museums of Vienna, Munich, Paris and elsewhere, some being of considerable size.[10] In form and decoration there is nothing to distinguish them from other hardstone carvings, one of the most common shapes being that of a shell, sometimes lobed and not unusually with a lion or monster head at one end. A number of the jades are mounted on baluster pedestals with circular bases as in the case of actual shells or other natural specimens that found their way into the imperial collections. Others have leaves such as acanthus carved in relief on their undersides or curling over their edges – characteristics which appear two or three decades later in Mughal India. The names associated with some of the finest of these jade vessels are those of Ottavio Miseroni, who came to Prague from Milan in 1588, and his son Dionysios, who assisted him.

However, not all European jade carvings of the period conform closely to the formulations of Florentine and Milanese Mannerism. In a few cases there are hints that Far Eastern models are perhaps being followed, which may account for the occasional attribution of unrecognized Habsburg pieces to the Chinese Song and Ming dynasties. A late Ming two-handled cup with Ottoman gold and jewelled inlay (No. 1860) in the storage of the Kunsthistorisches Museum, Vienna, suggests access to Chinese models that might account for the form of a curious double-spouted and heavily lidded vessel (No. 1915) said to have been made in Prague. A large bowl in the Avery Brundage Collection, attributed originally to the Ming Dynasty and later to Fabergé, was affectionately termed 'the footbath' by its custodians. Similar large pieces of Prague manufacture are in storage in the Kunsthistorisches Museum (Nos. 1637, 1877, 1879, 1892, 1979, 6828–9), while a smaller example which found its way from the Habsburg collections to the Osterreichisches Museum für Angewandte Kunst (No. 1981), was attributed by the late King of Sweden to the Song Dynasty.

Other European jade pieces, such as three gadrooned bowls in Paris, show a remarkable resemblance to 18th-century Mughal examples but the questions which arise from these similarities remain to be investigated.[11]

There seems little evidence that jade continued as a medium for European hardstone carving after Rudolph II's death in 1612 and it remained for Fabergé, drawing on more remote sources of supply, to bring it back into vogue.

JADE IN RUSSIA

FIG. 5 **CIGARETTE CASES** *Russia, c. 1899. A pair of gold-mounted and gem-set nephrite cigarette cases carved by Fabergé in St Petersburg; a superb pair, the stone of high quality.*

FIG. 5

There has been more research on the subject of jade finds in Russia than in any other country in the world excepting China. Unfortunately, only a small part of that research literature has been translated. Even fluent students of today's Russian language have difficulty with the pre-Revolutionary Russian usage which, as in China, went through government-sponsored linguistic modernization in this century, and to depend on non-Russian sources for a study of Russian jade is less than satisfactory.

As in China, gems and gem-carving had court patronage in Russia and lapidary factories established under the Tsars have continued to this day. There were nephrite finds mentioned in Russian publications as far back as the 1790s, but expeditions to find nephrite sources for the imperial workshops were not instigated until 1850. Despite exceedingly difficult travelling conditions and the hostile climate in Siberia, sources were found and recorded and some material was brought back for the imperial workshops in Peterhof. A number of other regions in Asiatic Russia were later surveyed for nephrite and an expedition, sent in 1895 to find a block suitable for carving into the sarcophagus of Tsar Alexander III, found choice emerald-green veins in sufficient width for that purpose. A characteristic of that material, and much other found in Russia, was black flecks throughout the green nephrite. These were first thought to be graphite but later investigation proved them to be chlorite.

As in China, scientific archaeological investigations in Russia began in the 1920s. The archaeologist who did the most work in the nephrite regions was A. P. Okladnikov. Over a span of 30 years he published many papers and Neolithic nephrite tools loom large in the excavated artefacts mentioned, some of which have been dated back to 2000 BC. Ancient man had yet again recognized the qualities of jade for making durable tools and, later, ornaments.

As far back as the Ming and Qing dynasties in China, if not earlier, there was trade in raw nephrite from parts of Asiatic Russia to carving workshops in Beijing and other carving centres, and many documented Chinese pieces exist to prove this jade traffic. Indeed there are also late 16th- or early 17th-century Mughal jades carved in India that used this material.

In this century part of a large boulder of Russian nephrite, confiscated by the Communists from the imperial workshops, was sold to a Chinese comprador in Beijing by the name of Liu. It was of such an intense, brilliant green that some thought it to be Burmese jadeite. Liu had it

carved into classical shapes in Beijing with, as was usual, the seal mark of the reign of the Qianlong emperor (1736–1795) incised. These pieces were introduced into the market from 1920 onward and 'Liu's jades' have had a fame of their own. An example of this brilliantly coloured jade, in the collection of the Lizzadro Museum in Illinois, is shown in Fig. 1.

Jadeite has also been found in the Sayan, the area most important for nephrite, and it was claimed in 1978 that the first finds of gem-quality jadeite were made there. However, what has been seen on the market to date would only compare with third-rate raw jadeite stones from Burma.

Where carved Russian jade is concerned, in the lapidary, museum and auction worlds there is only one outstanding figure – Peter Carl Fabergé. From 1870 to the Russian Revolution a flow of creations from Fabergé's workshops poured forth for a discriminating clientèle that ranged from royalty to merchant princes. While his craftsmen selected metals, minerals and gems from all over the world as materials for their creations, there was an understandable preference for native Russian sources, which were rich in all three: fine metals, rare minerals and precious gems. Nephrite was a favourite for lapidary productions either as whole carvings, as with charming animals, or partial incorporations, as in a clock body or cigarette case. In Fabergé lapidary flower arrangements, the leaves were invariably Siberian nephrite. A range of these Fabergé miniature masterpieces incorporating nephrite is illustrated here.

As far as the future of jade carving in Russia is concerned, it is hoped that there will be a renaissance of fine work; the raw materials are there – it is the hand of man and the incentive that count.

FIG. 6

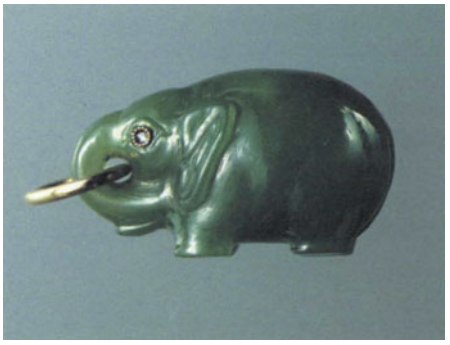


FIG. 8

FIG. 7

FIG. 6 **INDIAN ELEPHANT**
Russia, c. 1900. Length: 13/16 in (2.1 cm). A superb jewel in the form of an Indian elephant, carved by Fabergé in St Petersburg. The detail and small size in no way detract from the overall impact of this sculpture.

FIG. 7 **FABERGÉ CUP**
Russia, late 19th-century. This fine jade marriage cup was carved by Carl Fabergé from Chinese jade. An otherwise humble piece of jade is enhanced by the setting: silver stylized panther-head motifs are set with six cabochon amethysts.

FIG. 8 **EGG PENDANT**
Russia, c. 1895. Length: 1 3/4 in (4.5 cm). A miniature egg pendant in the form of an elephant by Carl Fabergé, carved in St Petersburg. Carved from nephrite, rose diamond eyes are set within gold collets. An excellent sculpture, the spherical form is emphasized by the curl of the elephant's trunk.

FIG. 1

FIG. 1 **BURMESE JADEITE**
A group of jewellery pieces carved from distinctive emerald-green Burmese jade. The colour and quality are particularly fine. The pieces were carved in China in the 19th century – jadeite from Burma was and is regarded as the most important world source.

CHAPTER 11

JADE IN BURMA

The Major Jadeite Source

ROBERT FREY

BERTIL LINTNER

A better title for this chapter would be Jade from Burma: Burma (or Myanmar, as it has called itself from late 1990) is famous as the most productive source of jadeite in the world today and it has held that title for more than 250 years. However, it is most noted as an exporter rather than a worker of its own stones.

This export of raw stones, particularly to China, surged during the reign of the Qianlong emperor (1736–1795), when it became the newly favoured carving material in the imperial workshops. However, there is good evidence that this traffic in jadeite started thousands of years earlier. If we look at a Burma/China map (using the proper names prevailing today) the trading patterns are quite clear for both the past and the present. The jadeite sources, both alluvial and mined, are in the Kachin State in the northern tip of Burma, relatively close to the Indian and Chinese borders. Transportation of rough stones is by river and road and can go via Bhamo directly into China's Yunnan Province. This northwestern part of Burma has been in the past a part of the Chinese Empire, so there would have been no barriers to trade.

Tomb jades from burial sites as far back as the Han Dynasty (206 BC–AD 220) have been found in more central parts of China and these ancient jades have been carved from both nephrite and jadeite. The latter is not native to China, and although more scientific testing is necessary to fully confirm Burma as the jadeite source the probability is very high.

A number of Geological Surveys were sponsored by the British Government when they controlled Burma, which thoroughly covered the jade finds and their mining.

The costliest jade in the world, by weight, is the Imperial-green jadeite from Burmese mines. Prices of this material, when flawless, can approach diamonds, carat for carat. Thus most of the items cut from this rare and elegant translucent Imperial grade are cabochon stones to be set in rings. A cabochon of Imperial-grade jadeite can cost 10,000 times the price of a similar size cabochon of Utility grade. The colourful chart, devised by John Ng and Edmund Root (Fig. 2) graphically shows the range from perfection in Imperial-green to garden-variety green. Other colours in jadeite are shown as well, but the greener stones are always favoured.

Some carvings made from jadeite stones of Imperial grade have been setting record prices in recent auctions. At the pre-auction showings, jewellery dealers have been seen with calipers in hand measuring some of these carvings to calculate whether they might fetch more money if cut up into cabochons. The auction prices realized have been too high to make such recarving profitable, fortunately.

Today, theoretically, all raw jade is property of the State of Burma. It is supposed to be sent from the Kachin State to Rangoon, where the government sorts raw stones into three grades, Imperial, Commercial and Utility, and holds annual auctions. Overseas buyers are welcomed to these auctions and have an opportunity to inspect the cobbles or boulders before bidding. Only a small window or eye is cut into the rough stone, and polished, and it is sometimes quite a gamble bidding on the top grades – an eye may show Imperial-grade green but the balance of the stone, after being sliced, could turn out to be a washed-out celadon hue or worse.

Even before state control of the jade export industry Burmese kings made forcible attempts at a monopoly of the jade trade. Then, as now, there was a great gap between theory and practice. The permeable borders of Burma, China, Laos and Thailand have a far greater jade trade east and southeast of the Kachin sources than directly south to Rangoon. Other saleable products, like rubies, sapphires and opium, also take some of these same back-door paths. Such shipments are so valuable that armed guards have always been necessary but shoot-outs and highjackings still occur. Once over the border the trade (except for opium) can become quite respectable and the cargo travels on for cutting and polishing in Bangkok, Beijing, Hong Kong and points farther east. Traffic in opium to China is strictly forbidden but the other countries involved are not so concerned with such policing.

The story of jade from Burma today is best told by Bertil Lintner, one of the current authorities on Burma despite the present difficulty of visiting that country. His story of the tortuous route from jade mine to jade market gives some clue to its rarity and price.

The Jade Trade in Burma

BERTIL LINTNER IN THE HUKAWNG VALLEY

There may not be many places in southeast Asia where people are prepared to pay US$100 for a bottle of Hennessy cognac or French champagne, $10 for a pint of beer, $3 for a bowl of noodle soup, and over $130 for a pair of running shoes from South Korea. But exorbitant prices seem to matter little in Hpakan in northern Burma, where some people are said to have become millionaires by accidentally unearthing a big, green boulder while digging latrines outside their houses.

Thousands of fortune-seekers flock every year to the jade mines at Hpakan, the 'jade capital' of Burma's Kachin State. The jade diggers usually fall into two categories: they are either seasonal migrants – farmers, students and government employees – or full-time professionals.

Officially, the Burmese government allows jade mining only at three places: at Hpakan, and at the neighbouring

FIG. 2 JADEITE VARIATIONS
A chart showing the colour range of jadeite – the 50 most representative tones have been selected from several hundred possibilities.

GREEN COLOUR TERMINOLOGY
Sections 1-7 are green, arranged in order of rarity from 'Old Mine' to 'Melon'. Sections 8-10 exhibit other important hues.

1. *Imperial/Emerald = Old Mine*
2. *Glassy = Canary*
3. *Apple Green = New Mine*
4. *Spinach = Oily*
5. *Moss-in-Snow =*
6. *Pea Green*
7. *Apple Green = Flower Green/Melon*

For quality analysis, consider: a) tone – the finest colours are penetrating and vivid, pure and evenly distributed; b) translucency – the highest quality has a 'honey-like' appearance; c) texture – the best is clear and free of irregularities. Fine root-like structures within the stone which contrast or enhance depth of body colour may add to visual appeal; dark, irregular specks or clouds which detract from the colour are undesirable.

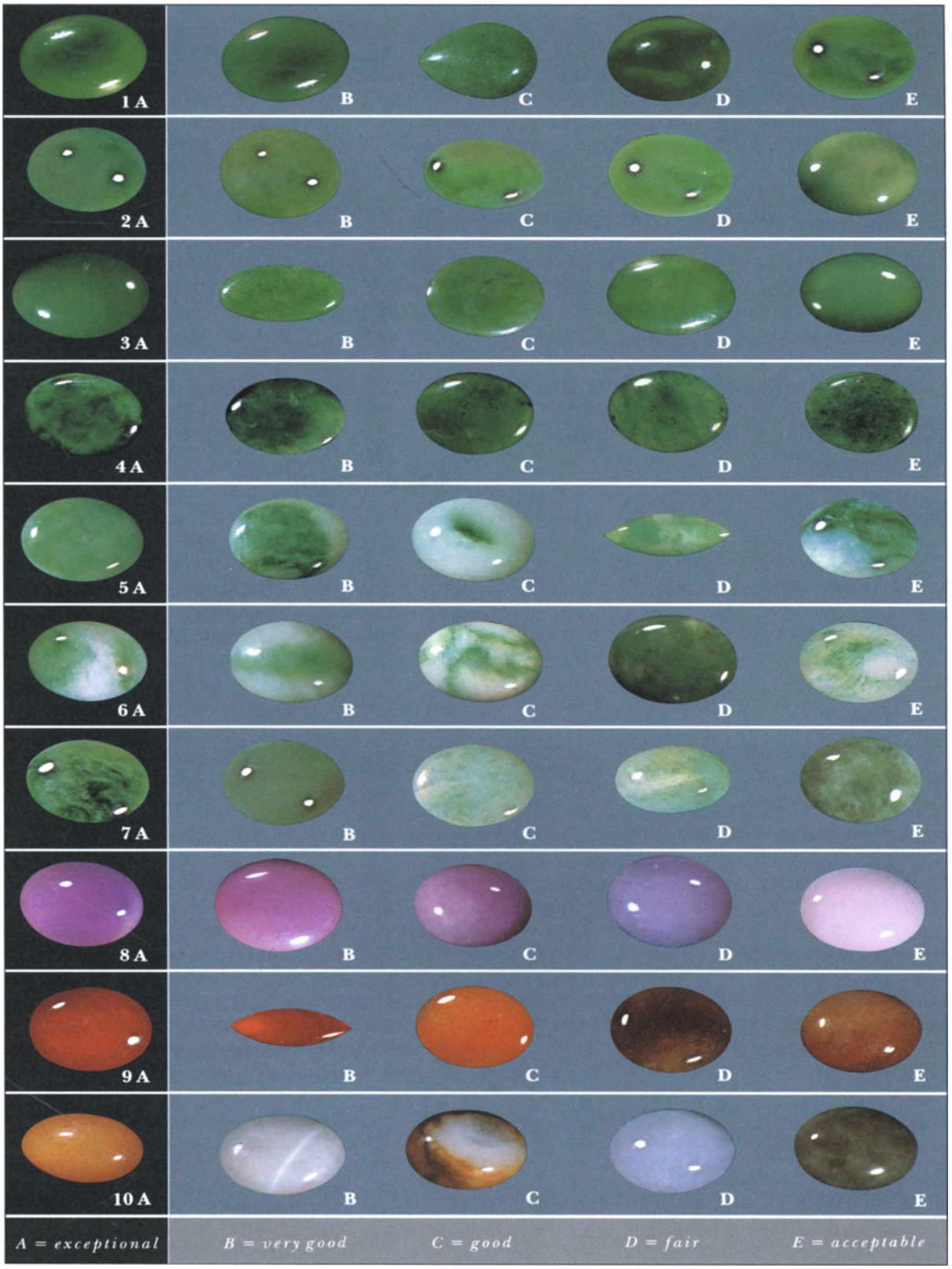


FIG. 2

villages of Waje Maw and Sanchyoi. There, the work is carried out by government-employed diggers who receive a monthly salary plus a 10–20 per cent commission on the high-quality jade they find. This jade is later sold to international buyers at the yearly government-organized extravaganza at Inya Lake Hotel in Rangoon.

However, given the vast amounts of money in circulation, it is hardly surprising that the diggers can bribe the local officials, who are more than eager to get their share of Hpakan's fortunes. It is even said that big Hong Kong-based jade companies have their own, secret representatives among the Hpakan officials, who supervise the work, organize the buying and then hire agents to transport the boulders out from the actual mining area.

Local people with experience of jade digging tell how Burmese Army officers go looking for 'illegal' diggers, and shoot them if they cannot pay the demanded extortion: 'If those killed have only a small amount of jade, the officers keep it for themselves. But if they have a lot of jade, it's difficult to hide and the army people are obliged to hand it over to the government'.

Corruption in Burma – a country which virtually lives off smuggling and black market trade – is by no means confined to Hpakan, but the situation there is aggravated by the immense wealth of the place, and the fact that some major jade syndicates are connected with drug smuggling rings. Several big traders use opium and heroin as currency – to finance the purchase of jade at the mines.

The rampant corruption at Hpakan could be the reason why army units are deployed there on a rotation basis. One battalion of government troops never stays more than six months in the area – enough for an officer to make a fortune, but not long enough to let rivalry erupt between him and those colleagues who are waiting for their own tour of duty at the jade mines. Army deployment in the area is heavy, but nevertheless confined to Hpakan town and the government-controlled jade mines of Waje Maw and Sanchyoi. In addition, a company-sized contingent is always based at Lung Hkang junction, where the road to Hpakan branches off to Kamaing in the Hukawng Valley. The surrounding hills and the countryside – where most jade mines are located, including the famous mines at Tawmaw, north of Hpakan – have also long been controlled by the Kachin Independence Army (KIA).

The Kachin rebels first occupied parts of the jade mine area in 1963, and 'tax' on the jade trade as well as yearly licences or so-called 'digging tickets' have since been a main source of income for the KIA. The rebel army maintains a number of checkpoints around the mines – as well as one on the main Lung Hkang to Kamaing road – and a 10-30 per cent 'tax' is levied on jade that merchants bring out from the area.

A Kachin rebel taxation officer explained that yearly takings, including 'tickets', at the KIA toll gates around Hpakan amount to Kyats 8–10 million, but added that only 25 per cent of the jade may pass through the rebel checkpoints: 'The most precious pieces are smuggled out, and the total value of the jade extracted from the Hpakan area could be as much as Kyats 100 million a year.'

The real profit, however, is made when the jade reaches the Thai border, usually the first frontier point on the long smuggling route from Burma's Kachin State to Hong Kong, the world's main marketing centre for jade. Prices at the Thai border are said to be five to ten times as high as in Hpakan, and sometimes even more if the jade is of good quality. But before the jade comes that far, it has to pass through many stages, involving more bribes to government officials and 'taxes' to various rebel groups along the way.

The clandestine representatives of the international jade syndicates at Hpakan are not in a position to evade bribes but, it is reported, they bypass the KIA's checkpoints on the Kamaing road by bringing most of their cut and uncut jade boulders down the Uru Hka and Chindwin rivers to Homalin. Blocks of jade are usually tied to rafts or small country boats for the downriver journey. There is only one Burmese Army outpost along this route – at Nawngpu-awng – and bribes ease the way here as well as in Hpakan. From Homalin, the jade continues by steamer down the Chindwin, or hidden in paddy-baskets and under heaps of straw on bullock-carts, until it reaches the railhead of Monywa. From there, rail and lorries take over for the onward trip to Mandalay, Taunggyi and even as far south as Rangoon and Moulmein.

Along the way to Monywa, a small percentage of the jade is diverted to India via the Tamu-Moreh border market in Manipur State. This border-crossing point is a main centre for contraband trade between Burma and India, but the demand for jade is not high among the Indians; the customers on that side are the 40,000 or so ethnic Chinese who live in Calcutta, and a few other places in eastern and northeastern India.

An elaborate network of local agents exists along the route, who usually have connections among themselves even if they work for different syndicates, and are responsible for the various stages. One group would take care of the Hpakan-Mandalay section, another would be in charge of the stretch from Mandalay to Taunggyi, Rangoon or Moulmein, and a third party would ensure that the goods are delivered across the border in Thailand, or sometimes by boat from Moulmein to Penang in Malaysia, or even on to Singapore.

On minor routes during the last leg, before reaching the Thai border, some smaller traders have to pay additional 'transit fees' to the various insurgent groups: the

Karen rebel army if the goods are going south to Bangkok, or the Karenni army if the destination is Mae Hong Son and Chiang Mai via Loikaw in Kayah State. Most of the border however between Thailand and Burma's Shan State is controlled either by remnants of the Nationalist Chinese Kuomintang or by Chang Shee-fu (alias Khun Sa) and his powerful private army. Both groups are dominated by ethnic Chinese businessmen who run their own jade syndicates and mercenary armies across the Burmese border.

Running the gauntlet into Thailand is becoming tougher, but the jade trade, which has brought much of the present wealth and well-being to Chiang Mai, is nonetheless seen by some observers as potentially even more lucrative than the closely connected drug trade, which sometimes is carried out by the same syndicates. This is becoming ever more significant as international police agencies in Thailand are stepping up their action against narcotics smugglers; unlike heroin, jade becomes legal commodity once it has crossed an international frontier. John McBeth, a south-east Asia-based journalist, some years ago commented about the previously much used route from Taunggyi and Kengtung in Burma's Shan State down to the Thai border at Tachilek-Mae Sai: 'A series of ten checkpoints or 'Gates' along the rutted road to Tachilek are kept wide open by the well-greased palms of officials.' The same now can also be said of the new smuggling routes along which both jade and heroin pass through central Burma – where international police control is non-existent – down to the Tenasserim coast. Well-informed sources assert that it is not difficult to bring any kind of goods through Burma, if one can afford to pay the price. Small traders reportedly deposit their goods with the policemen who check the passenger baggage on the Myitkyina-Mandalay and Mandalay-Rangoon trains; it is also possible to leave the contraband with the train driver, these sources say! The 'fee' here would not be more than a few thousand Kyats, or less than 10 per cent of the goods, which can be heroin, raw opium or jade. Bigger traders even bribe government officials to obtain 'letters of introduction' stating that they are intelligence agents on duty, and that their luggage should not be checked.

However, it seems that recent events along the Sino-Kachin border may change and drastically alter the entire network of underground trade through Burma down to Thailand, Malaysia and Singapore. As a result of the rapid modernization drive launched by Deng Xiaoping in China, baggy trousers and old Mao jackets are losing their former popularity – and jade is back again. According to one source along the Sino-Kachin border – 'Previously, the only decoration Chinese women could wear were red Mao badges. Now the mainland Chinese want to set off the beauty of their women as the overseas Chinese do. Jade is undergoing a renaissance in the People's Republic'. Buyers

FIG. 3

FIG. 3 *Cross-section of Burmese jadeite.*

from Beijing and Shanghai are coming down to the border between China and Burma's Kachin State, and are reported to be gradually improving their knowledge, almost matching that of the Chinese jade merchants of pre-revolutionary days. Most of this purchased jade seems to be earmarked for the domestic market, though some gemstones, jewellery and carvings are sold in Hong Kong via the many outlets the Chinese government maintains in the still-British territory.

The exact amount of jade now being sent to China is difficult to determine, and as far as the value goes, it may not exceed 5 per cent of the total output at Hpakan. But the quantity is increasing steadily, since it is a much easier route to China than down to Thailand. I have seen convoys of jade-laden elephants winding their way up the steep mountain passes along the Sino-Kachin frontier, and there is little doubt that the routes of the former jade caravans to Tengchong in Yunnan are opening again. The most frequently used routes lead from Hpakan to the KIA-controlled border settlements of Pa Jau and Loije, with a smaller amount reaching China via Kambaiti Pass to the north, which is controlled by the Communist Party of Burma. Most jade goes from the centre at Mandalay via Lashio to Juili north of the Shweli border river in order to avoid the rebel 'tax' gates. It is not far-fetched to assume that the direct routes to China are destined to become more important, especially when Hong Kong returns to Chinese hands in 1997. Whether that will severely affect the jade trade with Thailand remains to be seen, but, without doubt, that route will inevitably lose much of its present significance. If that should prove to be the case, the drug syndicates which are based along the Thai-Burmese border may also be affected. Without jade as a supplementary commodity, some observers suggest that the heroin trade will become less profitable and more difficult to continue effectively.

May 1987

FIG. 1 **LOTUS PETAL CUP** *Mughal-style Chinese, 18th-century. Diameter: 4¾ in (12 cm). A fine stem cup of unusual foliate form, the whole modelled with overlapping lotus petals tied with a string of beads. This elegant jade, of an even white tone, has finely incised details that contrast with the thicker, well proportioned lips. Mughal jades found great favour at the court of Qianlong (1736-95), and this is a superb example of the Mughal style being incorporated into a Chinese vessel.*

CHAPTER 12

ISLAMIC AND MUGHAL JADES

The Jade-Carving Tradition in Turkestan, Persia, Turkey and India

ROBERT SKELTON

THE TIMURID AND OTTOMAN TRADITION

FIG. 2

FIG. 2 **BOX AND COVER** *Mughal, 18th-century. Length: 3¼ in (8.25 cm). A box and cover of petal or leaf form, the lobed cover with a spherical knop. The lower half is divided into three sections. The stone is a pale green tone with russet markings, and is inset with floral sprays in the form of gold strands uniting dark green jade flowers and ruby leaves. This is a well rounded and pleasing example inspired by a natural petal or leaf.*

The Timurid Dynasty in Turkestan

Although the countries of the Islamic Near East inherited the technology for working hardstones from the ancient empires of Western Asia such as Sassanian Iran and Byzantium, it was not until the early 15th century that we find these skills being consistently applied to the working of nephrite jade.[1] Prior to this, the most spectacular Islamic hardstone objects were the superb rock crystal vessels produced for the Fatimid rulers of Egypt during the 10th and 11th centuries AD.[2] Less ambitious, but far more prolific than these rarities were the amulets and personal seals made from various hardstones and used throughout the lands of Islam down to the present time.[3] This widespread tradition of seal engraving ensured that the technical means of working materials of similar hardness to jade was readily available throughout the region. Therefore it remained only for Muslim hardstone workers (*hakkak*) to gain access to adequate supplies of nephrite for the art of jade-carving to develop.

In view of the longstanding Chinese tradition of jade-carving and connoisseurship, and the sporadic control of the sources of supply and established arrangements for traffic in the raw material, it was perhaps inevitable that the beginning of jade-carving under Islamic patronage would be dependent upon major political events that would unite large areas of Asia and permit the free flow of materials and ideas. The first of these was the dramatic rise of the Mongols under Chingiz Khan in the 13th century, which left virtually the whole of Asia from Baghdad to China under the control of his successors. This introduced a whole new vocabulary of Far Eastern motifs into the design repertoire of Near Eastern craftsmen though, unlike their cousins in China, there is no evidence that the Ilkhanid

rulers of the western Mongol domains were patrons of jade-carving. It was in fact under the Timurids, a later dynasty of Turko-Mongol descent, that the craft appears to have been set up under Islamic patronage – with the black jade tombstone of the dynasty's founder, Timur, as its first documented example. This celebrated conqueror, the ferocious Tamburlane of Marlowe's play, claimed descent from Chingiz Khan and emulated his predecessor's ability to overwhelm vast tracts of the Asian continent. Among the fruits of his conquests were craftsmen dragged from cities as far apart as Delhi and Aleppo to adorn his capital at Samarqand in Soviet Central Asia.

Before his death in 1405 Timur divided his territories among his immediate descendants, of whom his highly educated grandson Ulugh Beg Mirza became governor of Samarqand – though he only succeeded to his father's royal titles in 1447, two years before his own death. As governor of the city, Ulugh Beg added greatly to the splendour of its architecture and also gained lasting fame among Muslim scholars as an astronomer, founding an important observatory.

During a campaign against the Mongols in 1424–5, Ulugh Beg captured two large blocks of black or very dark green nephrite and it was on his orders that these were transported to Samarqand to be carved and inscribed for use as Timur's tombstone. The result (see Fig. 3) was somewhat coarse in execution but the craftsmen of Samarqand soon showed that they could produce smaller objects of greater refinement, and there is some evidence that an awareness of Chinese jades provided a stimulus. Among

PRINCIPAL REIGNS

Mongols	
Chingiz Khan	1206 – 1227
Kublai Khan	1260 – 1294
Timurids	
Amir Timur (Tamburlane)	1370 – 1405
Ulugh Beg	1447 – 1449
Husayn Bayqara	1470 – 1506
Safavids	
Shah Isma'il	1501 – 1524
Shah ᶜ Abbas I (The Great)	1588 – 1629
Shah ᶜ Abbas II	1642 – 1666
Ottomans	
ᶜ Uthman	1281 – c.1324
Muhammad II (The Great)	1444 – 1446 & 1451 – 1481
Sulayman II (The Magnificent)	1520 – 1566
Mughals	
Babur	1526 – 1530
Humayun	1530 – 1556
Akbar	1556 – 1605
Jahangir	1605 – 1627
Shah Jahan	1628 – 1658
Aurangzeb	1658 – 1707

FIG. 3

FIG. 3 **TIMUR'S CENOTAPH** *Samarqand, c. 1425-30. The cenotaph of very dark green or black nephrite installed by Ulugh Beg over the grave of his grandfather Timur, in the Gur-Amir mausoleum, Samarqand. This is the first recorded example of jade being worked under Timurid patronage, though it is known that Timur himself acquired a block of nephrite before his death in 1405.*

FIG. 4

FIG. 4 *Map showing the Islamic and Mughal empires and dynasties.*

FIG. 5

FIG. 5 **NEPHRITE BOWL** *Late Timurid/Safavid. Diameter: 5 11/16 in (14.5 cm). Decorated with a lotus and peony scroll carved in intaglio on the walls, and with a Persian verse beneath the rim. Probably of late Timurid workmanship. Now in the Louvre.*

FIG. 6

FIG. 6 **DRAGON-HANDLED CUP** *Timurid, c. 1425-50. Diameter: 6 1/4 in (16 cm). A black nephrite wine cup with a dragon handle, made for a Timurid patron in Transoxiana in about the second quarter of the 15th century, and later given by Shah ʿAbbas I of Iran to the shrine of his ancestor Shah Safi at Ardebil. Now in the Iran Bastan Museum, Tehran.*

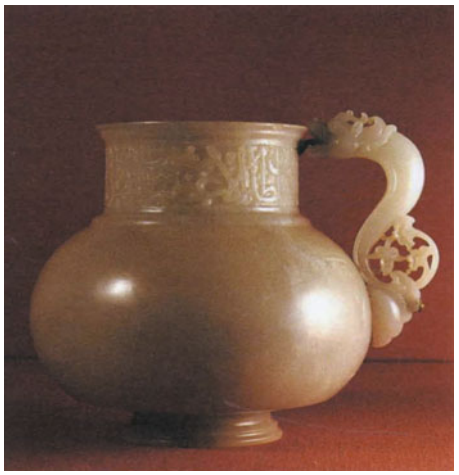


FIG. 7

FIG. 7 **WHITE NEPHRITE JUG** *Samarqand, c. 1447-79. Height: 5 11/16 in (14.5 cm). Nephrite jug made in Samarqand for Timur's grandson Ulugh Beg, whose titles are carved on the neck. In shape it follows a well-known type of inlaid brass dragon-handled jug made in Khurasan during the 15th century. Now in the collection of the Calouste Gulbenkian Foundation in Lisbon.*

the surviving jades inscribed with Ulugh Beg's name is a cup of Chinese form in the British Museum, whose bowl is clasped by a *chi*-dragon peeping over the rim to form a handle.[4] There is no reason to regard this as being Central Asian rather than Chinese in workmanship, particularly when there is evidence that Ulugh Beg received jade vessels from the Ming court in 1445. Other jade objects inscribed with Ulugh Beg's name or titles are clearly not Chinese and enable us to determine the essential characteristics of jade-carving under Timurid patronage.

Whereas Ming jades are often based on organic forms, the early Timurid examples derive largely from metal shapes such as shallow silver cups, circular or elliptical in plan, or brass jugs with nearly spherical bodies and wide cylindrical necks. Most of the vessels have dragon heads forming the tops of their handles (see Fig. 6 for example) and similar dragon heads were used as terminals for the quillon blocks of jade sword hilts. The forms of the vessels tend to be severe and the dragon terminals show an aggressive vitality which conforms to the early Timurid reputation for princely power and military force. The strong masculine appearance of these objects is emphasized in most cases by the evident Timurid preference for black or dark green nephrite. This may have partly resulted from the initial availability of black jade captured from the ruler of Mogholistan; there could well have been a surplus from these blocks available for the manufacture of small items such as cups. In fact it appears that one piece had reached Samarqand before Timur's death in 1405,[5] two decades before Ulugh Beg transported the two blocks used to embellish his grandfather's tomb; we should not discount the possibility that this material acquired earlier by Timur himself was already being worked before Ulugh Beg assumed his role as the craft's leading patron.

Whereas a dark material and strong forms predominate within the Timurid jade repertoire, it is clear that white jade was also available and that its sensuous appeal was capable of stimulating the jade workers to heightened levels of craft sophistication. This is seen to some extent in a small white jade pot bearing the titles of Ulugh Beg's nephew ʿAla ud-daula, in the Avery Brundage Collection in San Francisco,[6] which is softer in outline and more smoothly polished than most dark jade pieces.

These qualities are even more pronounced in Ulugh Beg's magnificent white jade jug now in the Calouste Gulbenkian Collection, Lisbon (see Fig. 7).[7] This has the owner's titles engraved in monumental characters around the wide neck though, unusually in this case, the inscription is raised in relief and the finely carved dragon handle was made separately and riveted to the body, as were the separately cast handles of its brass prototypes. Subsequently, this vessel came into the possession of the Mughal emperors

FIG. 8

FIG. 8 **GOLD-INLAY CUP** *Timurid, 15th-century. Height: 1¾ in (4.5 cm). A cup with an everted lip and narrow foot ring, the dragon handle with a bracket below. The surface, of dark green tone, is inlaid in gold with scalloped cartouches, scalloped medallions and spiral stems. This unique cup is one of the few surviving gold-inlaid Timurid pieces (a form of decoration which became popular in Ottoman and Mughal jades). It differs from one other Timurid example however – the Ulugh Beg cup in the Bharat Kala Bhavan, Benares – in that it is the first-known example to be based on a Chinese porcelain, with a flared rim.*

Jahangir and Shah Jahan, as recorded in inscriptions around the rim and below the handle.

The existence of yet another white jug made for Ulugh Beg is suggested by a passage in Jahangir's memoirs, in which he states that on the 19th June 1608 'Munis Khan, son of Mihtar Khan, presented me with a jug of jasper [jade], which had been made in the reign of Mirza Ulugh Beg Gurgan, in the honoured name of that prince. It was a very delicate rarity and of a beautiful shape. Its stone was exceedingly white and pure. Around the neck of the jar they had carved the auspicious name of the Mirza and the hejira year in riqa' characters. I ordered them to inscribe my name and the auspicious name of Akbar on the edge of the lip of the jar.'[8]

Unlike the jug referred to by Jahangir, the Gulbenkian vessel was inscribed for Jahangir in the year 1613 and Ulugh Beg's inscription does not contain a date. Otherwise the descriptions are so close that one wonders whether the emperor got confused over the dates, particularly as Jahangir's inscription does mention his father Akbar and both inscriptions are in the positions described in the memoirs.

Hitherto the Gulbenkian jug has been dated between 1417, when Ulugh Beg took the title Gurgan, and his death in 1449. However, other regal titles in the inscription were probably not assumed by him before his father's death in 1447. This would imply that the jug was made at the end of his reign, thus accounting for the sophistication of execution and design that one would not otherwise expect during the very earliest stage of the craft's development in Transoxiana.

No Timurid jade object can be dated with absolute precision but in the field of miniature painting we see a growing delicacy and refinement during the course of the later 15th century and it would be surprising if the parallel art of hardstone carving were not affected by similar expressions of taste. A departure from purely metallic forms is seen in the only dated hardstone object from a Timurid court, a wine bowl made for Sultan Husayn Mirza of Herat and dated 1470–1, but this is of agate rather than jade.[9] Its hemispherical shape with a low foot ring is paralleled in both contemporary Iranian pottery and Ming porcelain; overlapping cartouches on the walls contain the name of the patron and date, and a band below the rim contains verses in celebration of wine, which leave no doubt about its function within a dynasty which bred some noted inebriates. A similar band containing verses is found on a dark green bowl in the Louvre (see Fig. 5),[10] which, with its flared rim, even more clearly imitates imported Ming porcelains and their Iranian imitations. Its decoration of peony and lotus scrolls closely resembles the Chinese blue and white porcelains which were donated to the shrine of Ardebil by Shah ᶜAbbas I of Iran in 1612[11] together with both Timurid and Chinese jade vessels. Unlike most other Islamic jades, the scroll decoration on this piece is carved in intaglio – a feature it shares with an inkpot made for the Mughal Emperor Jahangir by a *hakkak* with an Iranian-sounding name in 1619 (see Fig. 16). This being so, it is pertinent for us to question whether the Paris bowl is a late Timurid object or whether it was perhaps made in Iran under Safavid patronage during the 16th century. So far, the Timurid attribution and a date in the second half of the

15th century have found more supporters and this may be partly due to the fact that Iranians do not appear to have held jade in the same high regard as did those of Turkic ancestry: the Timurids, their Mughal descendants in India or the Ottomans of Turkey.

Safavid Iran

In contrast with the numerous jade objects made for patrons in Transoxiana, Ottoman Turkey or Mughal India, very few can with any certainty be attributed to 16th- or 17th-century Iran. The most famous Iranian example, subsequently captured by the Turks and now in Istanbul, is the black jade jug of Shah Isma'il I (see Fig. 9), whose founding of the Safavid dynasty in western Iran coincided with the collapse of the Timurids in the eastern province of Khurasan. Not surprisingly, in shape it closely resembles Timurid examples such as Ulugh Beg's Gulbenkian jug, with the result that one writer has assumed that its finely inlaid gold arabesques and inscription naming Shah Isma'il are merely Persian embellishments to a Timurid vessel that came into Isma'il's possession.[12] A somewhat plain bowl, similar in shape to the dark green Paris one previously mentioned, and also of greenish-black nephrite, was given by Shah ᶜAbbas I to the Ardebil shrine of his saintly ancestor Shaykh Safi in 1612;[13] this, and a black jade seal handle of Shah ᶜAbbas II (1642–67), are virtually the only other known examples with Iranian royal associations.[14] The shape of the former and the decoration of intaglio arabesques on the latter of these perhaps give additional support for regarding the Paris bowl as being of Safavid origin (although a version of it with an inappropriate Timurid-style dragon handle, formerly in the Medici collection, could lend support to a contrary view). However, the Safavids appear to have been largely indifferent to the appeal of jade, whereas for the Turks it had magic powers.

The Early Phase in Ottoman Turkey

The great 10th-to-11th-century encyclopaedist al-Buiruni, from the region of Khiva east of the Caspian, tells us in his treatise on the science of gems that the eastern Turks believed *yashm* (or jade) to be efficacious in alleviating stomach disorders and preventing eye diseases. They also decorated their swords, saddles and belts with it in the belief that it ensured victory – a practice that was later followed by the Ottomans. It was additionally thought to ward off damage caused by lightning and thunderbolts.[15]

Other writers tell the legend of a rain-making stone called *yada* said to have been given by Noah to his son Japheth from whom the Turks believed themselves to be descended. The storms conjured up by the correct use of this stone were also considered to be a means of obtaining victory in battle, but it has been argued that there is no justification for confusing *yada* or *jada* with jade as some modern writers have done.[16] Whatever the truth about *yada,* there is ample evidence that jade itself was regarded by peoples of Turkish descent as having valuable properties and it is no doubt for this reason that, following the collapse of the Timurids in Samarqand and Herat in 1500 and 1506, it was Ottoman Turkey which appears to have become the main 16th-century centre of Islamic jade-carving, despite its significant distance from the jade-producing region of Khotan.

Already an expanding power in Anatolia and Eastern Europe before Timur set out on his career of conquest, the Ottomans suffered a severe setback when Bayazid I was defeated and captured by Timur at Ankara in 1402. Their recovery during the first half of the 15th century was crowned by Muhammad II's capture of Constantinople in 1453 and by the end of his reign the Turkish state was a major power straddling the boundaries of Europe and Asia. Professor Michael Rogers has shown that the first known literary evidence of hardstones, including jades, possessed by these powerful rulers is to be found in the 1505 inventory of Bayazid II and its supplements in the Topkapi Saray Archives.[17] Unfortunately, the Ottomans appear to have differed from the Timurids and their successors in India in that they neglected to inscribe jade vessels with owners' names or dates. As a result there are few certain landmarks from which we can establish a chronological sequence.

Another respect in which the earliest Ottoman jades differ from their Timurid precursors is the extent to which the surface of their jade is embellished with settings of gold inlay and gems. This is not unknown among surviving Timurid pieces and a fine exemplar of this practice probably came into imperial Ottoman possession when Shah Isma'il's inlaid jade jug was presumably captured after the battle of Chaldiran in 1514. But unlike the refined and rhythmic arabesques of the Safavid inlay, which they were perfectly capable of achieving in other media, the Turks evidently preferred a more awkward, angular and often very dense arrangement of gold and gems over the surface – resulting in the rich but somewhat barbaric effect that in its most extreme form has been referred to as 'the opulent style'. Apart from distinctive features of the gold inlay – stiffly formalized connecting stems and small leaves with engraved veins – the Turkish craftsmen also used a particular mode of gem setting which may have had its ancestry in medieval Eastern European goldsmiths' work. Instead of being set into the jade, the gems were held in small cylinders of gold rising from circular plaques of gold foil

FIG. 9

FIG. 9 **SHAH ISMA'IL JUG**
Safavid, c. 1501-1514. Height: 5½ in (14 cm). A black nephrite jug of Timurid form with a silver-gilt dragon handle inlaid with gold arabesques and an inscription recording its ownership by Shah Isma'il, the founder of the Safavid Dynasty, and for whom it was probably made at Tabriz. It was captured by the Ottoman Sultan Selim in 1514. Now in the Topkapi Saray Museum, Istanbul.

FIG. 10

FIG. 10 **WINE CUP**
Mughal. Height: 2⅛ in (5.5 cm). A wine cup of greyish nephrite made after a Chinese porcelain model for the Mughal emperor Jahangir. It is inscribed with Persian verses, the Emperor's titles and the date AD 1607-8. On loan to the Brooklyn Museum collection, New York.

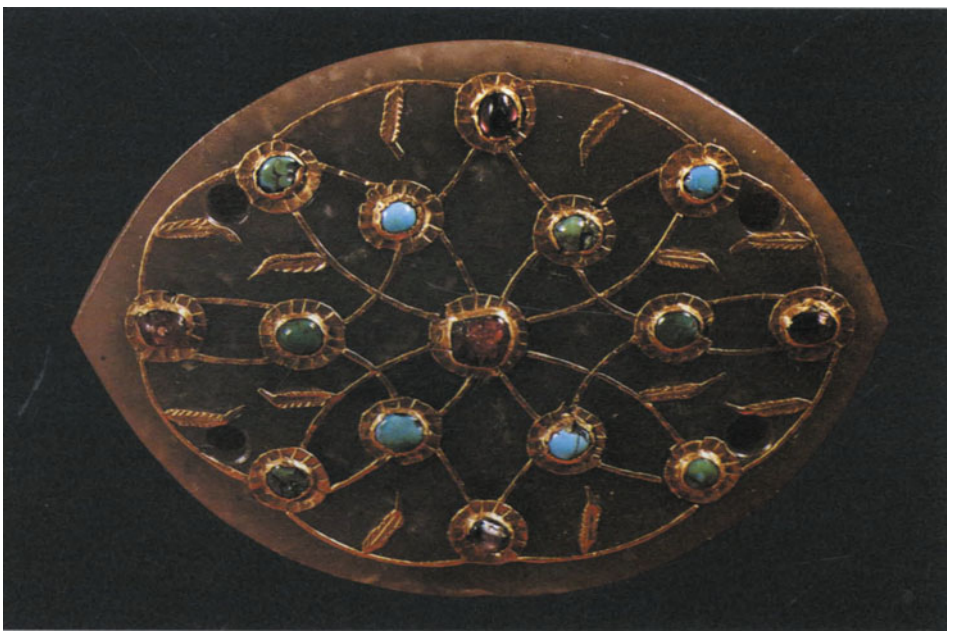


FIG. 11

FIG. 11 **PLAQUE**
Ottoman, early 17th-century. Length: 2⁷⁄₁₆ in (6.2 cm). Width: 2 in (5 cm). A green nephrite plaque inlaid with gold and set with rubies and turquoises in characteristic Ottoman style. Originally sewn on to a quiver. Now in the British Museum, London.

FIG. 12 **INLAID BOTTLE** *Mughal, late 17th/early 18th-century. Height: 10 in (25.3 cm). A bottle and lid of green nephrite inlaid with gold and set with rubies and emeralds. Once owned by Lord Clive, now on loan to the Victoria and Albert Museum, London.*

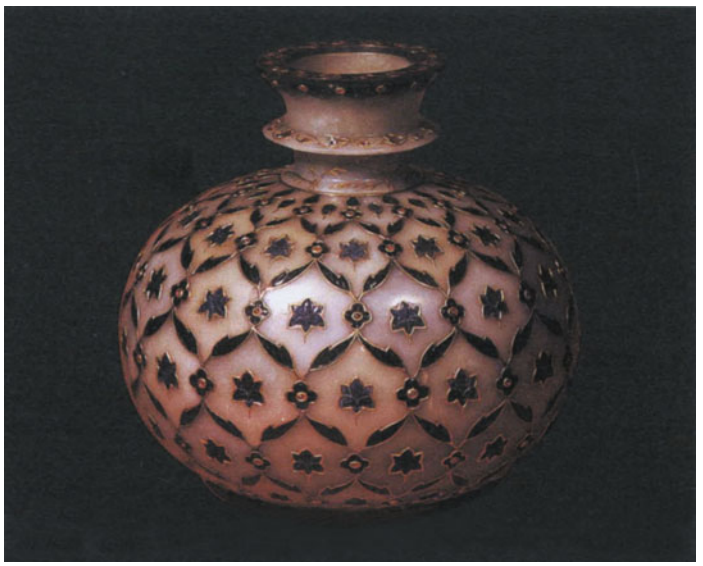


FIG. 13 **HUQQA BASE** *Mughal, c. 1700. Height: 7 3/16 in (18.3 cm). A white nephrite bowl for a water pipe* (huqqa)*, inlaid with dark green nephrite, lapis lazuli and rubies set in gold. One of a pair formerly in the collection of William Beckford, now in the British Museum, London.*

on the surface of the stone. These plaques are chased to look like petals from which the gems rise as though enclosed by a golden calyx. Another distinctively Ottoman type of inlay, which seems more common in 17th-century examples, is a strictly formal arabesque with split palmettes, in which the gold is finished absolutely level with the surface of the jade without any surface engraving.

There is one further respect in which the Ottoman approach to the use of jade differs from that of other Islamic cultures. Timurid and Mughal taste seems closer to that of the Chinese in showing some appreciation of the nephrite for its own sake. Not only are their pieces less covered with encrustation but the basic form of objects tends to be of nephrite. The jade is thus a tangible entity having its own direct relationship with the person who holds it.

It is true that despite their love of encrustation, the Turks also made objects in which the jade predominated over other materials, particularly after the 17th century when they seem to have been somewhat influenced by Mughal taste. However, there are very many instances where the use of jade is confined to small gem-inlaid plaques applied to various types of object as decoration. This is most commonly seen on the weapons and accoutrements of war, doubtless due to the Turkish belief in the power of nephrite to ensure victory. These plaques, usually only an inch or so in their maximum extent, were sewn on to embroidered quivers or bow cases, or applied to scabbards and other military equipment, and also appeared on jewelled gold objects as diverse as a mirror back, a water flask and a Koran cover.[18]

Where 16th- and early 17th-century Turkish hardstone objects comprise complete vessels they frequently follow Timurid forms such as the dragon-handled jugs, which they also made in silver. The black jade jug captured from Shah Isma'il was not the only possible foreign prototype, though. A Chinese-style vessel now in Istanbul is inscribed 'Behbud', which may refer to the late 15th-century Timurid courtier, Abu Talib Behbud.[19] The British Museum's Chinese cup owned by Ulugh Beg also passed through Ottoman hands, as is shown by a Turkish inscription on an old silver repair. By contrast, a type of cylindrical tankard, found also in Isnik pottery, is specific to early Ottoman hardstone production and is not found elsewhere.

All of these earlier Ottoman jades have a solid and rugged appearance similar to that of early 15th-century Timurid examples. The situation appears to change after the middle of the 17th century, when lighter, more organic and graceful forms became popular. This development took place in northern India under the patronage of Timur's Mughal descendants, who were aware of their cultural heritage.

JADE-CARVING IN MUGHAL INDIA

FIG. 14

FIG. 14 ENAMELLED BOWL
Mughal, late 18th-century. Diameter: 4¾ in (12.1 cm). A well-formed, plain bowl with steep sides rising from a short foot to a gently flared rim. The interior plain, the exterior with a design of flowering plants inset with rock crystal and red and green enamels bordered with gold. Enamelled pieces are somewhat less common than inlaid jewelled examples.

The Mughal Dynasty was founded by Zahir uddin Babur, who came to the throne of his small Central Asian kingdom of Farghana at the age of 11. In 1495, while still only 13, he took advantage of instability in the capital city of his ancestor Timur to launch an attack against Samarqand. The attempt failed but in 1497 he captured the city and has left an informative description of it in his memoirs. His triumph was short-lived. Soon afterward he lost both it and his own kingdom and it was not until 1526, after some years in Afghanistan, that he finally conquered the kingdom of Delhi. Although we have no evidence that Babur patronized jade-carving during the four years before he died in India, a dark green jade dish with a decorative medallion recently seen on the London art market is inscribed with a diamond point giving his name and the hejira date 918 (1512–13). During the early part of this year Babur had temporarily re-occupied Samarqand with the help of the Shah of Persia, and it seems likely that he either acquired the object then or had it made in this city where the craft had developed under his ancestors.

Whether or not this small dish or any other jade objects owned by Babur or his Timurid ancestors would have remained in the possession of his immediate successors is by no means certain, for Babur himself suffered various vicissitudes before capturing Delhi, and his son Humayun soon lost the kingdom and was forced to seek help in Iran, losing much during his flight. No sooner had he finally regained his Indian territory than he suffered an accident in his library, leaving his 13-year-old son Akbar to consolidate the family's fragile conquest and turn it into a substantial empire.

There is no doubt that in addition to his skills as an empire builder and administrator, Akbar was a very notable and innovative patron of the arts. Many fine buildings – which can still be visited – and hundreds of brilliantly executed manuscript illustrations testify to the importance which he gave to artistic patronage as a means of enhancing the prestige of the state. Of the decorative arts less has survived from his reign but it is clear from the statistical and administrative account of the reign written by his minister, Abu'l Fazl, that every branch of the state workshops was given encouragement and received the emperor's personal attention. In this invaluable work, the *A'in-i Akbari,* Abu'l Fazl does not mention jade specifically, but the workman who 'embellishes agates and other

stones by engraving and cutting them' is listed in the chapter on Workmen in Decorative Art.[20]

The *A'in-i Akbari* was completed in 1598 and its silence on the subject of jade appears to be corroborated by the fact that we have no evidence of Mughal jade-carving before that year. It was in 1598 that the heir apparent Sultan Salim rebelled against his father and adopted the title '*Shah* Salim' in the pretence of having seized the throne. The earliest known Mughal jade is a white archer's bow ring which had been engraved 'Shah Salim' and can thus be dated to the last few years of Akbar's reign (i.e., between 1598 and 1605).

The silence on the part of Abu'l Fazl together with the absence of any inscribed examples associated with Akbar would appear to suggest that the first Mughal patron of jade-carving was not the emperor but Prince Salim. Certainly after his accession as Jahangir in 1605 he became a passionate collector of jades made for his Timurid ancestors and also commissioned pieces made to his own order.

If, however, we ask what stimulated the development of jade-carving in India we must recognize that an event quite early in Akbar's reign is likely to have been significant. In 1562, seven years before Jahangir was born, a certain Khwaja Mu'in, the owner of the Khotanese jade concession, learned that the reputation of his son Sharaf uddin Husain had risen high at the Mughal court and took the opportunity of visiting Akbar while commencing a pilgrimage. Relating this in his history of the reign,[21] Abu'l Fazl records that when Khwaja Mu'in came near the city of Agra 'H.M. the Shahinshah [i.e., Akbar] went to meet him. By this act of respect he made the Khwaja for ever glorious. He brought him with all honour to the capital, and gave him honourable quarters, and treated him with favours such as kings show to dervishes. The Khwaja presented rare merchandise from Khita [China] and Kashgar. For a long time father and son were encompassed with favours.' The story did not turn out too well because the son rebelled and the father died on sailing for Mecca. We know from other historical sources that Khwaja Mu'in kept a very tight control over the trade in jade and it seems certain that the rare merchandise from Kashgar presented to Akbar would have included jade with the intention of opening up a new market in India.

FIG. 15

FIG. 15 **PHOENIX-HANDLED CUP** *Mughal. Height: 1½ in (3.8 cm). Diameter: 3 1/16 in (7.8 cm). A wine cup of dark green nephrite, inscribed with a Persian quatrain, and with the name of the Mughal Emperor Jahangir and the date 1613. Now in the Bharat Kala Bhavan collection, Benares.*

It is not clear who took over Khwaja Mu'in's business interests after his death, but there is evidence of jade reaching the Mughal court. We know, for example, from the account of the English sea captain William Hawkins, that four years after the end of Akbar's reign his son's treasury was believed to contain about 55 lbs (25 kg) of jade and that 50 of Jahangir's drinking cups were made from single stones including spinels, emeralds, jade and turquoise.[22] If the jade referred to by Hawkins was all in the form of finished pieces this could easily represent as many as 100 items or more, since the earliest known Mughal jade objects are all comparatively small in size. Of course, not nearly as many pieces have survived to the present time so it is equally possible to assume that Hawkins was also describing unworked boulders.

It certainly does not follow that all the jade mentioned by Hawkins as being there in 1609 was of Mughal workmanship and it seems likely that Timurid, Safavid or Ming pieces may either have served as models or suggested the imitation of metal and porcelain forms. The white jade thumb ring[23] bearing Jahangir's name previously mentioned is the earliest identifiable Mughal jade object and follows a functional shape found in other materials. It was originally inlaid with gold and the fine floral arabesque on its outer surface follows a decorative tradition inherited equally from the Timurids or from Safavid Iran, whence craftsmen were recruited to Akbar's court. A small grey jade cup inscribed with Jahangir's royal titles, two Persian quatrains and the date 1607 follows a type of Chinese porcelain that we see in paintings of the emperor's drinking sessions, such as those in which Hawkins took part.

Another small cup of very dark green jade with a delicately carved phoenix handle (see Fig. 15) has long been considered a product of the Mughal royal workshops because it is engraved with a Persian quatrain beneath its rim in praise of Jahangir's justice, followed by the hope that the cup will always reflect the ruby colour of wine.[24] It was inscribed for Jahangir in 1613 but there is good reason to regard it as a late Timurid or possibly Safavid object. Its shallow bowl and bird handle show that its form was

inspired by the same type of Mongol silver drinking cup as a duck-handled cup made for Ulugh Beg, also later in Jahangir's possession.[25] A small lotus bud inside Jahangir's cup has been taken to indicate an Indian origin but this feature also occurs in an Ottoman example of the type[26] and perhaps imitates the moulded lotus rosettes seen on Yuan and Ming period celadon bowls imported into the Near East.[27]

The material of a somewhat larger hardstone drinking cup made for Jahangir in 1612 is now recognized to be an unusual dark green quartz rather than jade but is worth considering in this context since it adds to our understanding of the models being followed in the design of such vessels and underlines the fact that the early part of Jahangir's reign was very much a period of experiment on the part of his hardstone carvers. In this case the prototype was clearly a type of brass or copper bowl with the decoration of flowers in cartouches revealed by cutting away the background.[28] An entirely different approach to surface decoration was followed seven years later when a craftsman named Mumin Jahangiri made a dark green inkpot for the emperor and dated it in the hejira year 1028 (1618–19 AD).[29] He also used ogival cartouches containing flowering plants but his line is altogether more fluid and graceful and the plants have been rendered in intaglio rather than showing them on the surface of the stone against an engraved background. This as we have seen is a characteristic of at least one Safavid example, though the technique may have originated in later Timurid Herat. Mumin also uses the Chinese cloud forms that are especially common in Persian paintings and decorative arts so it seems very possible that he was one of the many Iranian craftsmen who was attracted to the Mughal court during the 16th and early 17th centuries.

One of the last inscribed jades from Jahangir's reign that can be firmly attributed to the Mughal rather than a Timurid workshop is a tiny perfume phial or collyrium receptacle of white nephrite in the Prince of Wales Museum, Bombay.[30] This is inscribed with the emperor's name and the hejira date 1036 (1626–7 AD). A description of the material used has been deciphered as '*yashm-i nilab*' or 'Indus River jade', raising the interesting possibility that the nephrite is from a roller brought down from the upper reaches of the Indus, thus representing the first documented use of amphibole jade found in the sub-continent.[31] This tiny object is also our first documented example of a new trend in Mughal hardstone carving which very soon became the dominant mode of achieving surface decoration in place of the two methods just described. Engraved depressions were, of course, still required for inlays of gold but henceforth decoration worked from the material itself was normally achieved by having motifs raised above the surface in

FIG. 16 **INKPOT**
Mughal, 1618-19. Diameter: 3¼ in (8.3 cm). Dark green nephrite inkpot with gold lid, decorated with flowers in intaglio. It is inscribed in cartouches with the name of the Mughal Emperor Jahangir for whom it was made by Mumin Jahangiri, who also signed his name underneath. Part of the Sylmaris Collection, a gift of George Coe Graves, it is in the Metropolitan Museum of Art in New York.

FIG. 16

FIG. 17

FIG. 17. **COVERED POTICHE**
Mughal, c. 1675. Height: 4⅝ in (11 cm). A covered potiche of green nephrite flecked with brown, now in the British Museum, London.

modelled relief. In this case the decoration of petals and sepals forming a naturalistic bud is very simple and the absence of a plane surface may not prepare us for the ultimate development of this revolutionary approach. It is easy to see why it goes hand in hand with the addition of organic forms to the repertoire of metal and ceramic shapes found previously. It is also evident that these innovations bring together ideas developed outside India, namely in the Far East and Europe.

Until comparatively recently it was thought by more than one authority on the subject that Mughal jades, if not made in China, were made in India by Chinese craftsmen.[32] That this can no longer be argued should not disguise the fact that Ming jades were available in Timurid, Iranian, Ottoman, Mughal and European royal collections[33] and that virtually all of these are far more organic in conception than the Timurid and early Mughal examples. A Chinese example clearly accounts for the organic model chosen for Jahangir's phial but the relief modelling seen in Mughal jades from the end of Jahangir's reign onward is very clearly derived from Europe. We know that European lapidaries were employed by Jahangir and his successor, but the clearest evidence is seen in the introduction of modelled relief decoration in architecture, where the change from sandstone to marble is accompanied by ornamental motifs such as acanthus leaves treated in exactly the same way as in Renaissance Europe. From Jahangir's reign onward we find very close parallels between the decorative repertoire of royal buildings and hardstone objects.

Jahangir's reign (1605–27) was a period of innovation

FIG. 18 **POURING VESSEL** *Mughal, 18th-century. Height: 4 in (10 cm). A rare pouring vessel, cover and stand of pale white and grey stone inlaid with rubies. The stand has petal flutes to the rim and a flower-head handle, the cup has a pedestal base, a well-rounded bowl and a petal lip to the spout. The cover is plain with a small knob. This thinly worked jade is a delight in its proportions and delicacy.*

FIG. 18

FIG. 19

FIG. 19 **WINE EWER** *Mughal, late 17th/early 18th-century. Height: 4 1/16 in (10.4 cm). A ewer of dark green nephrite inlaid with poppy and leaf motifs of enamelled gold, now in the Victoria and Albert Museum, London.*

FIG. 20 **TURBAN-GOURD CUP** *Mughal, c. 1625. Length: 7 in (17.8 cm). The underside of a dark green nephrite cup revealing clearly its turban gourd form. Inscribed as a possession of Shah Jahan in 1647-8, it was probably made in 1625 for Jahangir. Part of the Oscar Raphael bequest, now in the British Museum.*

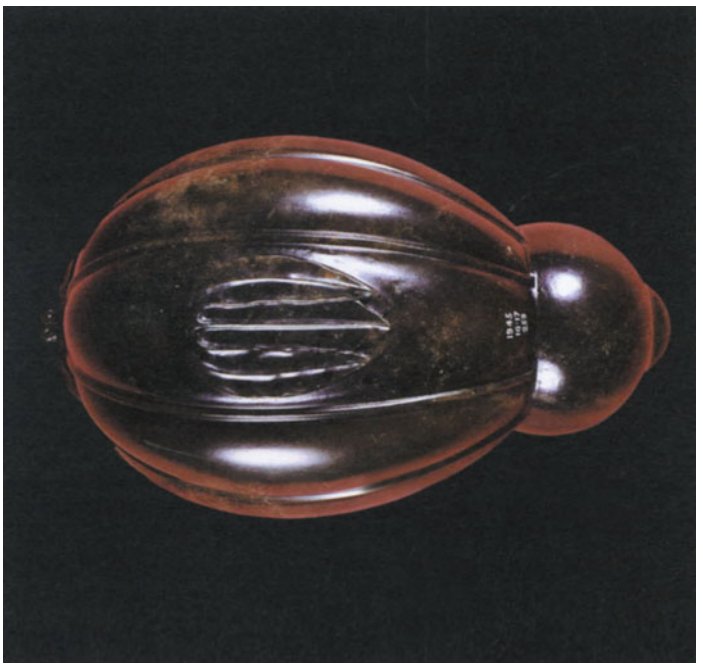


FIG. 20

FIG. 21 **QALYAN BOWL**
Persian, c. 1650. Diameter: 6⅞ in (17.5 cm). An unusual dark green nephrite bowl for a water pipe (qalyan *or* huqqa), *carved in the form of a melon. In the J.K. Antiques and Curios Trust, Bombay.*

FIG. 21

that continued into that of his son Shah Jahan (1628–58), which saw the most notable of these innovations incorporated into the mainstream of Mughal design to become dominant throughout the extent and duration of the dynasty's rule. It is because of the variety of forms and decoration found under Jahangir's patronage that the temptation exists for us to categorize unusual examples of high quality as products of his reign. Another temptation, still not always resisted, is to attribute certain pieces to the workshops of any ruler who chose to have his ownership recorded by inscription.

On the above basis a well-known jade drinking cup in the British Museum (see Fig. 20) was accepted by the present writer, among others, as having been made for Shah Jahan, who had it inscribed as his property in the hejira year 1057 (1647–8 AD).[34] Its multi-lobed form is clearly based on a Ming original derived from a halved turban gourd (*Cucurbita maxima*), but the form is stylized in a metallic way and there are additional details, such as ribs, a leaf foot and split palmettes on the rim, which seem in keeping with Mughal taste. Gourd-like lobes were to become a common feature of Mughal jades by the end of Shah Jahan's reign but the British Museum's cup is clearly transitional between its Ming prototype and the full-blown Mughal style. For this reason, it may seem preferable to regard this as an object from Jahangir's reign,[35] when the Mughal style of jade-carving was in the course of its development. If so, it would be one of the largest jade objects attributed to his reign. However, more than any other ruler, Jahangir had his jades inscribed; this is no doubt because the material was at that time in short supply in India and reserved, whether totally or not, for the emperor's personal use. So, if we choose to see this cup as having been made for him, he was evidently not sufficiently impressed by its relative size and innovative form to have it inscribed. The situation is complicated by the existence of two other less subtly carved versions of the design, of which one has an inscription attributing it, whether rightly or wrongly, to Turkish workmen.[36] Was one of these a copy made at the Mughal court as a diplomatic gift, to be copied yet again after its arrival in Turkey?

Similar difficulties arise with another lobed object of dark green jade that takes a spherical gourd as its model and can clearly be recognized as the water vessel from a *huqqa*, or hubble-bubble. On finding it in an Indian private collection the present writer took it to be a product of Jahangir's court workshops and this attribution has been accepted.[37] However, among spherical *huqqa* types, this one is similar to the Iranian *qalyan* (see Fig. 21), with two holes in the body, rather than to the Indian *huqqa's* neck and single opening at the top.[38] Furthermore, there is no firm evidence that either the Iranian or Indian spherical water-pipes were introduced before the middle of the 17th century.[39] With the exception of one favoured Indian ambassador, both Jahangir and his Iranian contemporary Shah ʿAbbas I banned tobacco smoking at their courts,[40] though it was commonly practised by yogis, dervishes and others using coconut shells or earthenware pots.[41] Given all these circumstances it is open to doubt whether this is a Mughal object of Jahangir's reign. It should possibly be attributed to Iran and to the reign of Shah ʿAbbas II (1642–66), the patron of at least one other such jade object, and a time when the smoking habit had spread among all classes of society.[42]

FIG. 22 **LEAF-SHAPED CUP**
Mughal, late 17th/early 18th-century. A leaf-shaped cup of white nephrite.

FIG. 22

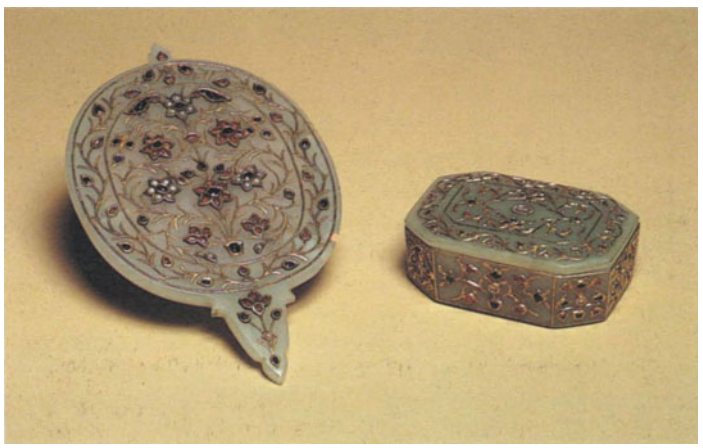


FIG. 23

FIG. 23 **INLAID MIRROR AND BOX**
Mughal, 19th-century. Mirror height: 5½ in (14 cm). Box length: 2 15/16 in (7.5 cm).
A mirror inlaid in gold and semi-precious stones with a design of two birds amidst floral sprays. The stone a pale celadon tone.
A small box and cover, the sides and lid inlaid in gold and semi-precious stones in a formalized floral design. The stone has a pale celadon tone.

Whatever the truth may be about such objects, their use of organic forms appears to be transitional and they remain outside the consistent stylistic trend that typifies Mughal jade-carving after the end of Jahangir's reign. The white nephrite phial of his penultimate regnal year sets the new trend, but unfortunately comparatively few jades were inscribed after this date and there is only one dated object of Shah Jahan's reign that gives us a clear benchmark against which we can assess works in the typical Mughal style that was practised after Jahangir's death.

Curiously, this, the finest of all Mughal jades, now known as 'The Shah Jahan Cup' (see Figs. 25 and 26), was also inscribed and dated in its owner's penultimate regnal year.[43] The inscription in a small cartouche gives Shah Jahan's title 'The Second Lord of the Auspicious Conjunction' and is dated both in the 31st regnal year and the hejira year 1067 (i.e., between 21st March and 8th October 1657 AD). Like the objects just discussed the body of the cup is lobed like a gourd or shell, but here the curved surfaces are controlled with astonishing refinement as they taper and curve asymmetrically toward the handle, while the walls become thinner and flare slightly outward at the rim. The handle itself curves around and terminates as the naturalistically carved head of a wild goat, whose horns curve in a rhythmic counterpoint with the curves of the rim. On its underside the cup is clasped by acanthus leaves modelled in low relief radiating from a central foot in the form of an inverted lotus flower coming into bloom. With extraordinary mastery the craftsman has blended these disparate motifs into a unified conception although the elements themselves can be traced to diverse cultural sources. The use of organic forms, especially gourd-like lobes, stems from Chinese jades, but the naturalism of the goat's head has ample precedent in Mughal natural history paintings, which developed from indigenous, Persian and European sources. The treatment of the lotus flower is completely in keeping with indigenous Indian tradition but its deployment as a pedestal may have been suggested by European artefacts acquired via diplomacy or trade,[44] and the acanthus leaves are very clearly of European inspiration.[45] This degree of artistic eclecticism under the early Mughals resulted in a creative fusion entirely different from the unimaginative imitation and *fin-de-siècle* search for novelty witnessed when the empire went into decline.

One cannot pretend that Shah Jahan's cup marks the beginning of the characteristic Mughal style of Mughal jade-carving, but without dated evidence it is virtually impossible for us to chart the stages in the evolution of the developed style represented by the cup. Dated jade thumb rings and amulets do exist from the earlier years of Shah Jahan's reign but they lack such decorative features as begin to emerge at the end of Jahangir's reign.

A white jade wine cup in the Los Angeles County Museum of Art, with a handle terminating with a stem, shares its basic form with Shah Jahan's cup and has been attributed to the end of Jahangir's reign on the basis of a drawing in the same collection showing the emperor holding a shallow cup.[46] The bowl of this also terminates in a curve at one end but turns over at the top instead of the side. This is a feature of early 17th-century European hardstone carvings by members of the Miseroni family,[47] and merely suggests that Jahangir may have acquired a European cup of that type. The drawing does not, therefore, provide sufficient grounds for attributing the Los Angeles cup to Jahangir's reign. In fact, there are a number of other cups of similar form to it, showing various levels of sophistication in their workmanship and design.[48] At present there are no grounds for speculating whether any one of them may have been a precursor or model for Shah Jahan's cup and on the contrary there is a greater probability that all or most of them post-date it.

If anything at all can help us in settling the chronology of Mughal jade carvings after the reign of Jahangir, it is likely to be the evolution and treatment of ornament on buildings. One of the most important, though little noticed, innovations in Mughal architectural decoration in the early 17th century is the use of naturalistic motifs modelled in

FIG. 24

FIG. 25

FIG. 24 **JADE BOWL** *Ottoman, 18th-century. Length: 6½ in (16.5 cm). A mottled-white bowl of lobed form with loop handles. Carved in the Mughal style, the handles suggest that it is in fact quality Ottoman work.*

FIG. 25 *The underside of the Shah Jahan cup, inscribed with the Emperor's title. The cup has been sold three times on the London market, but the inscription was only detected on the second occasion.*

FIG. 26

FIG. 26 **THE SHAH JAHAN CUP** *Mughal, 17th-century. Length: 7⅜ in (18.7 cm). Width: 5½ in (14 cm). One of the most famous, and possibly the finest, of all Mughal jades. Carved from white nephrite, it is superbly rendered and modelled, a sensual curve combining with subtle relief work and a magnificently sculpted goat's head. Now part of the Victoria and Albert Museum collection in London.*

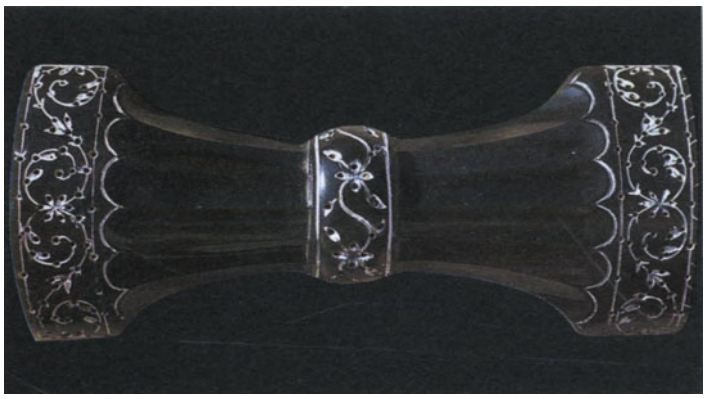


FIG. 27

FIG. 27 **DAGGER HANDLE** *Black nephrite dagger handle of Persian form but perhaps made in Mughal India during the reign of Emperor Jahangir. Now in the Bharat Kala Bhavan collection, Benares.*

FIG. 28 **THUMB RING** *Mughal, 17th-century. Length: 1⅜ in (3.5 cm). A fine thumb ring inset with a sapphire, rubies and emeralds set in gold. These rings, originally used to control the release of the arrow in archery, became works of art and, as with daggers, denoted rank. They found favour as imperial gifts.*

FIG. 28

FIG. 29 **SPHERICAL JAR** *Mughal, 17th-/18th-century. Diameter: 4¾ in (12 cm). A globular jar of spherical form, supported on a tapered foot, the sides worked in high relief with fruit handles, the body with a low relief pattern of floral sprays and leaves. The stone a pale green tone with darker and lighter inclusions. The spherical vessel was a popular Hindustan form, and this is a good quality example.*

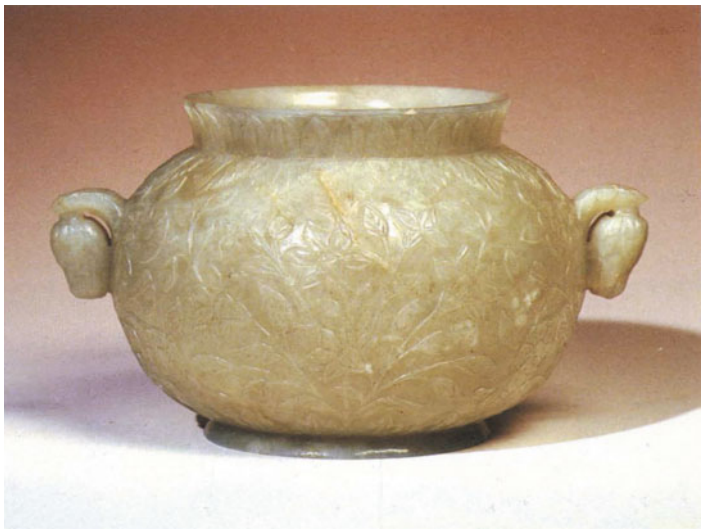


FIG. 29

relief so that they are raised above the surface of the stone[49] – as are the acanthus leaves on the outside of Shah Jahan's cup. There was already a tendency in this direction during the reigns of Akbar and Jahangir, but with the motifs more crowded against a background that is deeply recessed within a frame.[50] Although it is equally present in sandstone, the new approach is especially suited to the marble revetments of Shah Jahan's palace, mosque and tomb architecture, where the smoothly polished surface of the stone very nearly matches the appearance of white jade. The similarity of method and motif to the decoration seen on Renaissance buildings in Europe can hardly pass unnoticed.[51]

The great advantage of architectural decoration as a guide to chronology in the decorative arts is that buildings are often dated and remain fixed in their original location. In theory it should be possible, therefore, to map changes in the evolution of motifs and their decorative treatment. Thus we can argue that with the progress of time decorative elements will either stiffen and become rigid, or perhaps develop a rococo frivolity; that new motifs will enter the repertoire, and that designs will become overcrowded and densely spaced. All of these tendencies can be seen both in architecture and the decorative arts but they do not progress chronologically with mechanical precision, particularly when these arts become more widely dispersed both regionally and in their levels of patronage.

The fact that jade objects ceased to be inscribed with the names of imperial owners after the end of Shah Jahan's reign suggests that by then jade was no longer such a rare commodity. Indeed, it is quite likely that Shah Jahan's 1657 cup was inscribed only because of its outstanding quality. The wider availability of nephrite is noted by the French physician François Bernier in a letter written from Kashmir in 1665 when the kingdom of Greater Tibet (i.e., Ladakh) was threatened with war by the Emperor Aurangzeb, and an embassy was sent to the Mughal court with gifts including jade. He says that 'The jade stone presented upon this occasion was of an extraordinary size and therefore very precious. *Jachen* [i.e., *yashm*] is in great estimation in the court of the *Mogol*: its colour is greenish, with white veins, and it is so hard as to be wrought only with diamond powder. Cups and vases are made of this stone. I have some of most exquisite workmanship, inlaid with strings of gold and enriched with precious stones.'[52] Bernier also took the opportunity of questioning merchants from Kashgar about the caravans to China and Central Asia and he states that 'It is not twenty years since caravans went annually from Kachemire to Katay [i.e., China]. They used to traverse the mountains of Great Tibet, enter Tartary and reach Katay

in about three months. It is an extremely difficult road, and there are impetuous torrents that can be crossed only by means of cords extended from rock to rock.'[53] He goes on to say that 'in returning through Great Tibet they further loaded themselves with the produce of that country, such as musk, crystal, jade . . .'.[54] It is clear that the latter was being brought from the kingdom of Kashgar, which he then describes with the comment that 'the shortest route from one kingdom to the other, [i.e., Kashgar to Kashmir] is through Great Tibet, but that passage being now shut, they were under the necessity of taking the road of Little Tibet [i.e., Baltistan]'.

Also during the previous period of tension with Ladakh following Shah Jahan's incursion into the region, caravan traffic to China was diverted through Patna and Lhasa[55], but with Aurangzeb's defeat of the Ladakhi ruler Deldan Namgyal in 1666 the direct route was restored. Aurangzeb also kept up a personal correspondence with leading scholars and merchants of Transoxiana, to whom at times he would send large monetary gifts,[56] so it is clear that the Mughal ruler kept a very close eye on matters affecting trade with the areas from which jade and rock crystal were obtained and this accounts for the ready availability of raw material during the second half of the 17th century.

The necessity for this becomes clear from the official histories of Shah Jahan and Aurangzeb, which contain endless lists of turban ornaments, jewelled daggers and other sumptuary items prepared in the royal workshops for presentation at court when officers were transferred, promoted or simply brought to the emperors' attention. Jade was very often used in the manufacture of sword and dagger handles, the most usual being in the form of a pistol grip found on daggers known as *khanjar,* which had slightly curved double-edged blades strengthened by one or more central ribs (see Fig. 30 for an example).[57] Jade was also used for the lockets and chapes of their scabbards. Other varieties of *khanjar* hilt took the form of horse, camel, goat or ram heads and the same were also used for the hilts of single-edged knives (*kard*).

An increasingly luxurious lifestyle on the part of a growing official class also created a market for jade *huqqas* and lidded boxes, often with separate compartments to hold the ingredients for the preparation and chewing of areca nuts with betel leaves (*pan*), or various fruits and sweetmeats. These objects – whether of hardstone or metal – became essential paraphernalia of the *masnad* (carpet and cushions of office) on which a nobleman sat while receiving guests or subordinates. The dispensing of *pan* by the nobleman was the understood signal of dismissal from his presence, while the placement of the *huqqa* underlined his superior status.

Many of the above objects were inlaid with gold and set with gems, as mentioned by Bernier and also by the traveller

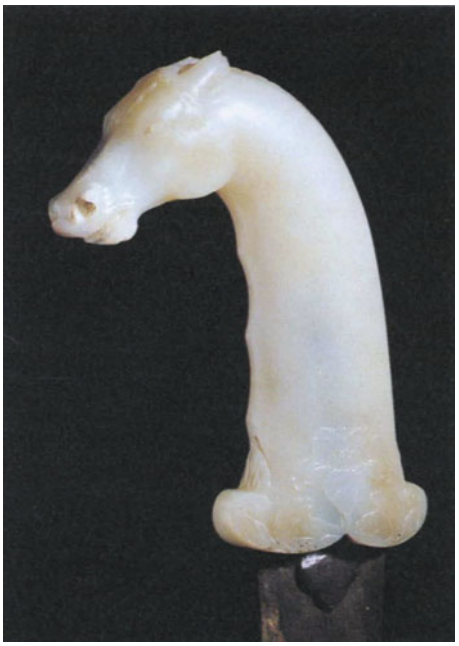


FIG. 30

FIG. 30 **DAGGER HILT**
Mughal, late 17th/18th-century. Hilt length: 5 5/16 in (13.5 cm). Dagger length: 15 11/16 in (39.5 cm). A dagger with a blade, the jade hilt carved in the form of a horse's head, with floral designs around the guard. Of fine sculptural quality with good detail, the stone a mellow tone.

FIG. 31

FIG. 31 **DAGGER HILT**
Mughal, late 17th/18th-century. A dagger handle in the form of a horse's head, the whole finely modelled with the mane emphasized and finely detailed; the stone is of a pale white tone with tan markings.

FIG. 32 **LOBED BOWL**
Mughal, 18th-century. Diameter: 7⅜ in (19.4 cm). A fine bowl of shallow, circular eight-lobed form. It has worked and pierced flowerhead and foliate handles to the sides, and a flowerhead foot-rim. The stone is a pale grey-white tone with inclusions. This fine, thinly worked piece is a classic example and disproves the former misconception that the finest Mughal jades could only have been achieved in Chinese workshops.

FIG. 32

FIG. 33 **PENDANTS**
Mughal, 19th-century. Left length: 1⁹⁄₁₆ in (4 cm). Right length: 1¾ in (4.5 cm). These are early examples of inlaid plaque work: one pendant is of flared form, inlaid in gold and semi-precious stones with a formal floral design; the other is of oval form, inlaid with a design of a bird amidst floral sprays. The collapse of traditional patronage in the late 19th century resulted in decreased demand for jade vessels in favour of these amulets.

FIG. 34 **DAGGER**
Mughal, 18th-century. Length: 13³⁄₁₆ in (33.5 cm). A fine dagger with a grey nephrite horse-head handle, its features well modelled. The quillon of the handle is carved with a flowerhead and curling leaves, and inset with rubies and diamonds. The bridle is gold; the steel blade damascened in gold. The inscription refers to the 'Emperor Muhammad Akbar, the Victorious Warrior Shah', and clearly is intended to suggest that the dagger belonged to the Mughal Emperor Akbar I – the dagger is not as early as this, and indeed the correct name would have read 'Jalaluddin Muhammad Akbar'. This is a common occurrence, a response to 19th- and 20th-century European collectors' desire to acquire pieces with historical associations.

FIG. 34

Jean de Thevenot, who describes gold and gem inlaying at Agra.[58] In Mughal work, the gems are set into cavities surrounded by gold wire rather than raised from the surface in the Ottoman manner, and the stems of arabesque designs tend to be inlaid with freer and more rhythmically flowing lines.

Aurangzeb's long campaigns and conquests in the Deccan gradually over-extended the empire's resources and following his death in 1707 there began the decline of imperial power that led to Nadir Shah's invasion (1739) and the eventual triumph of the British at Plassey in 1757. By then the emperors possessed only token sovereignty over powerful and competing regional kingdoms. Provincial governors founded dynasties which maintained sumptuary craft production at a high level, though often with declining standards of taste. Then, as British power became dominant in the 19th century, local rulers increasingly adopted a more westernized lifestyle with imported furnishings, art works and curiosities from Europe replacing traditional Indian luxury products. By the end of the last century, Indian hardstone carvers found little demand for nephrite items other than amulets worn as a protection against palpitation. Today, those not engaged in the lucrative gem-cutting industry concentrate on the sale of cheap spectacles or else make such things as pestles and mortars for which there is still a market.

The Problem of Later Ottoman, Khotanese and Hindustan Jades

Anyone making a careful study of Mughal jades, particularly when it is based on objects found in Indian collections or in the Guthrie Collection, formed in India in the last century,[59] will recognize a homogeneity of style, which is consistent with Mughal art generally and in particular with architectural decoration. Certain other jade objects, showing various degrees of affinity with these homogeneous groups, nevertheless stand apart from them in certain respects. In accounting for these differences we are entitled to ask ourselves whether such examples are truly of Indian origin or whether they could have been made elsewhere.

If we make the latter assumption and look for an alternative source of such jades there is one very obvious conclusion, arising from earlier literature on the subject, that has to be considered. It is inevitable that we should ask ourselves whether these atypical objects are examples of the so-called 'Hindustan jades' made in China during the 18th and 19th centuries. Now that some of the mythology is being stripped away from the notion of Mughal jades being made in China for the Indian market, it is indeed possible to establish criteria for distinguishing between jades whose designs are influenced by Chinese notions of Indian taste and those actually made in India. This does not, however, account for all of the supposedly Indian jades that show divergences from the recognizable Mughal style. Many of these fall into distinct categories in themselves and it is necessary for us to look farther afield than India or China in order to suggest their probable origin. There are in fact indications that these distinct types may originate either in Ottoman Turkey or in the jade-producing regions of Khotan (Hetian) and Yarkand.

The Chinese involvement in these new developments clearly resulted from the advance of Manchu power across Central Asia culminating in the defeat of the Khojas of Kashgaria in 1758–9 and the imposition of Chinese administration over the region. This brought the Chinese into greater contact with their neighbours in Badakshan and Afghanistan at a time when the Duranni Afghan ruler Ahmad Shah Abdali was in the process of invading northern India to defeat a powerful Maratha army at Panipat near Delhi in 1761. The Punjab was annexed by the Afghans and this was soon noted by the Chinese in a record accompanying pictures of tribute gifts from the Muslim rulers of Badakshan.[60] Another Chinese source[61] states that 'Hindustan is southwest of Badakshan and east of Afghanistan. The native craftsmen there use water to make the finest jade articles, which are unsurpassed by those produced within our own borders. These articles have been traded through Yarkand. In the 25th year of the Qianlong reign [AD 1760] an imperial letter and gifts were sent there in order that the trade might continue.' The reference to water shows that the Chinese were not at all well informed about the manufacturing technology of Mughal jades but they were quite aware of the means by which they reached the Chinese court.

It is not at all certain that the trade in Mughal jades through Yarkand to China began very much earlier than 1760 and it appears likely that the Chinese interest in fostering this trade resulted from the Qing emperor's admiration for pieces sent as diplomatic gifts from the rulers of Kashgaria and neighbouring Muslim kingdoms. The Qianlong emperor's personal interest in jades acquired as tribute or through trade with the western regions is indicated by the fact that he wrote at least 73 appreciative poems about individual pieces. Fortunately, 25 jades with these poems engraved on them by the imperial artisans are known to have survived and in due course these should enable us to assess the pieces in the light of contemporary Chinese opinion.[62]

In a number of these poems the Qianlong emperor states quite specifically that the object originated in '*Hen-tu-ssu-t'an*' but in other cases he merely refers to 'the long journey' of a piece brought to China, or states that a piece

FIG. 35

FIG. 36

FIG. 37

FIG. 35 **PETAL BOWL**
Ottoman, 18th-century. Length: 9 13/16 in (25 cm). A deep bowl of good green tone and a well-rounded form, worked in high relief with petals and a curling floral base. The handles are in the form of curling stamens issuing from flowers. This bowl is a superb example. Of the Mughal school, it has been described as both Mughal and Ottoman.

FIG. 36 **MUGHAL-STYLE BOWL**
Mughal-style, Chinese. 18th-century. Diameter: 6 in (15.3 cm). A fine bowl of pale celadon tone. The handles are in the shape of pendant leaves with fruits, the sides are worked in low relief with a band of stylized scrolls above formal plants. It is the robustness and design of the frieze that reveal its origins as Chinese rather than Indian.

FIG. 37 **JADE BOWL**
Possibly Turkestan, 18th-century. Diameter: 8 in (20 cm). A rare bowl, it features a crenellated rim, S-shaped bud handles and floral sprays in relief. This example is rather more daring in its design than many others of its type. Carved to Mughal taste, the handles indicate that it is not, however, of Mughal origin, but possibly from Turkestan or Turkey.

was 'carved in the West'.[63] In such cases, it is legitimate for us to consider whether specific associations with Hindustan are confirmed by stylistic evidence or whether we should question the emperor's ability to distinguish between Indian and other foreign examples. It is also necessary for us to note whether the reference to Hindustan appears in the text of the poem itself or in the title provided by a later compiler.

Until all the poems are completely translated the answers to some of these questions will remain in abeyance, but the present writer has suggested that certain jade objects previously attributed to India or China are probably of Ottoman origin. One of these, a white jade jar in the Victoria and Albert Museum,[64] described by the Chinese emperor merely as having been 'carved in the West', shows a general resemblance to Mughal jades in being surrounded by leaves in modelled relief, with lotus bud handles on either side and petals underneath the base, but other elements in the decoration coincide with examples in the Topkapi Saray Museum rather than with pieces of more certain Indian provenance. The treatment of the smooth-edged leaves surrounding the jar closely resembles that of a similarly shaped jar in the Istanbul collection and also the nephrite ink pots of what is clearly an Ottoman writing set.[65] Another feature which seems to have been copied from Chinese models by Ottoman rather than Mughal craftsmen is the pair of stems which run down the sides of the inscribed jar to form a ring foot before curving into the centre of the lotus roundel below.[66] This combination of smooth-edged leaves and a stem below is also seen in a finely carved bowl that was formerly attributed to Mughal India but may be of Ottoman workmanship in the Indian taste (see Fig. 35). Mughal pieces certainly reached the Ottoman royal collection to serve as models and are still to be found in the Topkapi Saray.

Although certain pieces of presumed Ottoman origin, such as the Victoria and Albert Museum jar, have rounded lotus bud handles similar to Indian prototypes, a number of pieces in Istanbul have flat handles which project either vertically down the side or horizontally from the rim. Horizontal flat handles are not found on jade objects of securely attested Mughal origin and their appearance tends to be associated with other atypical features such as broad, flattened acanthus leaves which cover the surface with little attempt at naturalistic modelling.[67] The handling in such cases lacks the sensuousness of Mughal jades or of the most refined examples with presumed Ottoman features, but this stiffness is not foreign to Ottoman art and it is not simply a matter of quality of craftsmanship. Stiffness and formal precision of execution are seen in the treatment of smooth-edged leaves around a bowl of good and careful craftsmanship inscribed for the Qianlong emperor. Its

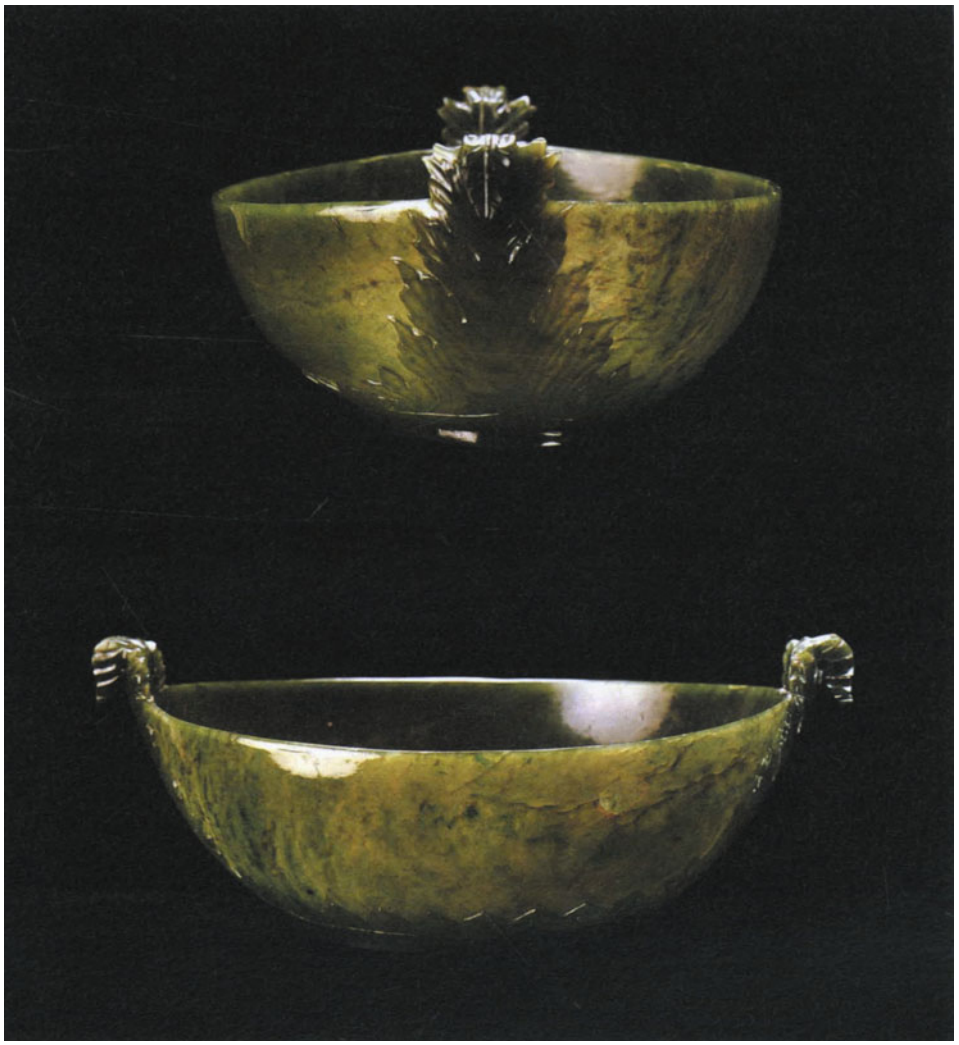


FIG. 38

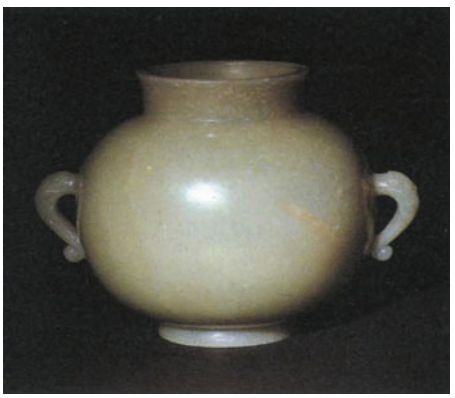


FIG. 39

FIG. 38 **KASHKUL BOWL**
Ottoman, late 17th/early 18th-century. Length: 7 11/16 in (19.5 cm). A fine bowl carved from brilliant green jade in the form of a kashkul *(begging bowl), with a serrated leaf design on the exterior. A superb example, it is beautifully shaped with well-defined handles. A row of leaf-like forms at the base are left undecorated.*

FIG. 39 **JADE VESSEL**
Ottoman, 18th-century. Diameter: 5 in (12.7 cm). A globular vessel of well-rounded form, in stone of a celadon tone. This unusual jade relies on simplicity for effect; the element of restraint in the lack of decoration to the surface contrasts with the leaf design on the handles. The origin is debatable: it could possibly be Turkestan.

handles are of the flat vertical type which suggest Ottoman origin and the emperor's poem avoids attributing it to Hindustan, simply remarking that 'because of the long journey, the examples brought here are generally small, this alone can be called a large piece.'[68] It seems unlikely that a collector of such pronounced curiosity as the Qianlong emperor would not have had enquiries made among the merchants trading in such objects and there is no reason to suppose that they would have been unaware of the sources from which their stock was acquired.

Among the pieces attributed by the present writer to Ottoman craftsmen some years ago there is a group which shows clear affinities with those described above with flatly sawn handles, but where this feature is coupled with an even more rigid and quite distinct style of surface decoration.[69] Unlike the modelled relief of Mughal decoration the surface ornament of stylized floral motifs has the appearance of being produced with a gouge like the decoration of chip-carved wood. It now appears more likely that such pieces may originate from the jade-producing region of Khotan (Hetian) itelf, where there is certainly a strong tradition of chip-carved decoration on wooden buildings and household objects. However, apart from literary references, there is as yet very little firm evidence to permit the identification of jade objects made in Khotan, Kashgar or Yarkand[70] and at present one must largely proceed by a process of elimination joined with the suspicion that Khotanese craftsmen may have tried their hand at copying objects from more than one source according to their perceptions of market demand and the availability of models to imitate.

The fact that Khotan produced finished objects as well as the raw material is made clear by the Qianlong emperor's commentary on one of his poems, in which he also indicates their inferiority to those of India – 'although Khotan produces both raw and carved jade, all the best carvings are from Hindustan'.[71] Robert Shaw, who visited Yarkand and Kashgar in the guise of a merchant in 1869, mentions that 'The industry is now entirely extinct. The carving is said to have been done in Khotan and Yarkand by Chinese workmen. I believe more is carved in India, although some of the patterns bear a certain resemblance to Indian models. But the raw stone is not to my knowledge ever imported into India, although a considerable number of trifling articles made of jade are brought over every year. And I have seen in Yarkand itself jade carved in the form said to

be Indian'.[72] Shaw revisited Kashgar and Yarkand in 1870 and again with Sir T. D. Forsyth's mission in 1874, of which an account was written by Henry Bellew. Like Shaw, Forsyth and Dr Cayley, Bellew gives an account of the jade quarries passed en route followed by a description of the bazaar in the nearby town of Balakchi. 'Under the Chinese the jade trade was specially encouraged, and the industry employed several thousands of families here, and at Khutan, and at the quarries in the Caracash valley, as did the gold mines in the southern hills. But since their expulsion from the country these occupations, except in the case of one gold mine near Khutan, have entirely ceased, and as regards the jade industry may be considered extinct. Even during the Chinese rule it appears that the best specimens of this highly-prized mineral were taken in block to China, and there confided to the artist's skill. I made particular inquiries after samples of the carved stone, and quite exceptionally succeeded in getting some good pieces cut in the Indian style, and apparently of ancient date.'[73]

Subsequently the local industry appears to have been through yet another revival and decline, as witnessed by Ella Sykes who visited eastern Turkestan with her brother some 40 years later. She relates that 'Badrudin took us into the town to see the jade workers turning cups on lathes and polishing them by means of sand. On the ground lay some small green boulders, the stone in its raw state, and I was told that, had they been white flecked with green, they would have fetched between two and three hundred pounds apiece. After the white, the yellow is the most highly prized, and then comes the green and lastly the black, for which the famous cenotaph of Tamerlane at Samarqand is renowned. But alas, since the revolution the royal stone is no longer popular in China, and the export to Peking has practically ceased. To counterbalance this there is a small demand for it in India, where it is bought by the British; but so low has the industry fallen that my brother and I could not procure nearly as many cups as we wished.'[74]

While all these reports suggest that carved jade objects were produced locally from time to time and that Indian jades were frequently used as models, it seems surprising that they found no evidence of demand for the raw material in China at a time when Western interest in the acquisition of Chinese jades appears to have been growing. This emergence of a new collecting clientele, coupled with the collapse of imperial Chinese patronage, led to a commercialization of jade-carving. The introduction of modern technology permitted virtuosity of execution leading to extravagances of design that attracted foreign

FIG. 40 **POTICHE**
A pale green vase, probably late 18th-century Chinese in the Mughal style, now in the Victoria and Albert Museum, London.

FIG. 41 **BRUSHWASHER**
Mughal-style, Chinese. 18th-century. Length: 5 5/16 in (13.5 cm). A fine Mughal-style brushwasher in the form of an open fruit, worked with leaves, tendrils and a loose ring-handle in high relief. The foot is in the form of a flower with radiating petals. Carved from pale green stone with darker markings. This is a finely pierced and modelled vessel; the worker has contrasted a busy design with the thin fluted bowl.

FIG. 41

FIG. 42

FIG. 42 **OPEN-FLOWER VESSEL**
Mughal-style, Chinese. 18th-century. Width: 4¾ in (12 cm). A vessel carved extremely thinly in the form of an open chrysanthemum flower, with petal designs around the body, the handles worked as floral sprigs; the whole finely proportioned and beautifully detailed. The Mughal influence is indicated by the wafer-thin carving, but the Chinese origin is revealed by the style of the handles.

FIG. 43

FIG. 43 **BRUSHWASHER**
Chinese, 18th-century. Length: 2 15/16 in (7.5 cm). A fine brushwasher in the form of an open flower. Carved from stone of a celadon green tone. The colour of this vessel is typical of jades from India and Turkey, and the carving is therefore appropriately influenced by Mughal style.

FIG. 44

FIG. 44 **GRAPE-LEAF CUP**
Chinese, 16th/17th-century. Height: 2½ in (6.3 cm). A wine cup of white nephrite in the form of grape leaves, with an open-work stem forming the base. It is inscribed for the Emperor Jahangir when the Mughal court was at Mandu, and has an inscribed date of 1617.

purchasers but would not have been tolerated by more cultivated traditional patrons. Yet the seeds of these developments perhaps lie in the enthusiasm of the Qianlong emperor for the exotic and highly finished productions of Mughal jade carvers.

The 'Indian School' jades produced under Qianlong and his successors were decidedly eclectic in design and it is this that has contributed to much of the confusion between these Chinese works and Mughal jades. Distinguishing between them is not always easy but the Mughal jades are rather consistent in design and lack certain features that appear in Chinese examples. They may derive from Chinese porcelain shapes but never from the shapes of archaic Chinese ritual vessels. They can stand on foot rings but seldom, if ever, on feet. They can have handles but these handles never have loose rings. By contrast with many Chinese vessels, the rims of bowls are seldom, if ever, wavy or serrated but sit flush on a flat surface when inverted. If they imitate floral forms, the petals are likely to be those of the lotus but never the narrow-petalled chrysanthemum, and unlike Chinese jades of the Ming and Qing periods they do not have open-work stems, leaves or flowers standing away from the body of the vessel. Connoisseurship depends on very much more than these simplistic criteria but any jade object that fails such tests is far more likely to be Chinese than Mughal.

FIG. 1

FIG. 1 **WESTERN ESKIMO SCRAPER**
This ivory and jade scraper is in the collection of the Museum of Mankind, London.

CHAPTER 13

JADE IN NORTH AMERICA

Alaskan, Canadian and United States Jades

STANLEY F. LEAMING

JADE OCCURRENCES IN NORTH AMERICA

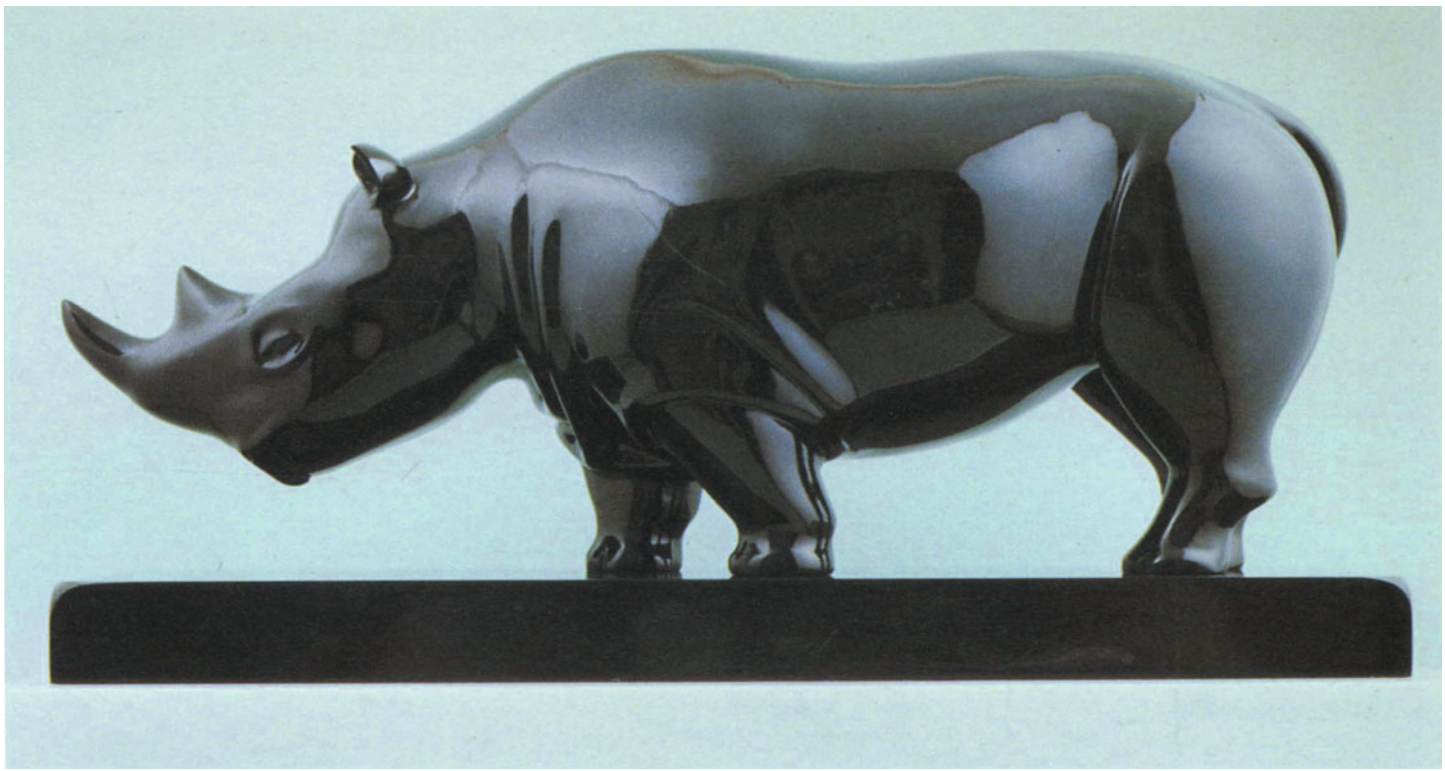


FIG. 2

FIG. 2 **RHINOCEROS**
Martin Arlidge. A black-toned stone from Mount Ogden has been used by the artist for this animal figure. The piece's round smoothness and polish emphasize its sculptural qualities.

This chapter will consider all the jade occurrences in North America down to the USA/Mexico border. While Mexico is part of North America, any discussion of jade there is best treated with the jade of Central America for there is a close association with the jadeite of the Aztecs, Toltecs and Mayas that is culturally and mineralogically quite distinct from the nephrite of the Indians in the North.

The jade of most of North America north of Mexico is the nephrite variety. Except for a few occurrences in California and a possible location in both Washington State and British Columbia, all the jade from archaeological sites and the known occurrences is nephrite.

Jade in North America is found principally in two belts of rocks along the margins of the continent. The western or Cordilleran belt extends from Alaska to California and intermittently in between. This belt includes a number of terranes which originated in the Pacific Ocean and were later plastered on to the ancestral continent by forces originating in the interior of the Earth.

The eastern or Appalachian belt is of minor importance in the formation of jade deposits. However, they are known in Newfoundland and there are possible occurrences in Quebec and Vermont; there is also a reported occurrence in North Carolina.

Jade occurrences are virtually unknown in the centre of the continent. There are occasional mentions of jade artefacts and cobbles but these may have arrived via the trade routes of ancient wanderers.

The Arctic Islands of Canada have yielded numerous jade artefacts in archaeological sites of the Inuit natives and their forebears. The number of sites around the Foxe Basin suggest some nearby source but none has been established. There is a location on the Rae River a short distance

from Coronation Gulf and there are a couple of *in situ* deposits in Newfoundland. There are also deposits of serpentinite that may contain jade deposits in the general vicinity. One lies west of the bottom end of Committee Bay, and there are three belts of ultramafic rocks in the Cape Smith fold belt that crosses the north end of Ungava Peninsula. These are only theoretically possible jade-bearing formations but should be considered as possible sources.

While serpentinites do occur in Greenland and many jade artefacts have been recovered, jade deposits are unknown there.

With the coming of the Europeans in the late 16th century, the use of jade declined as more and more iron tools and weapons became available. The jade fields were then deserted until the days of the California gold rush in 1849 when Chinese placer-miners are said to have recognized the jade along the placer streams. When these miners moved on to Fraser River in the gold rush of 1858 they are said to have recognized jade boulders once more and it is believed that the Chinese shipped jade from both locations back to China.

With the waning of placer activity, those streams with jade boulders were again forgotten until the rise of amateur lapidary activity that began in the USA before the Second World War and rapidly expanded after the war. This activity originated in Wyoming and California, but the jade fields of British Columbia soon assumed major importance and the supply there greatly exceeded the demand from the amateurs. Enterprising 'rockhounds' soon found there was a market in Germany and an even larger one in the Orient. Although the unit value of jade did not approach that of the precious stones, it was still one of the most valuable of mineral commodities and prospectors were attracted in search of the stone. Many new deposits were found. The alluvial deposits were traced to their sources and soon revealed the *in situ* deposits in the mountains adjacent to the Fraser and its tributary the Bridge River, as well as Mount Ogden in central British Columbia and the Cassiar jade fields in the far north.

The commercialization of jade became important and production figures have been published by the provincial Department of Mines and Petroleum Resources since 1962. In 1978 and 1979 the value of the jade extracted reached $1 million.

From time to time mine owners have attempted to establish secondary industries based on excess production. Few were successful in the face of the much lower labour costs in the Orient; however, one company was responsible for the initiation of a jade-carving industry that was the impetus for several artists now continuing jade carving as individuals. Some of these artists' work are shown throughout this chapter.

FIG. 3

FIG. 3 **MUSK OX** *Alexander Schick. This superbly rendered sculpture exhibits the tensile strength of the sheep-like, long-haired ox that inhabits the Canadian arctic. Schick has used a strong green stone of variegated tone for his piece, which is in the collection of the National Museum of Man in Ottawa.*

FIG. 4

FIG. 4 *A jade lode in serpentine.*

FIG. 5

FIG. 5 *Map of North America showing* in situ *occurrences of jade shaded in purple.*

FIG. 6 *Splitting jade in Jade Valley, Liard Mining Division.*

FIG. 6

FIG. 7 *The river sand has polished this boulder from the Frazer River near Lillooet, thus making it recognizable as jade.*

FIG. 7

FIG. 8 *Partly cut jade at Wheaton Creek, in the Cassiar jade fields.*

FIG. 8

Western North America

The western jade belt of North America includes all the mountainous area from Alaska through Yukon Territory, British Columbia, Washington, Oregon and California. The region is now recognized as a collage of exotic terranes, some of which originated far off the coast of ancestral North America and were added to the continent by plate tectonics.

Some of the terranes were amalgamated before collision with the continent. Others were single collisions. Some of these terranes were built on oceanic crust with a serpentine basement on which accumulated volcanic rocks, chert and limestone; it was the serpentines that gave rise to the jade deposits in most of the Cordillera. The Wyoming jade deposits are an exception and will be treated elsewhere.

ALASKA

There is one principal jade-bearing area in Alaska. It lies north of the Kobuk River, about 130 miles (208km) upstream from its mouth on Kotzebue Sound.

The Eskimos have been using the alluvial jade found in the gravels along the river and some of its tributaries for centuries. It remained for Lt. George Stoney of the US Navy to discover the location of the source of the alluvial deposits. In 1883, he noticed that the Eskimos had many jade implements as well as the unfinished stone. On enquiry he was told that the source was the Great River, or Kobuk, and he set out to see for himself. About 115 miles (184 km) up the river the Eskimos pointed to a mountain to the north and told him that this was where their shamans gathered the material. They refused, however, to accompany Stoney to the mountain so he took a companion and set off to investigate. He reached the mountain – which he named Jade Mountain – and gathered some specimens for analysis but unfortunately they turned out to be serpentine rather than jade.

Lt. Stoney's next opportunity to visit Jade Mountain was in 1886 when, after wintering at Fort Cosmos, he set out in July of that year, this time better informed as to what to look for. He brought back specimens that were confirmed as nephrite by both the Smithsonian Institution and the US National Museum. Jade Mountain lies near the west end of a belt of discontinuous ultramafic rocks, largely serpentinized for some 40 miles (64 km).

From time to time over the last 30 years accounts of the Alaskan operations have been published in the *Lapidary Journal*. Burlison[1] reported that the largest producer was the Jade Mountain area, followed by that from Dahl Creek. Jade has been found there since 1940. Apparently no great amount of jade is being produced from Alaska today, but no doubt there is great potential for continued exploitation in spite of the difficulties of working in the Arctic, where a

FIG. 9

FIG. 9 *A ten-ton jade boulder from Wheaton Creek, in the Cassiar jade fields of British Columbia.*

FIG. 10 *Cutting a ten-ton boulder at Hell Creek, in the Lillooet jade fields of British Columbia.*

FIG. 10

short season and geographical remoteness add to the cost of production.

YUKON TERRITORY

A few jade pebbles have been found along the Yukon River, the finest of which was picked up close to Miles Canyon, near Whitehorse. Others were found farther down the river, but no great amount was discovered and no known source rocks were established. A single specimen from Sulphur Creek in the Klondike gold fields was found later and is today in the Bishop Collection at the Metropolitan Museum of Art in New York.

Finds of *in situ* deposits of nephrite jade were discovered by Earl Showden and Karl Ebner in 1968 on the Campbell Highway north of Watson Lake, but when partly processed with a diamond saw, not all the jade was of commercial quality.

Serpentine rocks in long belts are common in the Yukon and, by extension with the occurrences in British Columbia, one might expect much jade to be indigenous. Although there seems to be a dearth of alluvial jade in the Yukon, there are numerous *in situ* deposits in the Campbell range, in the Anvil Range.

BRITISH COLUMBIA

Lillooet Jade Fields

The Lillooet jade fields lie within the Bridge river Terrane.

Initially the Lillooet jade fields included only that stretch of the Fraser River from Lillooet downstream to Hope, and perhaps a short stretch of the Bridge River from its confluence with the Fraser near Lillooet. The gravel bars and banks of the river include many boulders and cobbles of alluvial material wasted from the parent bedrocks through long erosion. The source of this alluvial jade is in the mountains in the upper part of the drainage basin of Bridge River, where many very large jade boulders have been found. Many of these must have been released from lodes after the wane of the last ice sheet.

Along the main course of the Fraser the jade boulders are of more manageable size, and are probably the end result of more than a few cycles of erosion. Jade is a very tough rock and survives the roughest transport that nature can devise; nearly all the jade to be found along the Fraser is correspondingly the toughest and of the best quality.

With the discovery of many *in situ* jade deposits in the Shulaps and Cadwallader ranges, the Lillooet jade fields took on new dimensions. Lillooet became the hub of much activity as jade prospectors combed the serpentine hills for signs of the precious stone. Some of these jade fields lay on American Indian reserve land, and from time to time the Native Americans had jade boulders for sale. Some buyers learned that not all the jade boulders were of commercial quality; it became the practice to test the rock by a saw cut

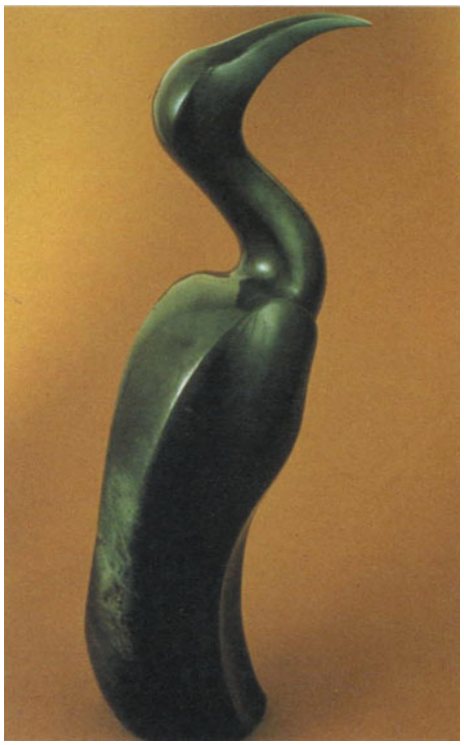


FIG. 11 **'LONG AND TALL'** *Maureen Morris. Height: 16¼ in (40.7 cm). The artist has created an elegant avian sculpture in this figure of a standing heron with a raised head. The tapering, slender beak contrasts with the elegant curve of the body and wings.*

FIG. 12 **MAMMOTH** *David Wong. Born in China, David Wong began his career as an ivory carver in Hong Kong and is now a Canadian citizen and one of the country's leading jade carvers. This sculpture combines Alaskan mammoth ivory and jade.*

or drill hole to make sure there was at least some good material in the boulder before concluding a deal.

While the Lillooet area was the first Mining Division to report jade production and had the additional benefits of a head start and a better location than the jade fields farther north, it did not maintain its place in the jade business. No production has in fact been reported since 1973. It must not be assumed, however, that the area is mined out; undoubtedly further discoveries will be made. While no current production appears in the official records, occasional boulders are in fact recovered from time to time.

The Omineca Jade Fields

The Omineca jade fields lie within part of the Cache Creek Terrane in the centre of the province.

The Omineca jade fields are centred on Mount Ogden, where several lodes have shed alluvial boulders into the many creeks in the vicinity.

Here again, old placer-mining activity for gold resulted in the discovery of associated jade boulders. It cannot be shown that there is any genetic connection, but the boulders piled up along the various streams have yielded much jade. Only boulders of reasonable size could be manoeuvered into the piles and so many weighing several tonnes remained where they were, isolated by the mining activity.

The first recovery of alluvial boulders began in 1962. Over the next seven years many boulders were removed, cut up and sold. The discovery of the source of all these boulders was attributed to Larry Owen and Stan Porayko who, in 1969, discovered what they called 'the Treasure of Mount Ogden'. They had followed the trail of alluvial boulders along Ogden and Lee creeks to the upper slopes of the mountain, and had sat down to rest on what turned out to be the jade outcrop, the main source of *in situ* jade for several years to come. Other lodes were found on the mountain. At first the jade was processed into manageable blocks and flown out, but later a rough road was constructed to the property, which reduced the cost of transportation. Mining on Mount Ogden continues to this very day.

Cassiar Jade Fields

The Cassiar jade fields lie within two exotic terranes, Cache Creek and Slide Mountain. There are thus two distinct jade belts in what is known as the Liard Mining Division: the Cache Creek rocks extend across some 200 miles (320 km) of northern British Columbia. Most of the jade deposits lie near the east end of the belt; unconfirmed reports of jade near Atlin Lake seem probably true. The Slide Mountain Terrane includes the Sylvester group, in which the Cassiar asbestos mine also contains jade.

The village of Dease Lake has laid claim to be the 'Jade

capital of the world'. The claim may be somewhat exaggerated but certainly many thousands of tons of jade have passed through the village, for it lies on the only highway through the region and provides truck transport for the production from the jade fields to the east as well as the jade from Cassiar Asbestos Mines.

FIG. 13 **POLAR BEAR**
Martin Arlidge. Stone of a dark green variegated tone has been used for this highly stylized and polished sculpture.

FIG. 13

WASHINGTON STATE

Similar geology to that of British Columbia extends south into Washington; the Chilliwack group of Carboniferous and Permian age is part of the Cache Creek Terrane. It consists of greywacke, pelite, andesite and basalt and, in Washington, is called the Darrington schist. Ultramafic bodies intruded into this formation and are largely or partly serpentinized in contact with the schist and have produced several contact reaction zones, some of which have led to the development of nephrite lodes.

The earliest mention of jade in the state was made by Harlan I. Smith at the beginning of the 20th century. As an archaeologist at the American Museum of Natural History he was well acquainted with jade artefacts and he found many, as well as raw material, in parts of the north-west.

Naturally any outcrop of jade will shed blocks of jade as erosion attacks the land surface. The first pieces to be released are properly called talus blocks and some may weigh many tons. Gravity may shift such large blocks as their underpinnings are worn away, but boulders proper are the result of stream action. Few streams can move a 20-ton block of jade, which will remain close to its point of origin, but smaller blocks may be transported by streams and glacial ice so that they may eventually come to rest at sea level far removed from their source of origin. In the Puget Sound area jade float has been found on the beaches of Orcas, Vashon and Whidbey Islands, as well as at the mouth of the Nooksack River. Alluvial jade is also plentiful in the streams in the Darrington area. Ream[2] mentions Deer Creek near Oso as a favourite place for collectors that has been very productive.

In Washington State there are at least four *in situ* deposits and there may well be many more. Probably the best known and most productive was the Poor Boy Mine owned in 1974 by Washington Gem Jade and Mining Company. It is located on Mount Higgins.

South of Darrington on Helena Ridge another *in situ* deposit of nephrite has been found.[3] There is likely to be more than one deposit in this area. A third lode deposit of nephrite occurs on Cultus Mountain, east of the town of Mount Vernon, in the Stephens Mine, in which both nephrite and jadeite are said to occur. Nephrite also occurs on Mount Stuart 20 miles (32 km) north of Cle Elum.

Coleman[4] also studied the ultramafic body on Cypress Island. Here again contact reaction zones were found and while nephrite was not shown to be present in the contact he studied, it seems possible that others might be present and could account for many of the alluvial boulders found on the nearby beaches.

Finally, the Sultan Basin also shows contact reaction zones with typical rodingite minerals. Perhaps this is to be the site of the next jade discovery in Washington?

OREGON

The first mention of jade in Oregon seems to be that by James Terry,[5] who reported obtaining a 'bowlder' of nephrite weighing 46¼ lb (21 kg) from southern Oregon. It was found by a gold prospector in a small stream, presumably in the southwestern part of the state.

There are few reports of jade occurrences in Oregon, and none seem to be of commercial interest. It seems surprising that Oregon, lying as it does between Washington and California, which both have numerous jade occurrences, should contain such a paucity of finds.

The lack of mention of jadeite in Oregon is also surprising in view of the blueschist rocks in north central Oregon near the Mitchell. These are the kind of rocks that give rise to jadeite. Swanson[6] describes the geology here in some detail; while no jadeite was found, there is mention of acmiticclinopyroxene. There are also blueschists in the Klamath Mountains in the southwestern corner of the state, where similar serpentine-blueschist rocks occur. It seems

safe to predict that both nephrite and jadeite will be found in Oregon as a result of more diligent searches in the appropriate places.

CALIFORNIA

There are few references to the prehistoric use of jade by the native tribes in California. A short note in *Gems and Gemology* (Summer 1951) states that jade artefacts were found in a village site or shellmound that contained two levels of activity, the deeper one going back some 2000 years and the shallower one about 1000 years. In the earlier site just a single jade tool was found but the later occupation yielded 46 nephrite hammerstones, along with hundreds of cooking stones. Although the location of the find was not revealed, the presence of shells would indicate that it was somewhere along the coast.

The main interest in jade in California came with the growth of the lapidary hobby, particularly since the end of the Second World War; it was not long before the California deposits of jade were discovered. Most of these occurrences were nephrite but a few locations of jadeite were also found. The latter mineral did not approach the quality of the best Burmese jadeite but was prized nonetheless by collectors.

The following is a brief summary of the jade deposits of the state by county from north to south. Not all are of importance and some may be unconfirmed.

FIG. 14

FIG. 14 *Cape Dorset site in the Arctic Islands, a possible nephrite source.*

Mariposa County

Probably the most important jade discovery in California was made in Mariposa County in 1962. The presence of alluvial boulders, some weighing several tons, quickly led to the finding of *in situ* occurrences of nephrite deposits in the nearby serpentines. Talc is also present, of which some of the nephrite contains appreciable amounts, lowering the grade of the material for lapidary purposes.

San Benito County

Jadeite was first reported from California in 1950 from a boulder found in Clear Creek in San Benito County. The discovery of *in situ* deposits followed soon after. The principal reference to this occurrence is that of Coleman (1961).[7] The jadeite deposits lie within a serpentine body in the southwest corner of the county, where an elongated body of serpentine is flanked by Mesozoic sediments.

Monterey County

Jade pebbles and boulders have been collected from the beaches along the coast between Monterey and Morro Bay for some 40 years. With the large number of rockhounds visiting these locations material is probably becoming harder to find but no doubt new supplies are being added by the forces of nature, for the *in situ* deposits are in the adjacent rocks and these are always being eroded.[8]

Siskiyou County

Nephrite has been found in the Chan Mine near Happy Camp in the northwest corner of the county. It was originally a gold placer area and is well known for vesuvianite which, as a green stone, became known as California jade or californite. For some time it was thought that only vesuvianite was present. It remained for James Lewis Kraft[9] of cheese fame to acquire the mine and discover that nephrite was also present. Of some interest is the presence of gold specks in the nephrite. Hemrich[10] also reported jadeite float from the Klamath River.

Humboldt County

Pebbles of nephrite have been recovered from beach gravel in Humboldt County and may be derived from conglomerates along the ocean cliffs. Occasional large masses have been found – Sinkankas[11] reports one of 1500 lb (680 kg). Favourite hunting grounds lie north of Eureka and up the Trinity and Klamath rivers.

Trinity County

Alluvial jade boulders of up to 1350 lb (612 kg) are reported by Hemrich from the Trinity River. Jadeite is also said to occur. The rugged Trinity Alps may also afford good prospecting opportunities.

WYOMING

Wyoming is undoubtedly the 'jade state', for thousands of tons have been gathered up over the years from mainly alluvial deposits widely scattered over a large area in south central Wyoming. Much has been written about this famous Wyoming jade. Jade from the Wyoming fields was apparently discovered near the turn of the 20th century but it was not until 1936 that a rediscovery sparked widespread interest in the mineral by the rising numbers of lapidary enthusiasts.

Nephrite occurs over a large area centred on a point about midway between Lander and Rawlins and including Bull Canyon area, Crooks Mountain and Green Mountain south of highway 287 and Granite and Rattlesnake mountains north of the highway. There is also an area northeast of Rawlins in the Pathfinder Reservoir.

Eastern North America

Jade has not been widely found in eastern North America. This seems a little strange, for the Appalachian mountains are similar in many ways to the Cordilleran belt in that serpentine belts and contact rocks would seem to provide similar geological conditions to those in the west. Asbestos, talc-carbonate and chlorite reaction zones have been commonly described but jade is rarely mentioned. The question arises as to whether or not it may have been bypassed in the search for other economic minerals in the serpentine belts.

One of the most reliable accounts of nephrite in the Appalachian belt is the occurrence in Milan Arm near the north tip of Newfoundland, reported by Stevens[12] of Memorial University. Similar rocks occur in Noddy Bay on the north tip of the island and there are references to nephrite from this locality.

Artefacts of nephrite in Dorset cultural sites have been tied to this location by Blackman and Nagle[13], but mineralogical work and chemical analyses on artefacts from various sites suggest that other sources must be extant. Prospecting in the serpentine belts along the Labrador coast in 1984 failed to reveal any nephrite sources. The search was not exhaustive and the possibility of metamorphic jade was not included in the search.

Apart from Dorset artefacts from Newfoundland and Labrador, other jade artefacts have come to light in various parts of eastern North America. In 1887 Bailey[14] reported, 'among those [axes] possessed by us is one which is rather unique in being composed of a dark green jade and highly polished. It was found upon the shore of the St John River below Spoon Island'.

Nephrite jade has been reported from North Carolina by Zeitner[15] and the identification is said to have been confirmed by 'gemologists'. The specific gravity and R.I. tests were right for nephrite but the characteristic texture has not been proven.

FIG. 15 **JADE BEAD NECKLACES**
Canadian stone is used here by Taiwan carvers to create these three strings of necklaces.

FIG. 15

Jade in the Centre of the Continent, the Arctic Islands and Greenland

The centre of the continent comprises ancestral continental rocks, mainly granitic intrusions and volcanic eruptives with derived sediments. Accordingly jade associated with serpentines is not to be expected. Metamorphic jade as contrasted with metasomatic jade may be possible as amphibilites and dolomites are not uncommon rocks. In spite of this jade deposits are essentially unknown in any association. A few artefacts and occasional erratic cobbles or pebbles have turned up from time to time in the eastern states and may have arrived via ice transport or native trade routes.

While serpentine rocks and jade artefacts are known from Greenland, a communication with the Greenland Geological Survey some years ago disclaimed any knowledge of jade deposits.

There has been widespread discovery of nephrite artefacts in Dorset and Thule archaeological sites in the Arctic Islands. A geological map of Canada shows ultramafic bodies in a belt across the north end of the Ungava Peninsula, not too far from Cape Dorset – which suggests that the former may be a possible source area.

THE HISTORY OF JADE-WORKING IN NORTH AMERICA

FIG. 16 *Map showing Inuit and Indian origins and jade cultures.*

FIG. 16

Aboriginal Use of Jade

It is now generally agreed that the original people of North America arrived from Asia across the Bering Strait. They travelled by boat or over the dry land that was exposed when the sea level was reduced during the Ice Age, or perhaps across the ice in winter. Via this route the Inuit spread from Alaska across the Canadian Arctic regions and down the Labrador coast.

The Indian nations too crossed into the new continent from Asia and spread out through an ice-free corridor into the centre of the continent, eventually to inhabit the whole of North and South America. (Although this summary is simplified and under debate by anthropologists and archaeologists, it is sufficient in terms of the early uses of jade.)

The Indians of North America made little use of jade, although many of the tribes lived in the vicinity of jade deposits. The major exception was the Salish people and their progenitors in southeastern British Columbia. They had a convenient source of alluvial boulders and cobbles along the Fraser River from Lillooet to Hope from which they made many thousands of artefacts. Some of these artefacts were used in trade far into the interior of the province and out to the coast as far north as the Queen Charlotte Islands.

In Washington State to the south, a source (or sources) of jade was known to the Indians and these tribes too had a jade industry. In some southern tribes jade was used as cooking stones but as far as is known no jade artefacts were produced south of what is now Washington State.

There is a reference to Indian use of jade in Alaska in the *US National Museum Proceedings* Vol. 6 (1883); this reads 'Jade celts also occur among the Indians of the Yukon River about Nulato. They claim that the rough material is

found upon the side of a mountain about 25 miles from Nulato'.

By contrast, the Inuit (the Canadian Eskimos) made much use of jade in fashioning tools, weapons and ornaments and they did so from Alaska to Labrador, although they were only for casual use in the western Arctic.

Fig. 16 is an attempt to depict the origins of the Inuit and Indian cultures on the assumption that they both migrated from Asia in several or many waves of family groups over a long period of time. The earliest immigrants were probably followers of the game herds on the dry land of Beringia, but later groups may have come by boat across the narrow strait.

Noteworthy sources of jade in the Arctic are few in number. There is a substantial supply up the Kobuk River, where *in situ* deposits have been shedding alluvial boulders for a long time. Most of the Alaskan artefacts must have come from this source. A possible source near Nulato on the Yukon River has already been mentioned, and farther inland in the Campbell Range in Yukon Territory there is another source, though this was apparently undiscovered by aboriginal people. There is a further reference to a possible source in the vicinity of Mount Fairweather in southeast Alaska.

A small deposit of *in situ* jade on Rae River a few miles inland from Coronation Gulf was recorded by Sir John Richardson. In his report he states: 'At a cascade in Rae River about 10 miles above its mouth, walls from 8 to 20 feet high of bluish-grey quartzrock in thin layers hem in the stream . . . At this place Mr Rae discovered (1849) among the limestone and quartz-rock, layers of asparagus stone or apatite, thin beds of soapstone and some nephrite or jade.'

Mr Rae was of course the famous Dr John Rae, physician and naturalist, who discovered the whereabouts of the missing Franklin expedition to the Arctic. No doubt his identification of jade is correct but as far as we know no one else has seen the deposit and there is no confirmation of his discovery. Few artefacts have been found in the vicinity of Coronation Gulf.

There is an artefact location not far away on the Blow River as reported by Osborne;[16] a fishline sinker identified as nephrite was found but no ethnographic reference is available. This location is west of the mouth of the MacKenzie River. There is also a reference to a jade adze on Herschel Island, but the information is scanty. Many jade artefacts have also been recovered from Dorset sites in the Foxe Basin in the eastern Arctic, but there are few reported locations of sources for the raw material.

There are sources of nephrite in northern Newfoundland; nephrite associated with serpentinized ultramafic rocks in the Milan Arm Melange at the east end of Pistolet Bay has been reported by Dr Robert Stevens of Memorial University in St John's, though the results have not yet been published. A deposit on Noddy Bay is also reported and it seems likely that some of the artefacts found in Dorset sites along the Labrador coast may have come from these sources. Most likely other jade sources remain to be found in the Arctic but at the time of writing this is all that can be stated with assurance.

Fig. 16 shows a number of culturally isolated jade occurrences. Whether or not some artefacts from these sources will be unearthed remains to be seen. Most of these occurrences are far from the habitat of the Inuit and it may be that the Indians who could have exploited them were still living in a Paleolithic culture and were hence incapable of utilizing the resource. It is clear that although both Inuit and Indians had access to jade supplies only the Inuit made much use of the material. Could this fact be attributed to some long-ago heritage extending back to the Asiatic people coming from the Siberian sources of jade? Could the Salish people, a language group of natives inhabiting the Fraser River area, be tied to the same tradition via the cultures of

FIG. 17

FIG. 17 **CANADIAN INDIAN ADZE BLADES** *The top jade blade, 9¼ in (23 cm) long, is of Northwest Coast Indian origin. The centre blade and the pointed blade, both 9½ in (24 cm) long, are of greenstone and were found in the Fraser River area; the middle piece was carved by the Thompson River Indians, the pointed blade by the Salish tribe.*

FIG. 18

FIG 18 **ESKIMO HAMMER AND POUNDER**
Hammer length: 6 in (15 cm); pounder length: 7½ in (19 cm). The quarrying hammer is possibly made of jade and nephrite, with a bone handle and sinew cords; it may have been found at Cape Beaufort. The larger pounder was used to make pemmican, a concentrated food comprizing finely pounded lean dried meat and melted fat; the Western Eskimo implement is made of bone and probably hide, and its head is possibly jade.

FIG. 19

FIG. 19 **INDIAN AXE**
Length: 13¼ in (33 cm). This jade blade was found on the Northwest Coast in Marset Harbour in the Queen Charlotte Islands, British Columbia.

FIG. 20

FIG. 20 **INDIAN JADE AND BONE ARTEFACT**
Length: 7½ in (18 cm). The jade section of this piece, from the Northwest Coast, measures 3½ in (9 cm) in length.

southeast Alaska, who recognized the worth of this difficult medium?

THE INUIT

Inuit simply means people, whereas the term Eskimo means eater of raw meat and, as first applied, was a somewhat derogatory term. The Canadian Eskimos prefer to be known as Inuit, although the Alaskan people are still usually referred to as Eskimos.

While they descend from Mongol stock, the Inuit are not so much a race as a culture. They are, or were, primarily hunters of sea mammals, harpooning them from skin boats. Some of them also hunted inland for caribou for part of the year. They were able to survive in a hostile climate with few resources save stone and animals yet they had time to develop an art form, carving ivory from walrus tusks. They made most of their tools from flint, chert or fine-grained basalt by flaking or pecking. They later learned how to grind nephrite into adze blades, knives and labrets. Slate was also used for ground-stone tools and was much more common than jade. Chipped and flaked tools predominated.

The precursors of the Inuit culture, commonly designated Paleo-Eskimo in archaeological literature, comprised a number of cultures given separate names based on the geographical locale of the archaeological site and distinguished from other cultures by their subsistence patterns, the forms of their tools and the style of their art.

Although there were inhabitants of Alaska for thousands of years it was only comparatively recently that their use of jade has been found.

Our knowledge of the use of jade in ancient Inuit cultures and their progenitors comes from the archaeologists' 'digs' into old dwelling sites and burials. This latter activity has not always met with the approval of the indigenous population, who often resent the disturbance of the resting

places of their ancestors. However, this objection has not been observed everywhere and there have been numerous occasions when the locals were eager to help in excavations.

Stone tools were the least perishable of the artefacts of antiquity and flint, obsidian and fine-grained rocks were among the most common lithic materials available for this purpose. Archaeologists recognized that there were different techniques in working these stones and constructed cultural classifications accordingly.

The tools also gave a clue to the type of hunting activity as different weapons were needed to kill different kinds of animals. Arrows were fine for land hunting, but the Inuit tradition of hunting sea mammals required the harpoon. It also required the skin boat to pursue the whales, walruses and seals that made up most of the diet of the Arctic dwellers. The location and type of construction of their dwellings also indicated their subsistence activity. Most Inuit, perhaps all except some minor groups who hunted caribou, lived on the sea coast. This was a changing environment, for after the last great ice sheets melted at the close of the Pleistocene epoch the land rose and many sites became inconveniently located with respect to the beach. Consequently, the dwellers simply moved a little closer to the water, leaving behind their old homes with all the kitchen refuse and broken or lost tools to be discovered by modern-day archaeologists. Over the last 100 years fieldworkers in North America have been sending back to their museums large collections of native artefacts from old dwelling sites and cemeteries. Among the many items collected were lithic materials labelled 'jade', 'jadeite' and sometimes just 'stone', but more commonly 'nephrite' (for the most part the designation 'jadeite' by archaeologists must be incorrect). 'Ground stone' could mean not only jade but slate, which was also often used for adzes and for knives.

Because flint, obsidian and similar fine-grained and cryptocrystalline rocks could be readily flaked to provide cutting edges, these types of material have received most attention from archaeologists. Perhaps the few jade artefacts collected still remain as numbered items in basement storage awaiting someone to study the use of jade in ancient cultures. Such a study would have both archaeological and mineralogical content and would reveal much about the movement of the early cultures in the region.

At present there is reference to jade in only a few pre-Inuit cultures, summarized in the following account.

OLD BERING SEA CULTURE

This culture was named by Diamond Jeness in 1926 following his work on Little Diomede Island. Later Giddings found the same culture on St Lawrence Island. A single jade whetstone seems to be the only jade artefact recovered from this culture. According to Stirling[17] this dates from about AD 300 and is the oldest jade artefact found in Inuit or pre-Inuit times. There seems to be a hiatus in the use of jade from the earliest times to about AD 1400, when jade artefacts became more common. By AD 1700 jade had replaced slate in the manufacture of cutting tools.

NORTON CULTURE

The Norton Culture dates from about 400 BC to the beginning of the present era. It was named by Giddings from a site near Norton Sound.[18] Jade was used for the manufacture of labrets and adze blades but not extensively.

IPIUTAK CULTURE

This culture was discovered in 1939 by Larsen and Rainey[19] (1940) near Point Hope. Over 600 semi-subterranean dwellings lay in long rows parallel to the beach. Burial sites too were excavated and revealed a strange use of jade: as pupils for ivory eyeballs inserted in the skull, reminiscent of the Chinese practice of stopping up the body orifices with jade plugs. However, some references to both jet and agate as pupils appear in the literature and that poses questions as to the authenticity of the original mineralogical identity. Was more than one mineral used for this purpose or were the minerals confused? There appears to have been little other use of jade except for some vaguely worded references to 'polished stone'. These may have been jade but use of this material is quite limited.

It is apparent that the Ipiutak was an advanced culture but not one closely associated with Inuit traditions. The people did hunt walrus, as attested to by the great amount of ivory carvings, but they hunted inland as well and gathered antlers for various purposes.

DORSET CULTURE

This culture was named by Diamond Jeness in 1926 from archaeological investigations at Cape Dorset on the south side of Baffin Island. The material is dated to 500 BC. Subsequent identifications of Dorset sites have been made in Labrador and Newfoundland, North Greenland including the Thule district, Peary Land, Southampton Island, King William Island and, especially, on Melville Peninsula. These sites cover a time span from 900 BC to AD 1000. Most of the artefacts are adze blades but some gravers were found in some abundance. Harper[20] says these gravers are characteristic of Dorset Culture.

The Dorset Culture presumably developed out of an older culture or cultures collectively called pre-Dorset. However, there seem to be no references to the use of jade by these people.

There was a short overlap in time between the Thule and Dorset cultures but by about AD 1000 the Dorset had

been displaced or assimilated by the Thule. This sea mammal-hunting culture apparently developed from Birnik in Alaska and spread rapidly across the Arctic.

THULE CULTURE

The Thule people had either absorbed or eliminated the Dorset culture in the eastern Arctic by about AD 1000 and moved down the Labrador coast to become the ancestors of the modern Labrador Inuit. The Dorset Culture had learned how to utilize jade, so it would seem likely that the interaction between this group and the Thule passed on the tradition. This seems to imply the presence of a jade source in the eastern Arctic but such a source has not yet been discovered – unless raw material was supplied from the Rae River. There is a Thule site at Cape Bathurst not too far to the west of Coppermine.

Strangely enough, according to Stirling[21] jades do not appear in the Thule Culture of Alaska but is quite abundant in Thule sites in the Central Arctic. Because these Thule did not use the Alaskan jade it is assumed that they had found a source in the eastern Arctic.

While jade artefacts are widespread in cultural sites across the eastern Arctic they are statistically unimportant. Rowley[22] reports that out of a collection of 1500 artefacts from a site near Igloolik only two nephrite specimens were identified. Most of the artefacts were chipped from chert or quartz.

Indian Use of Jade

Although Indian nations have inhabited North America for thousands of years and many of them must have lived in the vicinity of jade deposits from Alaska, Yukon, British Columbia, Washington, Oregon and California, few of these people made much use of jade.

There is a reference to nephrite cooking stones and hammerstones in California and a few artefacts have been found in Washington. Mention has been made of the Nulato deposit where Alaskan Indians made adze blades from nephrite. There are a few references to jadeite axes in the American South, but these might well have come from Central America via trade routes.

There was a notable exception to this Indian indifference to jade and that was the use made of substantial alluvial jade boulders found along the Fraser River and its tributary Bridge River by the Salish people and their progenitors in southern British Columbia. From the main sources in the Shulaps and Cadwallader ranges a plentiful supply of alluvial material was shed into the main water courses from Lillooet to Hope. While the interior Salish controlled the supply, the Coast Salish, Tlingit Haida, Kwakuitl and Nootka nations gained access by trade.

There is no evidence that these ancient people ever mined the *in situ* lodes in the mountains as there was never any need to – even today alluvial boulders may be found along the banks and bars of the Fraser River. The ancient cultures thus had a ready supply of raw material. Their method of manufacture was the same as was used by primitive cultures elsewhere – they simply sawed the boulders into thin slabs using sandstone saws, a little water and much patience. Examples using this technique have been recovered from sites along the Fraser. The principal use of the jade was the manufacture of adze blades but some particularly fine specimens without any known utilitarian purpose are regarded as 'property pieces', perhaps used as symbols of authority.

Before contact with Europeans the interior Salish were engaged in jade commerce with other interior tribes into the Shuswap country and Alberta as well as down the Okanagan Valley into Washington State.

The most abundant artefacts from archaeological sites have been gathered in the lower Fraser Valley and the nearby coastal islands, signifying a fairly large population which had developed over more than 8000 years. The earliest migrants lived in a Paleolithic culture; ground-stone artefacts marking the beginning of the Neolithic cultural stage have been found at a site near Vancouver near the mouth of the Fraser River. This is the St Mungo Cannery site on the south bank of the south arm of the Fraser River, about 13 miles (21 km) from the present mouth of the river. As described by Calvert[23] a large kitchen midden has been excavated to its cultural base and two samoles were dated at 2360± 110 years BC and 2290± 105 years BC. Jade artefacts recovered from this site have not been dated; we can assume that they must be of much later date than the base and a guess of about 1000 BC is not unreasonable.

In the Lillooet area jade artefacts include celts but the age has not been established. A date of 700–800 BC is possible.

The use of jade in British Columbia, then, spans something like 3000 years. Jade artefacts jave been found, however sparsely, over a large part of the province, but the workshops have been found in the Lillooet Fraser River area and indicate this as the principal source of supply.

The culturally isolated jade deposits in British Columbia did not, for the most part, shed many small boulders and cobbles that would have been amenable to the native artisan. It may be postulated that these northern deposits did not have the equivalent of the Fraser River to grind down the large talus blocks to manageable size – and a 10-ton block of jade would be of little value to people with primitive tools.

FIG. 21 **NORTHWEST COAST INDIAN AXE**
Length: 11½ in (28 cm). Also known as a slave-killer, this chief's axe is made of wood, human hair and greenstone. Carved with the distinctive thunderbird motif, the axe is from the Nootka nation of Northwest Coast Indians, on the west coast.

FIG. 21

Modern Use of Jade

LAPIDARY HOBBYISTS

It seems appropriate here to pay tribute to the many thousands of amateur lapidarians, or 'rockhounds' as they call themselves in North America, for their contribution to the jade story. Their interest in polishable rocks and minerals was the impetus for the discovery of many of the widely dispersed deposits of lapidary materials throughout North America. Jade was high on their list of favourite rocks.

There were only a few rockhounds in North America prior to the Second World War but the fraternity grew by leaps and bounds in the post-war years. The finding of jade in Wyoming and California was only the beginning of continent-wide discoveries of many rocks and minerals of lapidary interest. Western North America almost held the lion's share of the jade treasures, with British Columbia figuring prominently in the quantity of material found and deposits in Yukon Territory, Washington and Alaska adding to its contribution.

With so many rockhounds looking for lapidary materials it is not surprising that jade artefacts, alluvial boulders and a few lodes were also found in eastern North America. While some of the claims were discredited, there is jade in eastern North America and it is safe to predict that the last deposit has not been found.

The rapid growth in the hobby during the 1940s and 1950s soon encouraged machinery manufacturers supplying lapidary machinery for the large market. Two or three companies became specialists in this field. Rockshops became a business for entrepreneurs with lapidary backgrounds; they sold the equipment, findings, rocks and minerals to the local market. Some became quite large but many remained small family operations. Lapidary magazines came into existence to pass on information on mineral localities, geology and mineralogy, news of club activities and lapidary techniques. *The Lapidary Journal,* originally published in San Diego, California since 1947, has been and still is the rockhounds' bible. Other magazines have come and gone.

There can be no doubt that the rockhounds of the 1950s and 1960s were at least partly responsible for the commercialization of jade in North America. In the beginning most of the production was absorbed in local markets but with greater output foreign markets became increasingly important. Most jade mined in Canada has gone to the Orient – mainly Taiwan but recently mainland China.

The commercialization of jade in Canada did not meet with the approval of some members of the rockhound fraternity, who feared that this non-renewable asset would soon be depleted. There was a call for a ban on the export of raw jade such as had been placed in New Zealand, although on one hand the export market made it possible to find and mine the jade resources in the hinterland where they would otherwise have lain unknown.

One good result of this rockhound pressure was the declaration of jade as the mineral emblem of British Columbia, and the setting aside of the banks and bars

along the Fraser River from Lillooet to Hope as a jade reserve in which jade hunting was free to all. No mining permit is needed and of course no claim or commercialization is allowed. Private land must be respected but the reserve means that anyone will be able to seek jade here in perpetuity. Each year, after the time of low water, a new batch of jade appears, and it is likely to continue to do so for a long time to come.

COMMERCIAL PRODUCTION IN THE USA

The commercialization of jade in the USA seems to have begun in Wyoming, where the jade fields had been discovered in the early 1930s. The late Allan Branham was one of the first to exploit the alluvial deposits widely distributed around the town of Lander. Some of these boulders weighed more than a ton but mostly they were smaller, from a few pounds to a few hundred pounds. In time the lodes from which the alluvial material was derived were discovered and the mining of these has added to the total production. While no official figures have been kept, total production probably does not exceed a few hundred tons.

Some high-quality jade has come from Wyoming and the high price, up to $40 per lb (0.5 kg) may have reflected the demand.

California has many small jade deposits and some of this jade has gone into the market but no figures on production are available and probably none were kept. Estimates of a few hundred tons are mere guesses. An account by Foster[24] states that 'it is estimated that 350 to 400 tons have been taken off the Four Jacks property in Mariposa County'. As there are other lenses and some alluvial boulders near the other jade deposits that have been found in the county the total reserves might easily reach 1000 tons. It seems that production from the other jade counties in California does not add much to this total.

Washington State has produced little commercial jade. Ream[25] stated that boulders of up to 20 tons have been recovered and that there are presently two boulders about 10 tons below the workings. Production from this occurrence, then, might be in the order of 50 tons. Probably a like amount has been gathered up from other occurrences in Washington.

FIG. 22

FIG. 22 **SEA GULL**
John Lundgren. Height: 17¾ in (44.4 cm). The qualities of the green-toned jade have been exploited to full advantage by the artist. The bird's natural poise is dramatized by its raised wings.

FIG. 23

FIG. 23 **OSPREY LANDING ON A TREE**
Lyle Sopel. Height: 25 in (62 cm); Width: 11 in (28 cm). Sopel has his own studio, Jade Expressions. This bold sculpture from Cassia nephrite jade shows a spread-winged osprey, a fish in its talons, landing on a skeletal tree. It was carved from raw nephrite from Mount Ogden.

Jade miners in Alaska had high hopes for the Kobuk deposit but a number of factors combine to limit production. Among these may be mentioned the remote Arctic environment, general low-quality and probably competition from Canadian producers for the large-scale markets in the Orient. Probably a few hundred tons have been gathered up from this source but there are no official statistics.

COMMERCIAL PRODUCTION IN BRITISH COLUMBIA

In about 1965 the jade fields of British Columbia became known to collectors and entrepreneurs alike and many important discoveries were made in the next five years.

The vicinity of the village of Lillooet on the Fraser River attracted attention first for it was here that alluvial deposits have been known since ancient times, when the ancestors of the Salish tribes made use of the material for tools and weapons. Rediscovery by local rockhounds led to the commercialization of the many large boulders found mainly along Bridge River, the nearby tributary joining the Fraser from the west. Some of these boulders weighed more than 10 tons and could only be moved by machinery or sawn on the spot. Supply soon exceeded local demand and the excess was exported to Germany and the Orient. Not all the production came from alluvial deposits, for the source was soon discovered in the mountains bordering the Bridge River and its tributaries. Lode mining reached a peak in the early 1970s. By this time the deposits in Liard Mining Division in the far north of the province and in Omineca Mining Division in the centre became important producers and their output rapidly exceeded that from Lillooet – in fact there has been no record of production from the Lillooet Mining Division since 1973, although it is known that some small quantities have been removed in the intervening years.

The total value of jade produced in British Columbia to 1989 amounted to over 4000 metric tons with a value of over Can. $16 million, the Omineca Mining Division being the leader in most years. In 1988 Omineca produced 247 metric tons and in 1978 Liard Mining Division produced 451 metric tons. These were the peak years since production records began in 1962.

Official statistics are probably minimum figures as there is no guarantee as to the accuracy of the reports or whether all the producers have made returns.

COMMERCIAL PRODUCTION IN YUKON TERRITORY

There is no requirement for jade producers to make returns to the Territorial Government, so Yukon production figures are not available. It is known, however, that at least 200 tons have come out of the Hasselberg Lake area.

FIG. 24

FIG. 24 **FIGHTING BACK** *Robert Dube. According to the artist, this sculpture represents the native fighting for his birthright, an invader having trespassed on his land and trapped his beaver. Dube's earlier work largely comprised stylized animals, but eventually he turned to more complex, detailed work.*

FIG. 25

FIG. 25 **PAIR OF HORSES** *Taiwan, 20th-century. Canadian stone was used for these equine sculptures, the one on the left rearing dramatically, the one on the right galloping. The subject of horses is a favourite one in the Chinese jade-worker's repertoire. Examples from the 20th century are usually animated, whereas earlier specimens generally were modelled standing, rolling or in more somnolent postures.*

FIG. 26 **SEASHELL**
Murray F. Brown, 1973. This highly representational sculpture was carved in the studios of New World Jade Products, Vancouver.

FIG. 26

FIG. 27

FIG. 27 **INDIAN KNIFE-MAKING SAMPLE**
Length: 15½ in (39 cm). This jade implement was found in the Lillooet jade fields on the Northwest Coast.

Artistic Use of Jade in North America

While the manufacture of jade jewellery might be considered an artistic use of jade and thousands of cabochons have been cut and set in mountings for rings, brooches and pins, we are concerned here with the use of jade as a medium for sculpture or simply jade carvings.

A sculpture need not be a large-scale work. A few very large blocks of jade have been sculpted in North America but most carvings are more modest in size.

A good example of a large jade carving is *Thunder*, the work of the late Donal Hord of San Diego. It is a prize possession of the Fine Art Gallery of San Diego and depicts an American Indian sitting on a cloud and dispensing thunderbolts from a bowl. Hord and his assistant began with a 460 lb (208 kg) block of Wyoming jade and, after a year's effort, reduced it to a magnificent statue weighing 104 lb (47 kg). When first displayed it carried a price tag of $25,000. This might have been a fair price in 1947 but one might speculate on the value today. No doubt the museum considers it priceless.

Several jade mining companies in British Columbia have tried to develop secondary industries for their excess jade production. Few of these were successful, but one that was for a time was New World Jade Products Limited. Beginning with a great supply of good-quality jade from Mount Ogden, New World Jade Products was a subsidiary of New World Jade Limited. This division set up a jade-carving studio, supplying the machinery and recruiting graduates from the Vancouver School of Art to do the work. New World Jade Products was the result of a chance visit by Robert Dube to the cutting shop of New World Jade Limited in 1972. He showed them a jade carving mimicking Inuit style and suggested the company might open a studio. Jade was a new art medium in Canada, and techniques of use had to be developed without a prior tradition. The first efforts with this difficult and unforgiving stone were simple forms without, perhaps, any great artistic merit but with a highly polished finish. Stylized forms of birds and animals were favourite objects at first and the prices were not excessive. Soon, more artistic, and hence more expensive, pieces appeared – a few of the better carvings sold for as much as $10,000. As each piece was completed it was given a number and the artist's initials were carved in some inconspicuous place. More than 2000 entries were made before the venture was wound up.

The demise of New World Jade Products was not the end of the jade-carving industry, for a few of its dedicated carvers, David Clancy, David Reuben, Ruth McLeod, Deborah Wilson, Edward Sawatsky and David Enn, set up The Co-op and continued to turn out superior pieces. This shop closed too but was relocated to The Jade Gate, where

FIG. 28 **THUNDER**
Donal Hord, 1947. Height: 20 in (50.8 cm). San Diego artist Hord (1902–66) carved this powerful allegorical sculpture out of a 460 lb (208 kg) block of Wyoming jade, after a year's work reducing it to 104 lb (47 kg). The sculpture represents an American Indian sitting on a cloud and dispensing thunderbolts from a bowl; it has been in the collection of the San Diego Museum of Art since 1954.

FIG. 28

Deborah Wilson, Alex Schick, Tom Duquette and Peter Danzig continued to work. Eventually The Jade Gate closed and the remaining carvers set up their own studios.

Another carving operation was set up during these years under the name Arte de Jade. It was in these facilities that Robert Dube continued to turn out a great number of carvings, including his *Big Bear*. Here, too, Lyle Sopel started to produce fine carvings. He eventually opened his own studio.

At the peak of activity, in 1973–4, there were about 30 carvers working jade. Today there are only a few and of these only Lyle Sopel works exclusively in jade. David Wong carves in ivory as well, and Deborah Wilson sometimes works with soapstone, as does Alex Schick.

OTHER ARTISTS IN JADE SCULPTURE

While only a few of the artists who have turned their hands to jade sculpture over the years in British Columbia have continued to work in jade, there are several others who have produced some major works and should be remembered. Many private collections as well as museums hold works by such artists as George Rammel, David Clancy, Edward Sawatsky, David Enn, Nancy Hadler, Maureen Morris and John Lundgren. These might well have made greater contributions to the mystique of jade had they continued, for all are true artists. The workshop of Jade World, where Arnold Chow, Jason Ho and Chang Min Hu are carrying on the tradition started by the late Joe Bell, should also be mentioned.

FIG. 1

FIG. 1 **ZATOPEC PLAQUE** *In the form of a human figure wearing a jade necklace and ear spool, this rectangular plaque, of green and brown mottled jade, is carved in the style of jades from the Zatopec region of Oaxaca, western Mexico. The standing representation and treatment of the eyes and feet set the carving traditions apart from that of Mayan seated figures and carved jade heads.*

CHAPTER 14

JADE IN MESO-AMERICA

Pre-Columbian Jade in the Central and Southern Americas

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ELIZABETH KENNEDY EASBY

FIG. 2 *Map of Meso-America, showing major political designations, geographical features, archaeological sites and archaeological culture areas.*

FIG. 2

Pre-conquest New World society was a patchwork of hierarchically organized complex cultures and more simple egalitarian groups. Depending on the geographical area and the level of social complexity, religions in these New World societies served either to validate the rule of central deity/political figures or to represent the naturalistic view of the real and mythical world surrounding the people. In many areas, and over many thousands of years, some of the most important indicators of prehistoric social or religious rank were jade objects.

The term 'jade' is used in this chapter in a very general sense, often meaning little more than a carved green or black stone. Most commonly, however, 'jade' refers to the recognized minerals nephrite, an amphibole seldom found in Meso- and Central America, or jadeite, a pyroxene with a tough intergrowth of crystals that was prized for its lustre and translucency. Other minerals that have been referred to as 'jade' in the literature include albite, quartz, hornblende and glaucophane. These are but a few of many greenstone minerals, or rocks, that were carved by the ancient inhabitants of the New World.

The term 'social jade' is used to describe those objects that are carved in the same form as many styles of jadeite artefacts, but from other stones. In fact, most museum collections consist of large quantities of 'social jade' (usually quartz, serpentine, and even slate), and relatively small percentages (usually 20 per cent or less) of true mineralogical jadeite. It is an important question as to whether or not the prehistoric carvers themselves recognized these differences (especially between jade and quartz) and if so, whether they mattered.

Rands, writing about the lowland Maya,[1] felt that such distinctions were consciously made. 'Various jade-like minerals were sometimes fashioned into objects similar to those made of jade. Nevertheless, jade itself was normally used in the finest carvings, indicating that greater intrinsic value was placed on this hard, often lustrous stone.' Carmen Cook de Leonard[2] was even more emphatic with regard to Classic period Central Mexico: 'Any green or blue stone was worked, so that not all stones of this color are jade, but the best-sculpted stones are jade, showing that the natives knew the difference.'

It was not jade, however, but gold that received the primary attention of the early Spanish explorers. The malleable yellow metal was a valuable commodity, the export of which was sure to be rewarded in Spain. And, upon first impression, gold was far more common; with the exception of the Naco Valley region of Honduras, little jade was being

worked anywhere in Meso-America or Central America in the 16th century.

Nevertheless, jade was recognized as an item of great value. For example, the conquistador Bernal Diaz del Castillo was promised precious stones of *chalchihuitl* (jade) as gifts to the king of Spain, each of which was equal in value to two loads of gold (in this respect it would be interesting to know if the king was getting real jade or social jade!).

Only as the early Spanish explorers, eventually followed by other Europeans and finally North Americans, began to loot Pre-Columbian tombs and other structures from Mexico south through Central America did the stunning nature of prehistoric jade-carving become more apparent. Today we can recognize two different regions where jade was used. The first, the Olmec area of Mexico, the Maya lowlands, central Honduras and northern Costa Rica with their apparent jade sources (although we are not sure today where those sources were located) and the second, the Valley of Mexico, the Valley of Oaxaca and Highland Guatemala, which were mainly recipients of already finished products. Left somewhat ambiguous in their placement are the occasional reports of greenstone finds popularly attributed to areas in the Mexican state of Guerrero.

From the time of the first explorers there has been a fascination with New World jade that has continued to feed speculation about the location of the prehistoric sources of the material and about the cultural significance of the carved imagery. Although a viewer of jade objects may be justifiably impressed with the lustre or translucent character of the stone or marvel at the detail of the cutting or incising, the objects are part of the archaeological record as it has come to us. The study of their characteristics, including those of form, design and material, may be combined with interesting information about their distribution and context in a manner that also permits archaeologists to interpret past cultures.

Jade as a Medium of Expression

The Pre-Columbian cultures of Meso-America and Central America must have quickly realized that the harder stones such as jade were an artistic medium that had different requirements from the other classes of material (clay, volcanic stone and gold) that were used. For example, clays that are suitable for pottery-making occur widely and can be quickly formed into utilitarian vessels with minimal expertise. Unsuccessful attempts can even be recycled through 'melting down' the imperfect vessels and reusing the clay. Volcanic stone is also widespread in Central America, its relatively soft composition easily worked by a combination of abrasive and percussive techniques. Gold-working consists of the best of both volcanic stone and clay-working: the malleable nature of the metal permits it to accept a vast range of shapes, while design and production errors can be eliminated or repaired through recasting or rehammering.

FIG. 3 **JAGUAR MASK** *Boldly modelled with a fierce grimace, this Olmec jaguar mask is a powerful portrayal of the 'were-jaguar' face, which was a dominant theme combining both human and jaguar features. In the collection of Dumbarton Oaks in Washington D.C., the mask is carved of green mottled stone with brown markings.*

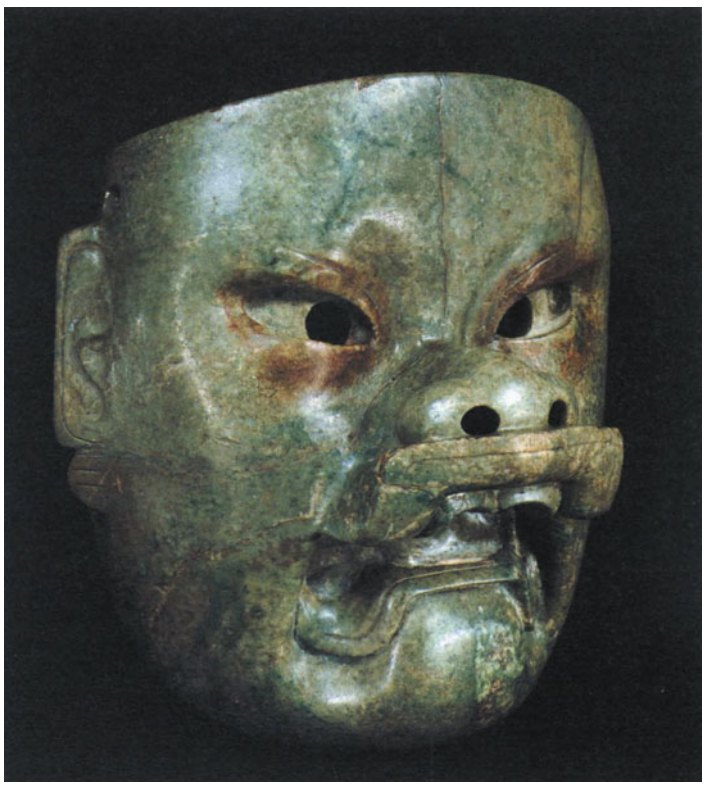

FIG. 3

Jade-carving, on the other hand, is a subtractive technology much less forgiving of errors, either from faults in the raw material or from miscalculations by the artisan. Jade artefacts often show evidence of having been refashioned from pieces that broke along faults and stress points during the initial manufacture.

Prehistoric jade-carving involved the manipulation of tough materials with only primitive tools. Nonetheless, the technological challenges were overcome and three major, distinct carving traditions emerged: Olmec (see Fig. 9 for example), Mayan (such as in Fig. 5), and Costa Rican (see Fig. 8 for example). To these three one may possibly add a more recently suggested fourth tradition of the El Cajon

FIG. 4

FIG. 5

FIG. 4 **PENDANT**
Length: 4¼ in (10.8 cm). Possibly from the Guerrero region of Mexico, this green-toned stone has been carved into a pendant engraved with the features of the face of a feline-monster deity, with wide, flaring nose and fierce mouth.

FIG. 5 **MAYAN FACE PLAQUE**
A face in a headdress surround has been carved from stone of varied green tones, with markings; the piece is in the collection of the Denver Museum of Art.

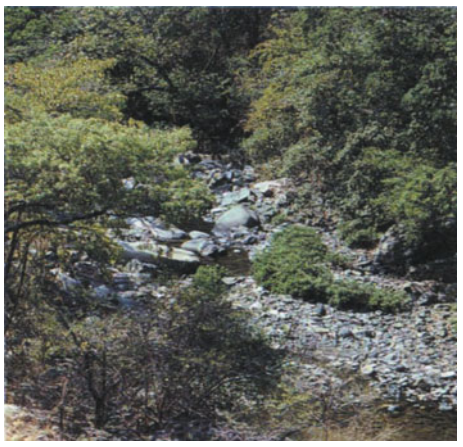

FIG. 6

FIG. 6 *A known source of jadeite boulders is the streambed of the Motagua Valley, a view of which is seen here.*

region of west central Honduras the illustration of an Olmecoid heirloom (Fig. 14) indicates the striking variety of style.

All of these traditions shared some iconography and some production techniques using similar raw materials, but they were neither sequential in their emergence nor did any one tradition dominate the production or dictate the styles that occurred in the others.

Meso-America and Central America: The Natural Setting

The eastern Gulf Coast of Mexico is a region of low-lying swampy terrain where heavy annual rains swell the rivers of the low tropical jungle. This was the homeland of a people known as Olmec, who shared several of the hallmarks of a religious system that underlay the ancient cultures from the southern two-thirds of Mexico through the Andes of South America. Inland and to the west, embraced by the rugged mountains of the Central Cordillera, are the valleys of the Central Mexican Highlands – the setting for the inhabitants of Teotihuacan, the city of the gods, and later for the Aztecs, who would eventually bow before the might of Spanish weapons and religious zeal.

South and east of the Olmec Gulf Coast is a region of dense, double-canopy rainforest that, combined with the mountainous southern extension of the Central Cordillera, the Chuchumatanes and the karstic limestone Yucatán platform, supported the civilization of the Maya – a people equally renowned for their artistic accomplishments and for the mystery that still surrounds their demise.

Farther south still is the narrow isthmus between the North American and South American continents. This is a region whose ancient inhabitants felt the ebb and flow of influences of both the Meso-American high civilizations to the north and the Andean ones to the south. The Central American inhabitants of this isthmian 'bridge' accepted or modified some influences and rejected others as they moulded their own distinctive cultural entities. Of the modern isthmian countries of Panama, Costa Rica and Nicaragua, the prehistoric Panamanians excelled in gold, the Nicaraguans in ceramics and stone sculpture, and the Costa Ricans in jade-carving.

Thus, the land first reached by the European explorers of the New World was one of great physical and cultural diversity that had witnessed the cyclical rise and fall of centres of social and political importance. This was a vast land of farmers and of warriors, of household artists and elite craftsmen, of common people and of priestly rulers. The Spanish encountered much diversity.

THE HISTORICAL EVOLUTION

FIG. 7 **GUERRERO AXE-GOD CELT**
Grey-green stone with light brown markings has been carved into an axe-god celt, which is pierced and worked in relief with facial features; the reverse is flat. The piece is in the collection of the Denver Art Museum.

FIG. 7

Early Jade Studies (Pre-1970)

A survey of interest in, and research into, Pre-Columbian jade in Meso-America and Central America from the Conquest to modern times conveys some sense of both the general appreciation and the professional research on the part of connoisseurship and archaeologists that has focused attention on questions regarding the geological source(s) of the materials used in the production of jade artefacts.

Greenstone artefacts were described by the early Spanish explorers in Mexico and afterward, through the 19th century, by travellers along the Pacific coast of Central America who also mentioned the geological occurrences of jade or other greenstones. Since no samples were collected, it is difficult at this point to reconstruct what the travellers actually saw.

During the period of great archaeological explorations (1792–1914), the artistic wealth of the New World inhabitants was brought to popular attention. Somewhat ironically, the Olmec, the earliest known civilization of the area, were not recognized as a cultural entity until relatively late in the development of New World archaeology. While individual artefacts had been known for quite some time, it was not until the early decades of the 20th century that the art style we now loosely refer to as 'Olmec' was identified.

The Maya region was brought to popular attention by the writings of John L. Stevens and the drawings of Frederick Catherwood in the first half of the 19th century and many followed in their footsteps. The end of the 19th century and the beginning of the 20th century witnessed many explorations by, among others, Englishman Alfred Maudsley, American Sylvanus Morley and German Teobert Maler. Extensive descriptions were made of jungle sites

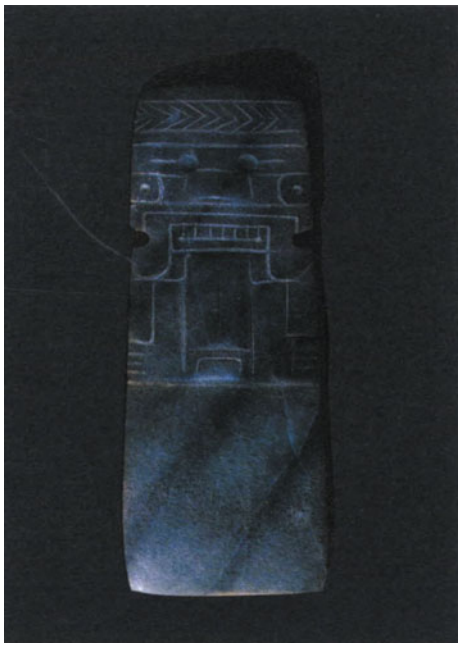

FIG. 8

FIG. 8 **COSTA RICAN AXE-GOD PENDANT**
Of irregular rectangular form, this plaque is incised with the figure of a Costa Rican axe-god who wears a feathered headdress and earspools and has prominent teeth. The stone has a grey mottled tone.

entombed by tropical forest overgrowth and, as the prehistoric Maya were found to have possessed an indigenous writing system, studies of architectural detail, discussion of art styles and the deciphering of the writing system attracted scholarly interest. The grace and style of many of the Maya jades paralleled the general image of the prehistoric Maya peoples as a peaceful, intellectual, art-loving populace.

Maya jades, probably from the ruined ceremonial centre of Tonina in Chiapas, Mexico, were illustrated by engravings in 1869 as remarkable 'relics' acquired by E. G. Squier.[3] Now in the collection of the American Museum of Natural History, the number of 'relics' was later increased in the United States through such recovery activities as the dredging by Edward Thompson at the Sacred Cenote – an immense sinkhole – at Chichen Itza in Yucatán.[4] In the latter, vast numbers of textiles and gold were recovered in addition to jade artefacts.

In Costa Rica's Nicoya peninsula, the Swedish botanist Carl Vilhelm Hartman mapped and excavated at the extensive burial site at Las Guacas in the first decade of the 20th century.[5] He also purchased from a resident Spanish priest, José María Velasco, a large existing collection of greenstone artefacts that exhibited an extensive range in their cut or carved detail, although only a few were of jadeite. All, however, were regarded in much the same manner as early jades recovered from the Maya area – merely as objects of curiosity from a past culture.

Objects, and their associations, took on new archaeological importance as the 20th century progressed. The archaeological application of the stratigraphic method, derived from geology, permitted the changes in the types and frequencies of artefacts to be viewed as a function of time, and could be used to reveal gradual cultural changes. Objects ceased to be miscellaneous relics and instead were inspected for what their frequency, form or designs might reveal about the transformations that had taken place in a given culture.

Alfred V. Kidder, the leading American archaeologist of his time, carried out extensive excavations at the Guatemalan Highland site of Kaminaljuyu, during the course of which a large number of jade objects were unearthed. Methods of Maya jade-carving were described in detail by Kidder, Jesse Jennings and Edward Shook in 1946[6] and are representative of the increased archaeological attention devoted to the systematic study of artefacts during the 1940s and 1950s. Not far from the ruins of Kaminaljuyu, along the Motagua River, Robert Leslie discovered the first *in situ* occurrence of jadeite-bearing stones in the Maya region (see Fig. 18). Subsequently, Smithsonian Institution geologist William Foshag[7, 8] related the mineralogical properties of this source material with data from his previous study of jade artefacts. Foshag's study not only presented a description of a possible source for jade but also served to illustrate mineralogical and nomenclatural problems that still surrounded the material.

By the 1970s archaeologists were aware that long-distance exchange of valuable commodities could play a significant role in the social and economic life of the ancient people. Jade, especially carved objects consisting of the mineral jadeite, was one such commodity. In the absence of other jadeite source locations, the region along the Middle Motagua River in Guatemala was generally assumed to be the source from which the jadeite, especially that selected by the ancient Maya, was obtained. When jadeite artefacts were found in other locations, often well removed geographically, they were assumed to be evidence for the occurrence of long-distance exchange. This information could then serve as the basis for archaeological reconstruction of contact between the regions.

Interestingly, in spite of the lack of other known sources for jadeite, colour variations among the recovered artefacts were related to different major cultures – the spatial differences in themselves implying multiple sources for the jade. For example, blue jade was thought to reflect use of unknown sources among the Olmec of Mexico, while the bright emerald green was recognized as being preferred among the Maya. The latter, of course, was considered to be most probably derived from the Motagua River valley, although rumours would occasionally surface about jadeite being found within the Maya Mountains of Belize and Guatemala, in serpentine beds near Copan in the Guatemala Highlands or even the Balsas River drainage of Guerrero, Mexico.

A different view was held by scholars working in Costa Rica. The abundance of jadeite or greenstone artefacts that came to modern attention through extensive looting of burial mounds suggested a local source area, with theories focusing on the Santa Elena peninsula of northwestern Costa Rica. Also found were jade celts that were reminiscent of the Olmec style, or with incised Maya figures and hieroglyphic carvings that led some to speculate that long-ago travellers from the north came to Costa Rica to acquire their jade. Olmec influence is suggested by a bat god figure in Olmec style recovered from Costa Rica (Fig. 9) and is depicted on a map showing external influences in Costa Rica by Quesada Lopez-Calleja.[9] The theme of Olmec and Maya stylistic influence has been noted by Balser[10] and Easby.[11] It has been only recently that the integrity of the local Costa Rican jade-carving tradition has emerged from the shadows cast by the purported foreign influences. Assignment of foreign influence on the basis of non-provenanced pieces is methodologically dubious: not only this, there is as yet no firm archaeological evidence of any significant foreign presence, apart from isolated objects and subjectively interpreted motifs.

Jade objects from throughout the area of Mexico and Central America were admired for their beauty and craftsmanship, and in Costa Rica at least much of the early interest focused on reconstructing carving and manufacturing techniques; the cultural significance and function of the objects were generally overlooked or at best only speculated about. Very few jade artefacts had been recovered under controlled conditions where their relationship to house types, religious structures and human burials could be investigated. For example, whether or not a particular artefact marked the tomb of the ruler, trade with the foreign groups or the presence of chiefdom-based systems that collected and redistributed goods was largely a matter of conjecture. This was the intellectual situation that existed until the 1970s, when new initiatives were undertaken to assess the lacunae in our knowledge of jade extraction, distribution and utilization.

More Recent Studies (1970 to Present)

In the early 1970s, English archaeologist Norman Hammond and colleagues explored the compositional variation of jadeite and related minerals in the Sierra de Las Minas area on the north side of the middle Motagua River.[12] Analytical techniques derived from the physical sciences were added to the more traditional archaeological arsenal to coax information from the greenstone artefacts. One approach used was instrumental neutron analysis (INAA),

FIG. 9

FIG. 10

FIG. 9 **OLMEC BAT-WINGED WERE-JAGUAR** *Reported to be from northwestern Costa Rica, this figurine is in the collection of the Brooklyn Museum.*

FIG. 10 *Metates, mace-heads, ceramics and jades can be seen in this view of a Tibas burial site, discovered in a suburb of San Jose, Central Highlands, Costa Rica.*

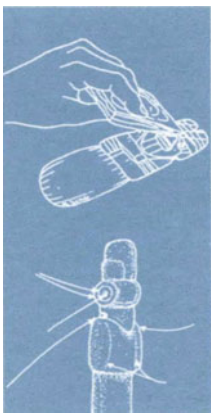

FIG. 11

FIG 11 *This drawing illustrates the sawing technique. It uses a wooden saw, and shows an avian-pendant split celt, the arrows pointing out the location of some common production techniques, including making grooves for eyes, beaks and bosses by sawing away the stone around them.*

where the trace elemental composition of a material is determined by exposing the material to a source of neutrons in a nuclear reactor. Some of the neutrons are absorbed by the nuclei of different atoms forming radioisotopes. Depending upon the radioisotope created, gamma rays may be emitted that have energies that are characteristic of specific elements. These can be sorted according to their energies, counted, and the abundance of elements in the material then determined.

Hammond's project provided basic data on the compositional variation of jadeite and associated minerals found in the Motagua Valley and provided the stimulus for a more extensive compositional approach to the investigation of jade procurement and distribution. In 1978 one of the authors of this piece (Bishop), in collaboration with the Department of Chemistry at Brookhaven National Laboratory in New York and the Boston Museum of Fine Arts, undertook a multi-year project that sought to extend Hammond's previous characterization of the Motagua source area and to determine the likelihood that Maya jades were, in fact, derived from that source.

As in Hammond's study, the analytical techniques of nuclear chemistry were the primary approach to understanding the compositional variation of jades from the Motagua Valley but, unlike the previous study, an extensive number of artefacts (over 300) were analyzed, as well as additional geological samples. To provide a broader regional cultural-geological perspective from which to evaluate the compositional patterns of what was originally a Maya-focused investigation, the project eventually expanded to include the consideration of jade occurring in Costa Rica. The latter facet of the investigation included a survey of the Santa Elena peninsula, an often reported 'source area' in the northwestern part of the country.

In part, the research extension to Costa Rica was stimulated by the scientific excavations by archaeologists of the National Museum of Costa Rica (in which the second author of this piece, Lange, participated) of two burials associated with jade, one at the 'Tibas Jade' site (see Fig. 10) and the other at the 'Liquor Factory' site. The patterns of the burials were similar to that documented at Las Guacas by Hartman in the early part of the century: the burials included a complex of carved stone metates, mace heads and jades. While not 100 per cent consistent, these three artefact classes are frequently found in association as a burial assemblage.

The two jades from the Tibas burial, one a clamshell (Fig. 13) and the other a large avian pendant (Fig. 12), were visually spectacular. The former is one of the most striking jade carvings ever found and was initially described by Snarskis[13] as 'Izapan' – an early art style of the Chiapas-Guatemala Highland and Pacific Slope region that is considered to be a precursor to the art of the Maya and one that built upon elements of the Olmec. However, this stylistic identification, with its strong implications for cultural, or at least regional interaction, has recently been disputed.

The large collection of mace heads (Fig. 27) found with the Tibas jades was also the first controlled recovery of large numbers of these artefacts. Commonly thought of as 'war clubs', these objects have been more accurately described by De la Cruz[14] as symbolic devices for clan member, ship and other Pre-Columbian social identities. Mention of these objects is included here because sometimes they were made from jade or, more frequently, from quartz, serpentine and other 'social jade' lithic types. The burial also included ceramic vessels from both the Pacific and Atlantic coasts of the country – in all, an unusually rich mortuary package.

The Liquor Factory jades were somewhat more modest (a few beads) although in the same contextual pattern, with a burial interred on top of three metates; mace heads and ceramics were absent from this interment. Nonetheless, these two similar finds, both made in the Central Valley of Costa Rica and within months of each other, renewed long-dormant questions about the sources and importance of Costa Rican jade artefacts, and their purported stylistic and historical relationships to the Olmec and the Maya. The similarities and differences between the two burials also reinforce the necessity of the contextual study of jade if its cultural significance is ever to be based on more than mere speculation.

During the fieldwork in Costa Rica, neither jade sources on Santa Elena peninsula were found nor archaeological sites in the area that would have been occupied at the time that jade was culturally significant in Central America. However, from the combined work in the Maya area and in Costa Rica, significant new information was accumulated and subsequently presented at a conference on Meso-American and Central American jade, held at Dumbarton Oaks in Washington, D.C., in November 1980. One conclusion of this conference was very clear: very little additional research progress could be made until a better position was established to address first the number and location of geological sources and secondly how the prehistoric artisans had procured their raw material.

New Directions

As a result of the Dumbarton Oaks mini-conference several new directions were defined, and colleagues in other parts of southern Meso-America and Central America who had not participated in the conference were also involved in generating data essential to the 'new period' of jade studies.

E. Wyllys Andrews[15] documented an important cache of jades from a looted location in Chacsinkin, Yucatán, and convinced the 'owner' to return the objects to Mexico and place them with a regional museum. Kenneth Hirth directed archaeological investigations in the El Cajon region of Honduras from which hundreds of pounds of greenstone were recovered. Researchers of the National Museum of Costa Rica continued to find small jades in northwestern Costa Rica. The known range of jade artefacts was also expanded both north and south with the finds of one pendant in a sewer trench excavation in Managua, Nicaragua, and a number of jades and other greenstone artefacts reported from southern Costa Rica. In both of these latter areas, however, the quantity of known jades is still so small that their cultural significance cannot be discerned.

While the corpus of archaeologically excavated jade was increasing so was new popular interest, as reflected by a lavishly illustrated article on jade that appeared in *National Geographic* Magazine, September 1987. As that article by Fred Ward revealed, space age science from the Jet Propulsion Laboratory in California was being applied to jade research through application of a portable light spectrometer or PIDAS (Portable Instantaneous Display and Analysis Spectrometer)[16]. Although originally developed to assist in the exploration for gold deposits, this device was able to carry out non-destructive mineralogical characterization for certain types of greenstone minerals.

The non-destructive feature was particularly important, because museums and collectors were understandably reluctant to have artefacts sampled for analysis or to have the entire object exposed to neutron irradiation. The former method is destructive, regardless of how small a sample is taken (although the sample location can be filled in and the surface appearance restored), and the latter requires the specimen to be curated at a laboratory for approximately one year in order for the radioactivity to decrease to an acceptable level.

On the basis of the increasing contextual finds, new insights on the Motagua Valley geology and the possibility of portable analytical capability, an international conference focused on Mayan, Olmec and Costa Rican jade was held in Denver, Colorado, in 1987. Scholars in the fields of geology and structural and chemical analysis, archaeologists and art historians all participated. As before, discussions focused on the as yet unsolved questions concerning geological source and contextual recovery, and on the interpretation of stylistic variation that could help to clarify the extent of cultural relationships between the jade-using societies of Central America and southern Mexico. Again as before, lack of knowledge regarding geological source areas, and the lack of jade objects from secure archaeological contexts, continued to plague attempts at archaeological synthesis.

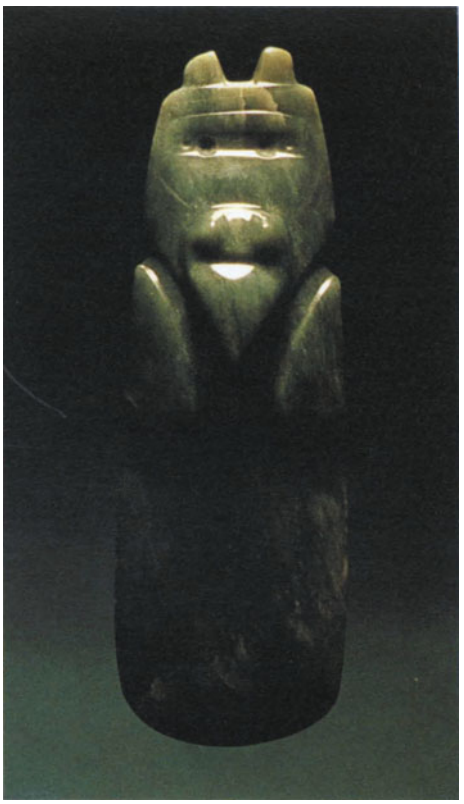

FIG. 12

FIG. 12 **COSTA RICAN AXE-GOD PENDANT**
The features of this avian axe-god pendant are boldly defined, and its stone has a strong green tone. The subject is one of the most familiar themes expressed in Costa Rican jade.

FIG. 13

FIG. 13 **TIBAS 'CLAMSHELL' PENDANT**
Length: 13¼ in (33 cm). This grey-green pendant is modelled as a human hand grasping a jaguar. The source and inspiration for the subject are uncertain, but the piece is one of the most spectacular jades to have been unearthed under scientifically controlled excavations.

FIG. 14

FIG. 14 *Drawing of Olmecoid heirloom made from an example found in the El Cajon Project Area, Central Honduras.*

UNDERSTANDING THE PRE-COLUMBIAN WORLD

FIG. 15

FIG. 15 LIMESTONE WALL PANEL
Mayan, AD 650. The importance of jade in Mayan elite society can be seen in this relief-carved plaque. The central standing figure wears a jade necklace and anklets; the kneeling attendants wear a jade necklace and collar and bracelets of tubular jade beads. The plaque is in the Dumbarton Oaks collection, Washington D.C.

Prehistoric Lifestyles

Although a focus on jade, be it artefacts or geological specimens, automatically imposes a bias to the discussion, it is the human lifestyles represented by the objects that are the main archaeological interest. Despite more than a century of archaeological exploration, we unfortunately know relatively little about the lives of the people who produced jade artefacts. The fragmentary state of the archaeological record affords little more than a glimpse into the past. Non-perishable artefacts such as stone and the less resistant pottery, in their context and association, constitute the primary data available on portable materials. To these is joined the information available in such forms as settlement patterns, building construction and more ephemeral remains of plants and animals that were both eaten for sustenance and utilized in craft production.

We are able to tell, however imprecisely, through the frequency of occurrence or by association, that different social groups gave emphasis to some types of communal activities (for example, the construction of large-scale monuments). Similar emphasis appears also to have been extended to certain classes of portable artefacts that were more individually produced, but were perhaps of equal symbolic importance. Indeed, many of the same figures and motifs found on jade pendants in Costa Rica are also found on major stone columns in Nicaragua, and on carved shell and bone in Costa Rica. Jade celts and carvings also seem to mimic stelae and other large (non-portable)

stone sculptures in both the Olmec and Maya areas.

A common human trait, both prehistoric and contemporary, is the acknowledgement of unknown or supernatural forces that are propitiated through cultural behavioural practices in the form of ceremonies, architecture, ceramic images, painting and carving. Various religions and diverse perceptions of social status held strong influences over the lives of the ancient inhabitants of Meso-America and Central America. Their relative significance is reflected in the nature of the objects that accompanied individuals in life and were frequently buried with them in death. In Costa Rica, study of the mortuary practices that were employed between 500 BC and AD 700 indicate that jade was one of the most significant status symbols at that time, although jade objects are infrequently portrayed in other media. In Meso-America, on the other hand, political and religious personages are frequently shown wearing jade accoutrements.

Both the highly complex centralized religions of the region and the more localized folk beliefs systems utilized jade carvings to create the symbols that reflected their respective world views. In Maya society, for example, we see seated Mayan rulers carved in jade or represented on other media (Figs. 15 and 16), themselves bedecked with carved jade necklaces, pendants, belt plaques and other items (Fig. 1). Similar representations are considerably less frequent among the Olmec and in prehistoric Costa Rican society we see jade used to represent probable shamanistic practices, with humanoid figures wearing real or mythical animal or avian masks (see Fig.12).

The differences in thematic representations reflect the organizational differences in the societies. The symbolism conveyed by jade artefacts was part of a broader system of social signalling which existed in media other than jade (carved volcanic stone, ceramics, gold and perishable materials of wood, bark and fibre that have not survived the archaeological past). In Meso-America proper the jades show people and their personal accoutrements (earspools, necklaces, etc.); these are real personages who wielded significant religious and secular power over comparatively broad areas. In politically and socially less integrated Central America, animal figures and masked personages (where the 'roles' of individuals were depicted, rather than individuals themselves) predominated; jade artefacts there come almost exclusively from burials, while in the Maya area they are also found in domestic contexts. Regardless of the level of social complexity, jade was a symbolic instrument of authority or social communication.

Another major difference between the symbolic systems of Meso-America and those of Central America was the presence of writing systems in the former and their absence in the latter. Although it still appears to have dealt mainly with political and religious events and with genealogy, we are beginning to learn more and more about the breadth of Meso-American hieroglyphic writing systems and their use as historic recording systems in terms of validating heritage, kinship, social structure and importance placed on jade.

In Central America, in the absence of writing, similar information still needed to be conveyed. We may presume that much of it was handed down through oral tradition, while other information was contained in the iconography carved on jade and other stones, painted on ceramics, and hammered or moulded into gold. Maya glyphs do appear on some Costa Rican jade celts (Fig. 23) but the vast majority of these jades have been acquired outside the realm of scientifically controlled excavation. Are the glyphs authentic and, if so, were they carved by people who were culturally knowledgeable about the meaning and the importance of the glyphs, or were they simply copied in an imitative fashion? Understanding the accuracy, quality and informational content of these glyphs is essential to improving our understanding of the relationship between the Costa Rican and Mayan culture areas.

FIG. 16 **CERAMIC VASE** *This Mayan vase is decorated with a figure of a Classic Period (AD 600–900) Mayan ruler on a throne wearing a necklace of large jade beads. As in other cultures, jade accompanied a Mayan individual into death: a jade bead was frequently placed in the mouth of the deceased, a practice similar to that in ancient China, in which a jade cicada played the same role.*

JADE: TOWARD AN ANALYTICAL UNDERSTANDING

FIG. 17

FIG. 17 **MAYAN PLAQUES** AD *600–900. The figure on the left is worked with a profile of a feathered serpent head, the one on the right with a bound prisoner. These two Classic Mayan plaques, now in the Denver Art Museum collection, were once considered to have been carved from a single section of green mottled stone. However, they were later found to have different specific gravities, indicating mineralogical differences.*

Jade and other exotic materials were converted into items of sociopolitical importance by full-time specialists in the more complex societies in Central America and by part-time specialists in the less complex ones. Not all jade artefacts are those stupendous examples most often seen in museums. The amount of human labour expended varies according to the carving requirements for the stone and the expectations of the recipients. For example, in Costa Rica we can distinguish between well-made artefacts on high-quality 'tough' stone such as jadeite and less carefully carved objects on lower quality, more easily manageable material. These distinctions can be divided between 'high intensity' and 'low intensity' carving traditions that reflect not only the quality of production but also the form of objects. Consider, for example, the differences between altering the shape of a cobble so that there remains no vestige of the original surface, common in the Olmec area and in Costa Rica, and the pattern of fitting the figure to the available form and space, which seems to be more frequent in the Maya area and in the Ulua carving tradition of Honduras.

Jade Sources

The ability of any artisan, full- or part-time, to produce jade objects was directly related to the availability of raw material and the knowledge of the techniques of production. With many raw materials the artisan had a choice of source areas; with jadeite, the choice of sources was much more

restricted. In terms of prehistoric methods of transport, Costa Rica is somewhat distant from the Maya and Olmec areas. Whether or not there was but a single geological source of prehistoric jade, or many, and whether there were one or more stylistic traditions and symbolic systems have been, and continue to be, important research questions; they are, at best, only partially answered at present.

Because the chemical analyses of both geological and cultural specimens allow us to assess the compositional similarity between the jade objects and the geological source, we can evaluate the existence of prehistoric trade and exchange routes. Analytical research is essential to the gradually developing ability to understand the role of jade in prehistoric Meso-American and Central American cultural traditions, and it also has the advantage of providing an independent, objective assessment of artefact relationships, independent of intuitive biases influenced by stylistic considerations or *a priori* assumptions regarding culture and history.

Surprises happen, however, and they need not be obtained only by exceedingly sophisticated analytical instrumentation. For example, the Denver Art Museum has in its collection two almost identical plaques (Fig. 17) that, with alignment of the surface cracks, appear to have been cut from the same stone. However, when the two plaques are placed in a heavy liquid used to measure specific gravity, one plaque sinks and the other does not! Here are highly similar objects carved from mineralogically different materials. Such observations highlight the necessity of considering a range of 'social jade' artefacts rather than limiting discussion to jadeite.

The term 'social jade' is used to indicate that similar carving styles and cultural treatments of jade objects can be found in several different naturally occurring minerals. Unfortunately, because of the paucity of jade objects obtained through controlled excavation and the resulting need to rely on a large number of non-provenanced specimens, a large amount of intuition must be applied to a limited amount of actual data regarding distributional patterns. Nonetheless, it appears that, depending on specific geographic region, there was some selectivity involved in the procurement of raw material and thus many of the finest examples of jade carving have been rendered in stones that are primarily composed of the mineral jadeite or the closely related mineral albite.

The Formation of Jadeite

The geological conditions that can result in the formation of the mineral jadeite are highly complex and are not well understood. Jadeite is rarely found alone but rather as a component of *jadeitites* – rocks within which *impure* jadeite is a constituent[17]. Jadeitites were formed from ultramafic parent rock in highly limiting conditions of extreme pressure and low temperature metamorphism. One area where these conditions occurred was along the tectonically active continental margin of the Motagua River in Guatemala;[18] other occurrences around the world are rare. The jadeitites are a result of the variable mineralogical and geochemical conditions that exist during the metamorphic process and also are subject to mixing and additional geological processes prior to their arrival at the earth's surface.

Given the formation processes, compositional variation – mineralogical and chemical – can be expected. Guatemalan jade, for example, contains jadeite as a primary constituent but most frequently occurs with other major mineral components such as albite, muscovite, paragonite and sphene. Chemical variation occurs in the individual grains of the jadeite mineral and can account for some of the characteristics one sees in jade objects. For example, substitution of the Al^{+3} cation in the jadeite structure by Fe^{+3} most likely accounts for the iron-rich, greenish-black chloromelanite. One of the most highly prized varieties of jadeite is one that exhibits a bright emerald green colour, caused by the amount and oxidation state of the chromium present in the mineral. Similar chemical variation may account for what in the Olmec area or in Costa Rica is called 'blue jade.'

A Single or Multiple Source of Jade?

As noted above, the ability of Pre-Columbian artisans to produce jade artefacts was directly related to their access to raw material, either through direct exploitation or through trade access to chunks or blanks. Where did the geological jade used by Olmec, Mayan and Costa Rican carvers come from? We do not know for sure, but currently there are two clearly defined and largely incompatible views that draw on two different analytical bases. One holds that there was but a single source for Meso-America and Central America, while the other makes a case for multiple sources.

The single source hypothesis argues for the existence of only a single source for jadeite, located in the Motagua Valley of Guatemala, and implies that this source supplied the raw material for all of the jadeitic artefacts, whether encountered in Central Mexico, the Maya region or Lower Central America. One proponent of this view, the American Museum of Natural History mineralogist George Harlow, approaches the subject from a geological perspective that draws heavily upon plate tectonic theory and observational data derived from the examination of thin sections and from major elemental chemical analyses using an electron microprobe. The latter enables the investigator to obtain a

major elemental, chemical analysis using a focused beam of electrons on different phases or even individual crystals of jadeite on the surface of an artefact.

According to Harlow[19], the conditions under which jadeite forms are so demanding that the Motagua River valley is the only area of Meso-America or Central America where one would *expect* to find jadeite. Further, the potential mixing of components during jadeite formation are expected to result in great chemical and mineralogical diversity; thus all variation observed in the jadeite artefacts of the region, including those from Costa Rica, could be accommodated.

The multiple source hypothesis considers that the compositional and structural differences among jadeite source materials and artefacts are sufficient to reject the notion that a single source located in the Motagua Valley supplied all of the jadeite needs of the Pre-Columbian inhabitants. Chemical data (particularly that obtained from instrumental neutron activation analysis), structural information by X-ray diffractometry and even negative evidence about artefact distribution are used to support the multiple source theory. As the authors of this chapter have been responsible for the generation of much of the data pertaining to the multiple source hypothesis, some of the pertinent analytical findings are summarized here.

FIG. 18

FIG. 18 *The Motagua jadeite boulder shown here displays a characteristic weathering surface. Boulders sometimes exceeding a diameter of over 3½ feet (1 metre) weather out of the surrounding material and move toward the Motagua River.*

A fundamental chemical distinction can be observed among the jadeitic rocks of the Motagua River valley that corresponds to light green or dark green-black specimens (Fig. 18). Similar compositional profiles are found among the analyzed Maya region artefacts, including those artefacts recovered from the nearby Classic Maya centre, the Motagua Valley centre of San Agustin Acasaguastlan and the Sacred Cenote of Chichen Itza in Yucatán. These data are consistent in pattern with that observed in the mineralogical and structural evidence. The light green 'jadeitites' of the Motagua are characterized as consisting of major abundances of jadeite and albite with minor occurrences of paragonite (a type of mica) and analcite. It is not surprising to find major abundances of albite for it is only lower temperatures and higher pressures during the formation process that favours the formation of jadeite over albite. In contrast, the dark green jadeitites are composed of jadeite with omphacite and variable amounts of analcite.

The visually distinctive emerald green Maya artefacts are chemically and mineralogically distinct from the Motagua River valley jadeite-bearing rocks. Composed of jadeite, trace amounts of omphacite and relatively low abundances of albite, muscovite and analcite, these specimens possess much higher chromium values than the Motagua source and the artefacts whose composition matches that of the source. X-ray diffraction additionally serves to differentiate 'Maya Green' specimens by revealing

FIG. 19 **MAYAN PENDANT**
AD 300–600. Decorated with two finely incised cartouches, this pendant has been inverted and re-worked into a Costa Rican axe-god form. The re-use of jades from other traditions as raw material is a frequently noted characteristic of the Costa Rican tradition. Note the two shallow drilled holes on the lower half.

FIG. 19

a significant shift toward higher crystal lattice spacings.

The analyzed Costa Rican samples also revealed compositionally distinct divisions into light and dark groups. These chemically defined groups are statistically separable from those of the north and can be observed to differ mineralogically from the Maya region specimens in having low occurrences of the micas, paragonite and muscovite.

One of the most serious critiques of the single source hypothesis is that it does not accord with what is known about distribution and trade routes. In addition, it appears not to be supported by available chemical and geological data. However, comparable limitations in the multiple source hypothesis are the lack of sampling of the totality of the Motagua source area, and the lack of adequate archaeological coverage in the areas between the Motagua Valley and Costa Rica.

Certainly, the analytical programme that produced the findings just presented can make no claim to have exhaustively sampled and analyzed the Motagua River source area, nor does it claim to have encompassed the chemical and mineralogical variations among the Maya or Costa Rican artefacts. Nonetheless, the analytical patterns summarized above and other observations discussed in detail elsewhere[20] are sufficiently compelling to suggest that (1) the jadeite-containing rocks of the Motagua River valley were exploited by the Maya, with analytically matching specimens recovered from nearby Maya sites in addition to such far-removed regions as that of Chichen Itza in northern Yucatán; (2) a compositional group consisting of emerald green specimens cannot be shown to match the analyzed specimens of the Motagua source area; (3) the emerald green artefacts reveal a similar compositional pattern during almost 3000 years of occupation in the Maya area; (4) greenstones that were albite as well as those that were jadeite were preferred among the Maya for carving; and (5) with notable exceptions, analyzed Costa Rican jadeite artefacts are compositionally distinct from those of the north.

The need to determine whether prehistoric jade-workers were exploiting one or more source areas has led to concerted efforts to characterize the nature of mineralogical and chemical variation in carved jadeitite and jadeitic artefacts. The central issues surrounding the number and location of the source or sources for most carved artefacts remains unresolved at this point. (It should be noted that although no systematic comparisons have been made, it is not expected that any Pre-Columbian jades from Meso-America or Central America will reveal Oriental or any other extra-regional sources.)

THE MAJOR TRADITIONS OF THE REGIONS

FIG. 20 **STEATITE VASE** *Height: 4 in (10.3 cm). Its relief work depicting a feathered coiled serpent, this cylindrical vase was probably worked in the Guatemala/El Salvador region, 200 BC–AD 200. It is in the collection of the Denver Art Museum.*

FIG. 20

In considering the multiple source hypothesis, the archaeological distributions provide a context for interpreting the mineralogical and chemical variations. Indeed, the archaeological distribution of jadeite and jade artefacts constitutes a third, independent and highly important data base. The major patterns are described below.

The Olmec Tradition

The Olmec were the first of the well-known jade-using societies of prehistoric Meso-America. However, there is a lack of agreement among Olmec specialists as to what the term 'Olmec' really means. It is used here in its customary collective way to characterize a loose group of symbols and carving styles of prehistoric peoples on the Gulf Coast and in Guerrero, Mexico, between 1200 BC and 300 BC. In this brief discussion, we make no claim to shedding additional light on the as yet unsolved questions about exactly who the Olmecs were . . .

The Initial Olmec Period (1200–900 BC) saw the emergence of 'Olmec' society at La Venta, San Lorenzo and other important sites. Few portable jade or greenstone artefacts relate directly to the Initial Period. One cache of seven serpentine celts, some of them apparently rough blanks, was described from San Lorenzo[21] and represent the earliest Olmec celt offering. There are also problems of sample balance and data recovery. It may be that a sufficiently

representative number of jade artefacts have simply not yet been recovered from controlled Initial Period contexts.

The Intermediate Olmec Period dates from 900 BC to 600 BC. The great jaguar mosaic mask and buried masses of imported stone at La Venta date to this period.

The Terminal Olmec Period (600 to 300 BC) was characterized, in lapidary terms, as having 'non-utilitarian polished stone objects',[22] including a concave magnetite mirror found with nine jade and serpentine celts, jade effigy celts, mosaics, plain and incised celts, jade figures with hematite inlays, jade perforators, and earspools.

Fluctuations in the occurrence of jade in Olmec society did not occur in isolation; they must be appreciated as part of broader societal changes reflected in shifts in architectural forms and ceramic assemblages. Olmec objects were treated both as heirlooms, as their inclusion in later caches demonstrates, and as sources of later raw material (which may or may not have been seen as incorporating vestiges of Olmec 'power' in their reuse) – hence the discoveries of 'Olmec' artefacts in locations outside the Olmec region. Despite speculation by Snarskis, Balser, Easby, Quesada Lopez-Calleja and others, we can point to no conclusive archaeological evidence of direct Olmec influence in Costa Rica.

Maya Highlands and Lowlands

Jadeitic and albitic rocks were used in Maya society from the Pre-Classic to the Post-Classic periods (1100 BC–AD 1200). Jadeitic artefacts functioned as items of personal adornment and as dedicatory offerings associated with commemoration of construction of public buildings and with their ritual termination. The history of Maya exploration has biased the recovery of jade to that found within caches or in the public or ritual buildings of the major ceremonial centres. However, recent excavations demonstrate that jade artefacts occurred in domestic contexts as well.

Although the majority of excavated jadeite artefacts are from the Classic Period (AD 300–900), there is increasing evidence of jadeite use during the Late Formative Period (100 BC–AD 250) (Andrews;[23] Garber;[24] Hammond;[25] Gallenkamp and Johnson[26]). Among the earliest recovered jades are the undecorated beads from Cuello, Belize, burials dating from 1100 to 400 BC (Hammond 1979,[27] 1982;[28] revised dates after Andrews and Hammond 1990[29]). So far as is known, therefore, the earliest occurrence of jadeite artefacts in the Maya area is more than 500 years earlier than the Zoned Bichrome Period jades of Costa Rica. Based upon the jadeite compositional evidence for Belizean samples presented by Bishop, Sayre and Mishara,[30] there appears to have been continuous exploitation of at least one jadeite source from the Late Formative Period through the arrival of the Spanish.[31] A general discussion of the significance of jade artefacts in Maya society is given by Hammond et al.[32]

The Ulua Stone Carving Tradition

This Central Honduran tradition (AD 200–500) has been described by Kenneth and Susan Hirth as representing strong local cultural norms and practices tied to the Maya cultures to the north through sporadic, but important, trading contacts. They write: 'We believe that artefacts recovered from Salitron Viejo are both unique enough and stylistically consistent to qualify as a distinct stone-carving tradition within southeastern Mesoamerica'.[33]

As in Costa Rica, almost all jades (see Fig. 21) of this tradition are found in ceremonial contexts, although, as the Hirths point out, this may represent their final, rather than only, use. And, unlike Costa Rica, most Central Honduran jades appear to have been placed in caches associated with architectural dedications, rather than buried as mortuary offerings with the deceased. The Ulua stone-carving tradition's ties to the Maya centres, including nearby Copan, appear to be limited.

El Cajon seems to be outside the southeastern Maya-Copan sphere of influence, as evidenced by the lack of the easily recognizable Copador pottery. Again, we must consider the function of jade artefacts not in isolation, but as part of broader cultural systems.

While a few of the recovered greenstone artefacts from the El Cajon region reveal stylistic similarities to those recovered among the Maya, the majority of forms (beads, bead-pendants including zoomorphic images of monkey heads, various shaped pendants, hunchback pendants,

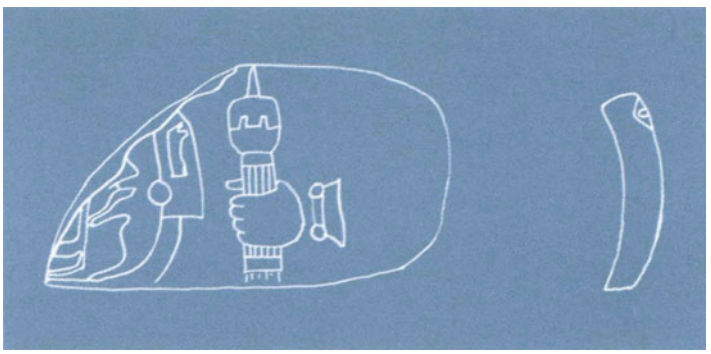

FIG. 21

FIG. 21 *Drawing of an example of the Ulua stone carving tradition, as defined by Kenneth and Susan Hirth.*

FIG. 22 **PAIR OF FIGURES** *Height: 3¼ in (8.4 cm). The two pierced and worked figures are grasping serpent-head and bird-finial staffs. The green-toned stone has been worked by drilling and string-sawing, which was used to shape the figures.*

FIG. 22

FIG. 23 **TAPERING-FORM PENDANT** *The stone of this incised pendant is a grey-green tone. The piece was once part of a Mayan plaque incised with hieroglyphic text. The original form was split on the diagonal, thus obscuring the hieroglyphics, and the edges were ground and bevelled. The pendant is reported to be from Bagaces, Costa Rica.*

FIG. 23

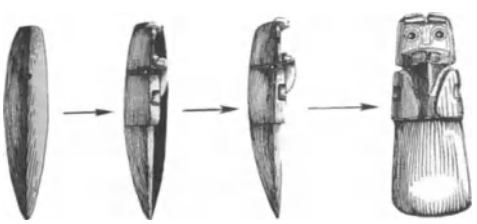

FIG. 24

FIG. 24 *The Costa Rican process of reducing the rounded stone in order to form two half celt pendants.*

pectorals and earflares) have no correlates outside the region. The style places an emphasis on jade 'pebble carvings', in which the carving fits the form of the largely unaltered raw material. There appears, therefore, to be a decrease in the importance of Maya jadeitite carving styles as well as in the type of material that was carved. A few heirloom objects, including Olmecoid material, have also been found, but these few pieces stand out starkly from the products of the local carving tradition.

Costa Rica

In Costa Rica jadeite and greenstones have been found almost exclusively in mortuary contexts dating between 500 BC and AD 700. This period of time spans the latter part of the Zoned Bichrome period through to the middle of the Early Polychrome period; the latter is marked by the introduction of polychrome ceramic techniques and other filtered contacts with the Maya Lowlands. The time at which jade, either jadeitites or other greenstones, disappears from the archaeological record is a period that may coincide with major political changes occurring in the Maya Lowlands.[34]

The distribution of jade and greenstone is mostly limited to Pacific and Atlantic northern Costa Rica in mortuary contexts. Some jade/greenstone artefacts are from southern Costa Rica, but the extent (temporal or geographical) of the distribution is at present unknown. Unlike the Maya area, where elaborate carving appears to have been reserved for material that was predominantly jadeite or albite, a much broader range of greenstone material was elaborately carved in Costa Rica. Axe-god pendants (Fig. 8) representing human, avian and mythical figures produced through alteration of naturally occurring cobbles are hallmarks of the Costa Rica tradition; one form frequently represented is that of the *alter ego* (Fig. 25), consisting of a figure thought to be supporting on its shoulders another figure or 'guardian'. (Axe-gods are usually initiated by cutting a cobble into halves or smaller segments by grinding, incising, and drilling.) The tendency to segment raw material is also seen in the reduction of Maya belt plaques in Costa Rica, where they were often cut into halves, quarters or even smaller pieces, fragmenting and obliterating the integrity of the original. Prehistoric Costa Rican artisans also used the 'string-sawing' technique (actually connecting a series of drilled holes by sawing between them) and developed the technical ability to cut wafer-thin sheets of jade into serpentine spirals and other delicate figures.

In general, two major questions persist: where was the source for most of the material used, and did the choice of stone and the complexity of carving correspond with factors such as age, sex and social rank?

FIG. 25

FIG 25 **STANDING FIGURE**
The provenance is unknown on this standing jade figurine, which is in the collection of the Brooklyn Museum. The figure is holding a so-called alter ego.

FIG. 26

FIG. 26 **AXE-GOD CELTS**
The stone of these celts is of a grey-green tone. The three are worked and incised with the features of figures, their lower halves undecorated. It has been suggested that on this type of celt the plain lower section represents a squatting figure, with the knees drawn up in front of the body.

The Gap between Geographic and Cultural Regions

It is an interesting facet of jade distribution in Meso-America and Central America that the Motagua Valley, the only specifically known source, is not centrally located relative to areas where jade objects occur in abundance and were presumably of great cultural importance. For example, immediately within the sampled region of the Middle Motagua Valley are the site clusters of San Agustin Acasaguastlan, Guaytan and Teron, explored by Smith and Kidder.[35] Remarkably little jadeitic material was recovered from their excavation, although beads and other forms are present in a variety of miscellaneous stone types. From the descriptions, at least two specimens[36] may be of the colour characteristic of the Maya Green compositional group. More recently recovered objects and fragments have been reported from the nearby Robert Terzuola site,[37] but the specimens analyzed by Bishop, Sayre and Mishara are of compositions that are consistent with material obtainable from the general Motagua source region. Even the more 'green' specimens recovered within the Motagua Valley, or from the cenote of Chichen Itza in Yucatán, have been found to be chemically attributable to the Motagua source groups.

In the lower Motagua Valley, the site of Quirigua is viewed as having its cultural origins in influences from the Central Lowlands, but evolved a regional character more its own during the Late Classic period. Despite its proximity to the Motagua source area, relatively few jade artefacts have been found at Quirigua. Some jades have been found at other sites in the immediate vicinity, and at nearby sites located above the floodplain, but again not in the quantities that would be anticipated given their accessibility to the Motagua source. Neither jadeitite nor other greenstones were recovered from nearby sites along the lower reaches of the Motagua River valley.[38]

Although subject to considerable sampling bias, the paucity of emerald green jadeitites, like those attributable to the Maya Green chemically defined compositional group, is striking at sites immediately near the source region or below it on the Motagua River. If the Motagua Valley was the source for the emerald green specimens of the Maya Green group, then exploitation was accompanied almost exclusively by export.

Moving south from the Central Maya zone into Honduras, certain differences can be glimpsed in the carved greenstone assemblages. While there are certain forms that may have some regional areas of greater frequency (Rands[39]) others show greater differentiation in time (Rands;[40] Coggins[41]). In Honduras, several thousand jades have been recovered from excavations at El Cajon; the Ulua

carving tradition, and its possible links to the Motagua Valley, has been discussed above. Extrapolation of the analytical data obtained from the 'representative' specimens from the El Cajon region, however, suggests that the inventory may reflect extensive exploitation of predominantly albite rather than jadeite sources.

Jadeitite or other carved greenstone is almost totally lacking in Nicaragua. The paucity of recovered material may only reflect limited archaeological research, although the survey conducted by Lange and Payson Sheets in the spring of 1983, including discussions with private collectors and personnel at the National Museum of Nicaragua, reinforced this notion of a scarcity of greenstone artefacts in Nicaragua. The few pieces that have been recovered tend to be geographically clustered on Ometepe Island and in the isthmus of Rivas, near the Nicaraguan-Costa Rican frontier, or to be in private collections where they are of uncertain provenance.

Most recently, sewer excavations in Managua yielded a greenstone pendant of high-quality stone; whether it was jade or quartz could not be determined in the informal inspection that was possible. If a prehistoric context, this would be the farthest northern occurrence of such a pendant; however, whether the pendant was prehistoric or redeposited from a historic context (such as a private collection) cannot be determined.

As noted previously, in the same way that many portable Olmec and Maya artefacts are diminutive representations of full-sized stelae or monuments, there are close resemblances between many stone columns from the islands of Lake Nicaragua and Costa Rican stone pendants, as well as carved bone and shell.

The presence of large numbers of jadeite and other greenstone artefacts in northern Costa Rica stimulated speculation about a geological source of jadeite somewhere in the northern part of the country. Even should such a source exist, however, it would fail to explain the reasons for the lack of greenstone artefacts in neighbouring Nicaragua. In contrast to the strong geographical differentiation in the distribution of jade, the entire Greater Nicoya area of northwestern Costa Rica and southwestern Nicaragua is linked through a strong similarity of ceramics development that took place over a 2500 year period. Additional cultural differences within the area can be observed in the distribution of obsidian, which is mainly confined to the northern or Nicaraguan sector of the area, in sharp contrast to the primary distribution of greenstone artefacts, which are limited to the southern sector.[42] No natural barriers exist between the two sectors. Obviously some social mechanism was in place that determined what materials or influences were accepted, rejected or reinterpreted.

South of Costa Rica, occasional greenstones are found in Panama and northern South America (see the article by Elizabeth Easby that follows this chapter).

Geological Sources and Trade/Exchange Patterns

Included with provenanced specimens from the Maya area that were attributable to a compositional group are specimens from the Belizean sites of Cuello and Cerros that are chemically indistinguishable from the members of the Costa Rican Light group. If there is a source of jadeite far south of the Motagua Valley, do these specimens, in fact, constitute empirical evidence of the movement of goods from Costa Rica to Belize?

In a recent review of the chemical data provided by

FIG. 27 **MACE-HEADS**
Sculpted in anthropomorphic and zoomorphic forms, mace-heads have been scientifically excavated only in mortuary contexts, often accompanied by metates and blades. A wide range of stone was used, including jadeite.

FIG. 27

FIG. 28 **'COPAN-STYLE' MAYAN PLAQUE**
Height: 7½ in (18.5cm). Mottled green-brown stone has been finely worked in low relief with a confronting seated figure on this plaque, which is in the collection of the Denver Art Museum. The style recalls the carving of stone monuments, or stelae, in the southeast Mayan region, especially those from the site of Copan, Honduras. The piece is similar to many jade artefacts recovered from that area close to the Motagua River.

FIG. 28

Bishop, Sayre and Mishara, Norman Hammond notes that of the Pre-Classic Cuello samples that were placed into compositional groups, those that belong to the Costa Rican Light group occur after AD 200. This is in contrast to Cuello jades belonging to the Maya Green or Chichen Green groups documented from the late Middle Pre-Classic at about 400 BC (Hammond, personal communication, May 1989). The chemical data appear, therefore, to coincide with a shift in the archaeological record.

Jadeitites and other goods could have been moved from the middle and lower Motagua sites northeast along the Motagua River to the Caribbean. Along with jadeitites, other goods from the Guatemalan Highlands could have been involved in north to south trading routes into Honduras by means of a series of passes in the mountain ranges.[43] From the Motagua, contact could have been along the Caribbean coast, up the San Juan River and along the rivers of the San Carlos Plain of Costa Rica (Stone and Balser 1965;[44] Baudez and Coe[45]).

If contact between regions did occur, its extent and influence are, for the present, a matter of speculation. In the past, the stylistic speculations engendered by jade artefacts in Costa Rica have often erroneously been used to suggest cultural influence, if not dominance, from the Olmec or Maya areas in Meso-America.

Whether or not there was more than one geological source of jadeite is critical to our understanding of Meso-American and Central American prehistory. If there was but one source, then stylistic similarities and the widespread occurrence of jade artefacts represent an extensive trade and ideological network. If, on the other hand, there were multiple sources we are seeing evidence of a more dispersed network, much less, if at all, connected by tradition and influence. These two theories support greatly differing views of New World prehistory.

The outcome ultimately depends on additional geological work and on additional information as to the relationship between artefacts from different sources. Culturally, the multiple source hypothesis is the logical favourite. To support the single source hypothesis, we would need to demonstrate a regional trade network that covered over 1000 miles (1600 km) and lasted over 2000 years. The distance is not unheard of in Meso-America or in other parts of the world, but the temporal stability for this type of commodity exchange would be unique in the archaeology of the prehistoric world.

JADE IN SOUTH AMERICA AND THE CARIBBEAN

ELIZABETH KENNEDY EASBY

FIG. 1 **'ANVIL' STONE AND PENDANT**
Anvil stone length: 1 in (2.5 cm). Pendant length: 2½ in (6 cm). The anvil-shaped stone of mottled spinach green, an ornament or spearthrower hook, and the light green rectanguloid pendant, possibly from Costa Rica, were both found in Ecuador.

FIG. 1

The earliest stone figurines known in the Americas were made before 2500 BC around the type site of Valdivia, on the south coast of Ecuador. Carved from fine-grained local sandstone, shale and indurated clay of various colours, they were unperforated, highly abstract symbolic objects based on a technological tradition of ground-stone vessels and celts. Pottery was already in use, and by about 2200 BC distinctive modelled clay figurines had replaced the stone types, which seem to have left no subsequent trace in Ecuador or beyond[1].

The figure pendants and earspools that appeared in the Chorrera period (1000-200 BC) were mainly of shell and ceramic rather than any kind of stone, although highland workshops were producing beads of rock crystal – 7 on the Mohs' scale of hardness. Emeralds – Mohs' 7.5 – are seldom found in controlled excavations, but the largest grave (AD 700-900) at Coclé, Panama, contained three thought to have been imported from Ecuador already shaped and drilled[2]. Commemorated by the Spanish, who named the northern coastal province Esmeraldas, emeralds have been reported since the 16th century as far north as Costa Rica and central Mexico, as well as near the famous Muzo mines in central Colombia.

South American emeralds must have reached Middle America as exceptional 'social jade', but Ecuadoran exporters never shared the Meso-American jade tradition. While strong early connections are evident in Chorrera ceramics, the use of iridescent slip and napkin-ring earspools points to contacts with Mexico just before jadeite became known (around 1200 BC) and well before Olmec lapidary technique, art style and beliefs had spread widely.

Ceramic comparisons show that long-distance communication was expanding early in the first millennium BC – south as well as north from Ecuador along the Pacific Coast – by waterways into the interior of the continent, and later around and even across the Caribbean. The north-

western coast of South America – in present-day Colombia, Panama and Venezuela – is of course far beyond the region now defined as Meso-America, where jadeite held the supreme real and symbolic value and all manner of green stones took precedence over those of other colours. Nevertheless, the jade complex of beliefs and skills ignited spectacular development in Costa Rica in the last centuries BC and, carried southward along both coasts, left its mark in several lapidary centres that received little or no jadeite. Meanwhile, moving in the opposite direction, knowledge of metal-working had reached Panama by AD 400 and Costa Rica within the century[3]. Gold and its alloys gradually eclipsed lapidary traditions.

Even in jade-rich Costa Rica chalcedony – especially the translucent blue-green variety – was 'social jade'; the same quartz variety in the russet and reddish hues called agate and carnelian was the primary lapidary material in Panama and Colombia. The graves at Coclé also contained dark green serpentine carved in the same forms as agate – principally beads, ear rods and nose-rings. Very few were representational, except for 'curly-tailed animal' pendants, a widespread type known in cast gold from highland Colombia to eastern Costa Rica, where it was also carved of jade.

From Tairona sites near Santa Marta, Colombia, came more than 15,000 stone beads, nearly half of them carnelian and a fifth of quartz crystal. Another fifth were green stones: some 300 serpentine and green slate, the rest catalogued as (nephrite) jade. Among the more elaborate ornaments and ritual objects, however, green stones predominated[4].

While the regard for green material was the same as in Meso-America, almost all the forms carved from it were different. Most important was the winged pendant, a distinctive flat form perforated to hang horizontally. Found in greatest numbers in Columbia, they are characteristic of coastal Venezuela as well; Panamanian ones are typically agate, those of northwestern Costa Rica sometimes jadeite. Examples are known as far north along the Pacific as Oaxaca and Guerrero, Mexico, and through the Lesser Antilles to Puerto Rico. Most are abstract shapes, but some suggest or clearly represent bats. A few have human faces, echoing a type of Olmec horizontal pendant (rare in Meso-America) that is likewise winged, with a face at the centre.

Many Tairona winged pendants, such as one that measured 17½ in (44 cm), are too broad and heavy for personal ornaments and may have been sounding stones; thin wing-shaped pendants are still used in the region for their sound, tied to the arms of ritual dancers. In the same graves and caches were batons or sceptres of soft stone in various colours: unique shapes and monolithic axes (representing both blade and handle), which are also known from Costa

FIG. 2 **WINGED PENDANT** *Width: 5¼ in (13.3 cm). This thin variegated green nephrite ornament, repaired by a second pair of perforations, was excavated at the Nahuange site, Santa Marta, Columbia.*

FIG. 2

FIG. 3

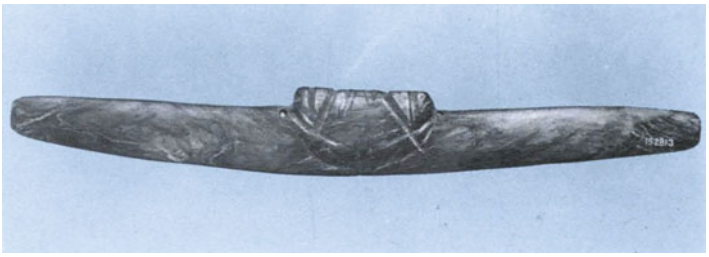

FIG. 4

FIG. 3 **WINGED PENDANT** *Width: 10⅜ in (26.4 cm). Of light green stone, this large pendant is from the Pueblito site, Santa Marta, Columbia.*

FIG. 4 **BAT-LIKE WINGED PENDANT** *Width: 8⅝ in (22 cm). Translucent laminated nephrite ornament with carved and perforated central element, from the Nahuange site, Santa Marta, Columbia.*

FIG. 5

FIG. 5 **FIGURE PENDANT** *Height: 6⅞ in (17.5 cm). A light olive green laminated nephrite figure in low relief, found at the Nahuange site, Santa Marta, Columbia.*

FIG. 6

FIG. 6 **FROG PENDANT**
Height: 1⅞ in (4.8 cm). A 'classic' muiraquitã, *a celt-shaped frog carved of dark brownish green nephrite, probably from the Jamundá valley, Brazil.*

FIG. 7

FIG. 7 **FIGURE PENDANT AND CYLINDRICAL HEAD**
Height of each: 1¾ in (4.5 cm). Two fine examples of the translucent yellow-green Brazilian nephrite, both from the Trombetas valley.

FIG. 8

FIG. 8 **CELTS AND POINTED OBJECT**
Pointed object length: 3¾ in (9.5 cm). Celt lengths: 2 in (5 cm) and 2¾ in (7 cm). The utilitarian celts and pointed object of grass-green jade, perhaps a ceremonial drill or perforator, were found in Brazil.

Rica, the Antilles and the southern United States. By contrast, nearly all winged pendants were of green stone – a fine-grained light green, probably slate, and nephrite (10 per cent). These and other nephrite objects, including two rare figure pendants, were all found in a stone tomb at the Nahuange site, dating from perhaps as early as AD 400.[5]

Coastal Colombia might have obtained nephrite by sea from lakes Maracaibo and Valencia, Venezuela, where contemporaneous and earlier sites seem to have a greater proportion of nephrite ornaments. Steatite appears as well, in frog pendants and typical figurines (with and without perforations). Winged pendants reach 24 in (60 cm) in length. Sources of fine stone need not have been close: the low-lying Venezuelan coast borders the vast area drained by the Orinoco and northwestern Amazon tributaries, throughout which early connections can be traced in ceramics.

The southernmost jade-working centre is on the Amazon where the Tapajós River enters at Santarém. Small pendants called *muiraquitãs,* carved of nephrite and softer materials, have been collected there for centuries.[6] Celt-shaped frogs, tubular beads and thin plaques are the most frequent forms in nephrite, some dark or brownish, some a distinctive translucent yellow-green. Chunks are recorded from the Tapajós, from Manaus and also from the coast of Bahia, where nephrite labrets are known.[7]

Steatite is the principal material of a diverse group of carvings that reach 10 in (25 cm) and are characterized by wide Y-shaped perforations, probably intended for attachment to dugout canoes.[8]

Reports and legends hint that, unlike the 'idols', *muiraquitãs* were being found as well as made at the time; moreover shape differences may be chronological. Nephrite examples, thinly dispersed throughout northeastern Brazil,[9] include 11 beads and plaques excavated at the mouth of the Amazon, all in burials dated after AD 1300-1400.[10] Polished stone celts and unusual pottery also relate to the

Tapajós region, where nephrite carving may correlate with the polychrome pottery tradition widespread between AD 600 and 1300, or even a preceding relief style carbon dated there about 100 BC–AD 500.[11]

Evidence of the jade tradition is to be found all through the Antillean islands that ring the Caribbean, many of which were populated by 5000 BC.[12] No major lapidary centres or styles are known, but sites on various islands show a relationship with the South American mainland or Meso-America, or with both at different times.

By AD 200 ceramics and lapidary work derived originally from the Orinoco basin and beyond had been carried through the Lesser Antilles and Puerto Rico. Greenstone ornaments included winged pendants and both frog and human forms, but many were also carved of other colours or of shell.

In the Greater Antilles, where ground-stone technology was long established, polished ceremonial celts appeared as the Taino culture was taking shape around and after AD 700. Most are green, and a few have been identified definitely as jadeite.[13] The geology and serpentine deposits of Cuba and Jamaica might signal associated jadeite, as in the Motagua Valley, Guatemala. Whatever the source of the material, the pointed-pole shape common in island celts is seldom seen in Meso-America. Celt symbolism continued after AD 1000 in effigy forms and monolithic axes of the classic Taino,[14] who also carved ceremonial mortars and pestles, metates or seats, and sculpture associated with the ball game.

Counterparts of distinctive Taino forms are widely separated. Monolithic axes are largely confined to north-eastern Colombia, eastern Costa Rica and the southern United States, as are pointed celts, whereas elaborate mortars, pestles and seats are typical of Costa Rica and Honduras.

Stone ball-game paraphernalia is unique to the Tajin style of coastal Veracruz, Mexico – the only culture in Meso-America with no related jade-carving. When and how jadeite and greenstone celts came to be made in the Greater Antilles is far from clear.

While the enduring theme of celt symbolism, jade and emblematic objects carved of jade and its substitutes was first seen in the Americas on the coast of Veracruz around 1200 BC, ceremonial and effigy celts from periods later than the Olmec are rarely found within Meso-America.[15] Where such celts appear in remote parts of northern South America and the Caribbean, however, it is with greenstone objects of local forms and styles, implying a basic unity of the three aspects in spite of alterations and recombinations. If so, the underlying jade complex of belief and technical knowledge was transmitted from Meso-America, over many centuries and largely by sea.

FIG. 9

FIG. 9 **TURTLE**
Length: 2⅛ in (5.4 cm). Found in the Trombetas River headwaters in Brazil, this miniature double-holed 'idol' is of soft greenish-brown stone.

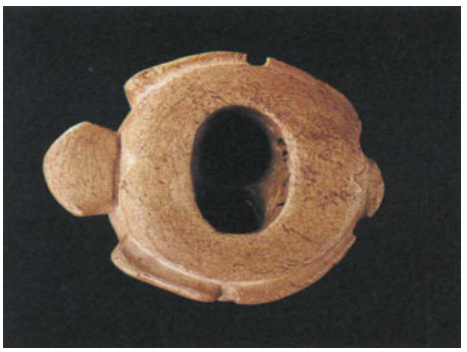

FIG. 10

FIG. 10 **TURTLE**
The underside view of Fig. 9, revealing the wide opening of Y-shaped perforation.

FIG. 11

FIG. 11 **CEREMONIAL CELTS**
Heights: 2¾ in (7.1 cm) and 3 in (7.7 cm). Both celts are of dark green jadeite, collected for Heber R. Bishop around the turn of the century, in the West Indies – the celt on the right is from Jamaica.

SOME ADVICE FOR BUYERS AND COLLECTORS

ROGER KEVERNE

FIG. 1

FIG. 1 **TWO BIRDS** *Chinese, 18th/19th-century. Height of larger bird: 8¾ in (22.2 cm), height of smaller: 6 in (15 cm). The larger crested crane holds a spray of peony in its beak, and is finely detailed. The natural flaws in the tone have been incorporated as a feature to define the wing feathers. The smaller bird stands on a pierced rock mound, and is of pale green stone with russet markings.*

Works of art made from jade have historically been collected by enthusiasts and connoisseurs all over the world and this is more than ever the case today. Those who appreciate the stone seem as varied in their tastes as the qualities and types of the jade works that they collect. One can, however, identify cultural and national preferences or biases in favour of particular forms, styles and colours. Some of these trends in taste have in fact manifested themselves more obviously in the last few years and they will be identified. Bearing in mind every collector's (and potential collector's) idea of what he or she wants, there are some basic guidelines which can be employed to help the buyer in the quest for works of art made of jade.

Colour and Type

The simple, rule-of-thumb methods a dealer or experienced collector uses in his assessment of a jade usually begin with the colour of the stone. The differences between nephrite and jadeite have already been defined in earlier articles and, while the taste for both stones is international, there are some preferences which predominate in some geographical areas. The taste in the Far East is invariably for as pure a white nephrite as possible, and where pure white flawless jade is found you will invariably find a high price, both in the East and West.

Yellow jade, a rare colour, has proved popular in the East and is increasingly now sought after in the West. Jades of this tone frequently have a pinkish blush to them; the good yellows are more desirable than the greener ones, and as the latter can now be made in photographs to appear a better yellow than they actually are, personal examination is essential.

Spinach green has been something of a poor performer in relation to the whiter and paler green examples, with some notable exceptions where the stone is vibrant and shiny in combination with fine detail or a brilliant plain form. The drier spinach-green incense burners, screens and bowls, usually 18th-century in date and popular with the Qianlong Emperor and his court, were very much the taste of the Western collector in the first half of this century;

FIG. 2 **BOULDER**
Chinese, 18th-century. Length: 7½ in (19.2 cm). A small boulder worked in relief with a scene of a stream, bridge and pine tree. The stone has a whitish tone with areas of black and yellow and a small burnt section. The reverse side is worked with a scene of Lao Tzu riding a buffalo *(see page 175).*

FIG. 2

FIG. 3 **SLIT DISC**
Chinese, Eastern Zhou Dynasty (Spring and Autumn period). Diameter: 2¼ in (5.5 cm). A slit disc, the circular plaque incised with a design of confronting bird heads. The stone is of a mellow, light brown tone.

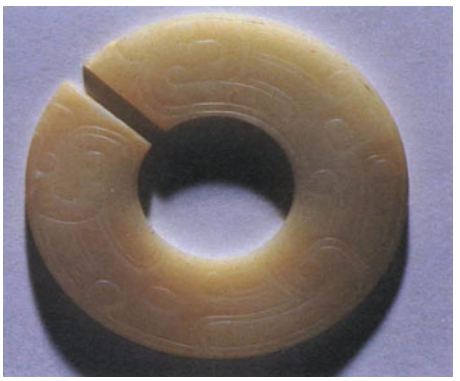

FIG. 3

a slow revival may now be occurring and a fine example is always worth considering.

Early Chinese jades were solely nephrite, jadeite arriving somewhat late on the scene. Brought to the Chinese jade workers in the 18th century from Burma, jadeite quickly found popularity with the imperial court, who admired its light, bright colour and high polishability. It lent itself to use in the finest examples of jewellery, snuff bottles and, in some cases, vessels and incense burners. The popularity of good jadeite has endured and in more recent years has manifested itself in some dramatic prices for the so-called Imperial jades, and for emerald and brilliant-coloured examples, particularly when made into jewellery.

Jadeite was a popular stone for the jade worker in the 19th and 20th centuries and many quite substantial items were produced. A favourite subject was the tall standing lady, frequently called Guanyin (goddess of mercy), with elegantly coiffured hair and in long robes. Many of these examples found their way to the West, in particular to the United States in the late 19th and early 20th centuries, but over the last 20 years they have been returning to the East, where the highest prices are being obtained from Hong Kong and Taiwanese collectors.

It was a quantity of precious jadeite jewellery that Pu Yi, the last emperor of China, took with him into captivity in Russia and Communist China, where this small hoard was inevitably discovered and his disgrace compounded. Edward Behr, in his book *The Last Emperor,* emphasizes the value of jadeite jewellery, for even at that time when the world was in chaos, he states 'If the Soviets allowed him to leave, Pu Yi knew that he had enough gold and jewellery left in his possession to live comfortably for the rest of his life.'

Carving and Ornamentation

The quality of the 'carving' (which would be better described in fact as 'working') is of great importance in the assessment of a jade, and the different periods have different styles and features to recommend them. The best archaic jades can be a delight both to handle and to observe, and good examples combine sculptural qualities and the subtle relief work characteristic of these times with the mellow patina of age – although archaic jade is often poor in quality of stone.

The raised thread relief work of the early jades was later superseded by a false relief technique, where the worker cut lines on either side of a suggested relief line. The result was not nearly as pleasing as the real thing and low-relief work on jades of all periods, when interpreted

FIG. 4 **SWORD HILTPIECE**
Chinese, Han Dynasty. Length: 2 1/8 in (5.2 cm). A sword hiltpiece (peng) *decorated with a low-relief geometric* taotie *design, the stone a mellow pale white-green tone.*

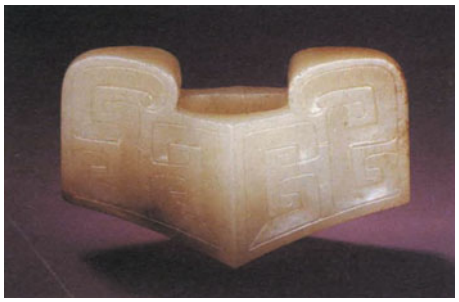

FIG. 4

FIG. 5

FIG. 5 **BRUSH POT**
Chinese, 18th-century. Height: 4 3/4 in (12 cm). A cylindrical jade brush pot, the sides worked in high relief with a continuous scene of a pagoda amongst mountains and trees. The stone is of a spinach-green tone.

with sensitivity by the jade worker, is generally the most pleasing to the eye and touch.

Deep-relief work is to be seen at its most technically exciting in the large and magnificent jades of the 18th century. Here the best examples are those where the stone is thick and worked back in a series of layers. This type of 'carving' can often be observed in the best landscape and figure brush pots, where the outer stone is subtly reduced to a lower level and then worked through a further series of levels to a final, thinner stage. The quality of the stone and the workers' skill in these examples can often be best observed by lowering a light into the interior of the pot; the whole depth of the landscape can then be seen down to the very final, thinnest layer that the craftsman has dared to work.

Often the jades that are the most difficult to assess are those in the form of animals and other creatures. There are various stylistic features that can be associated with certain periods, for example, a flat base is often evident on animals of the Han period. The problem is that, of course, the faker (of whom more later) is not stupid and can quite easily reproduce the known characteristics of an earlier period. It pays to look closely at animal jades: comparison with known, genuine examples is one of the best methods for identifying copies. The copy, when compared with the genuine, is usually lifeless, somewhat quaint and with no inner strength. Some 19th- or 20th-century copies have foolish expressions, rubbery limbs and a lack of finesse and precision, whereas genuine examples have a finish and depth that proclaim their quality and age. No matter how small, genuine examples seem to possess a fine sculptural quality. As is the case with fakes in other fields of art, the faker does not, or cannot, complete his object with the same degree of finish as the original worker, and his 20th-century culture somehow influences his style. It should always be remembered that the Western pre-occupation with 'time being money' was not so relevant historically. In ancient times many hours would be spent working and refining a jade until it was at its best, but a modern faker is conscious of the time he invests in his work relative to its selling price.

It is not always the case that ornamentation gives a jade merit or importance. Many jades have no ornamentation at all, relying on the quality of the stone, the form and its markings for effect. In these cases, the jade worker strives to achieve a smoothness of texture, a finely cut profile, foot rim or everted lip, the whole work of art relying on the element of restraint in its design. Many a collector who has commenced his collection with large ornamental or busily worked jade acquisitions latterly discovers plainer, more subtle examples, and in time appreciates them more than his highly ornamental examples. Some of the most attrac-

FIG. 6

FIG. 6 **NECKLACE** *English, 20th-century. A spectacular example of modern jewellery by Charlotte de Syllas. Her work has been commissioned both privately and by the Victoria and Albert Museum in London. She has also written a short discourse on how she creates and works with her images, expressing the jade-worker's feeling for the stone.*

FIG. 7 **TWO-HANDLED CUP** *Chinese, Qianlong period. Length: c.6 in (15 cm). A cup of well rounded form with an everted lip, and loop handles surmounted by deers with* linghzi *sprays. The stone is a spinach-green tone with markings. The body is worked with a Buddhist scene of* lohans *attending a divinity, and the base has an imperial four-character Qianlong mark. A rare cup, the relief work is shallow and superbly rendered. This cup form was popular throughout many periods of Chinese history.*

FIG. 7

tive pieces are plain but with cloud-like markings in the stone; the Daoist scholars of China appreciated the mist- and cloud-like qualities in stones as an alternative to confusion and excessive ornament.

Assessment and Flaws

The price and popularity of jadeite depend partly on the quality of its workmanship, but most importantly on the colour of the stone, the strength and extent of any brilliant green inclusions, and how well the green is used and shown in the piece.

The attitude of the collector to the colour of the stone is usually allied to any variations and markings inherent in it. A certain amount of white mottling in a pale green example will not usually deter anyone with knowledge and taste. However, ugly grey or dry oatmeal spots will usually affect both price and saleability. Russet markings and the skin of a pebble, if used intelligently, enhance a composition and the skilful use of a darker marking in an animal or bird subject, to emphasize a spine, eye or unusual pose, actually enhances the value of these pieces.

The way the jade worker utilizes flaws in the stone is particularly relevant in the judgement and valuation of a good jade. If the flaw in a jade is ugly or offends the eye, it should be approached cautiously, but where it is used with sensitivity and is integrated into the design, it adds to the quality and value of the example. Some of the most sensitive work of this nature can be seen in the interior of vessels, where the flaw in the stone is disguised or transformed into a feature such as a branch, bird, lotus spray or twin fish (symbol of marital bliss).

Repair and Fakes

Jades which have been altered are another matter. It is obvious that some examples will have suffered damage in their past, particularly those with relief work. Such jades should always be examined closely since both ancient and modern lapidaries have worked marvels with damaged jade.

When looking for damage or alterations in jade, it is worthwhile to bear in mind the talents of the pre-19th-century jade worker. He was able to coax beautiful compositions from his boulders and stones and was adept at mani-

FIG. 8

FIG. 8 **SWORD GUARD** *Chinese, Western Han Dynasty. Length: 2 in (5.5 cm). Total length: 7⅛ in (18 cm). A sword guard worked in high relief with a curling dragon and low-relief scrolling on the reverse, together with the remains of the original blade. The dragon is well sculptured and defined, and curls in a natural way. The stone is a pleasing pale green tone with russet markings.*

pulating his designs to suit the material employed, and he could just as easily turn these talents to repair. Watch out for branches which end suddenly, animals and dragons with strange, short legs, or birds with foreshortened beaks or wings; turn the jade in your hand and see if the composition flows (remembering that sometimes whole figures might have been removed). The rims of bowls in good examples are usually everted and thinned; thick, undulating rims which are uneven should be examined closely and should always arouse suspicion.

It is not a hard and fast rule that every jade that has undergone repair work should be rejected, but consideration should be given to the extent to which it has been remodelled. Repairs can be done with the most astonishing materials – it is known that one large jade animal had a flaw to its underside filled with cement, about as primitive a restoration as one could find. In modern times chemicals and synthetics have also been used to repair and fill in cavities.

The Chinese have traditionally copied ancient jades, the Song period (960–1279 BC) in particular being a time of nostalgia, which manifested itself at that time in the production of many works of art (not only jade) in imitation of earlier pieces. This respect for the past and the reproduction of its art and styles continued, but it was during the 18th, 19th and 20th centuries that the practice grew, modifying itself to suit the Western demand.

Fakers of early jades have invariably selected a seaweed-like green and brown stone, sometimes artificially stained, which is manipulated into a semblance of an early example. Hopefully this fails but, of course, it can catch the best of us who view too quickly under pressure.

There being no scientific way of dating jade, as there is, for example, with the thermoluminescence method with pottery, fakers of archaic and burial jade can often dupe dealers and collectors. Jades from tombs came increasingly to the market in the early part of the 20th century, particularly from the northern parts of China where the activities of the European and Scandinavian railway-builders unearthed tombs that the Chinese peasants then emptied.

The reaction of archaic jades to burial in the ground and their contact with cinnabar, metals, acids, minerals and human remains in the tombs led to a certain amount of discoloration, decomposition and alteration in the surface and colour of the stone; this condition is referred to, in the jade world, as calcification (although the stone has not actually calcified or turned to calcite: in fact, the same mineral, nephrite, has softened). The stone in many examples dries out and assumes a bone-like appearance, similar to the colour of a burnt jade, and it can also, more rarely, crumble due to its softness. These 'calcified' colours can in some instances be attractive, and the jade hilts and scabbards that have been in contact with iron or bronze often have a pleasing reddish-brown tone. It is a tradition among Chinese fakers and dealers to induce this calcification by burying fake jades with dead dogs; another old trick is to take these and other stones, to work them into an article and to 'distress' them by contact with acids, by extremes of heat and by staining.

The staining of jades to create the appearance of age is often recognizable but it should be borne in mind that staining was a traditional method of enhancing jades historically, and can be an attractive additional feature in many genuine antique examples.

It should always be remembered that fakers of jades invariably learned their craft from other fakers, often

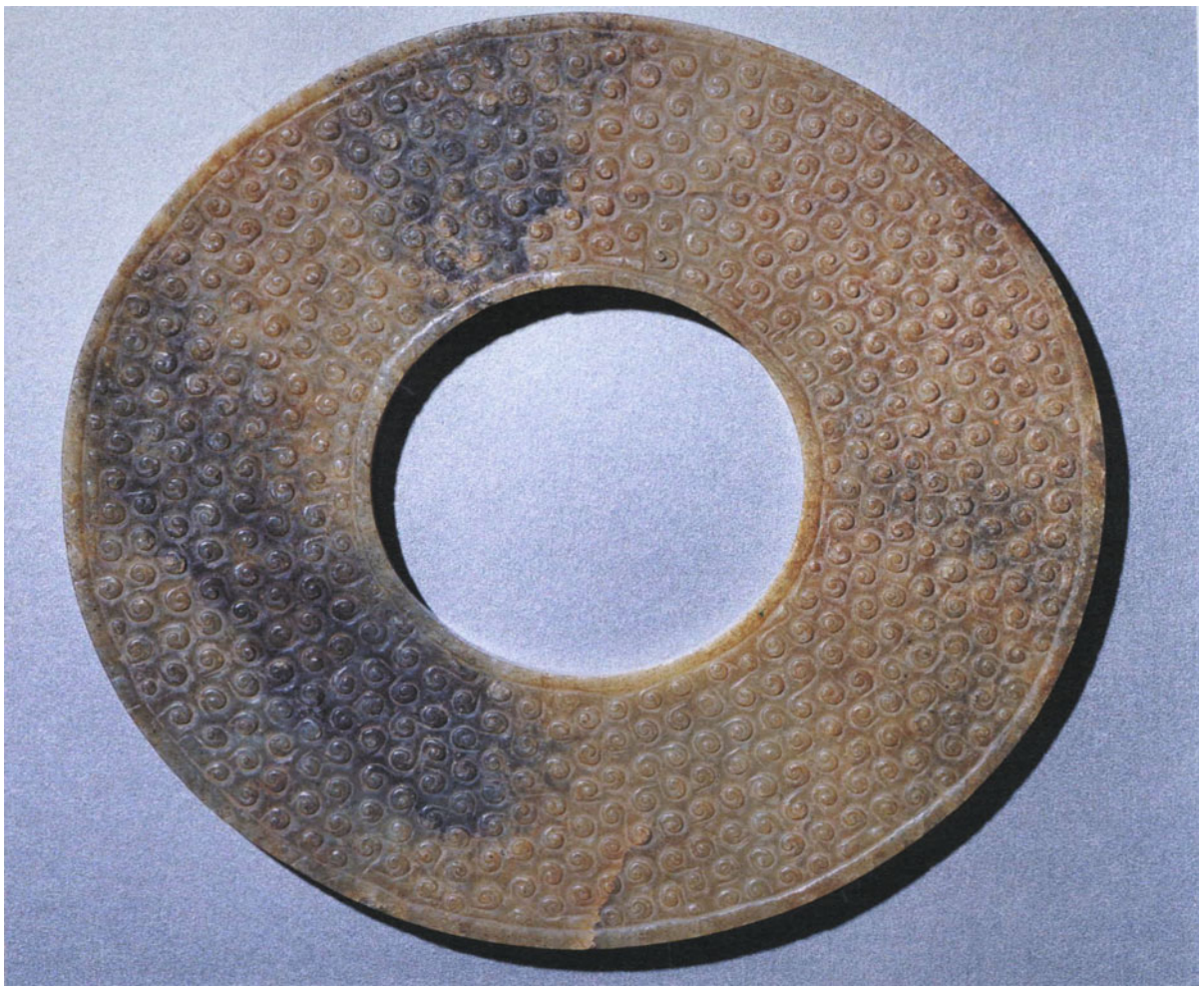

FIG. 9 **MOTTLED *BI* DISC** *Chinese, Eastern Zhou Dynasty. Diameter: 9½ in (24.2 cm). Hole diameter: 3⅞ in (9.9 cm). Thickness: ¼ in (0.8 cm). An unusually large jade* bi *disc, its surface worked in high relief with an all-over design of curls, the edges plainly worked and the stone a mottled green tone with dark blue-black and light brown markings.*

FIG. 9

members of their own family, and refined their art over the years to a frightening accuracy, adding in many cases the little nibbles and chips an old jade would have after hundreds of years.

Buying and Selling

The best dealers in jade are invariably those who have handled and seen many examples. These few have cut their teeth the hard way, learning their craft and making highly educational mistakes early in their career (without expecting their customers to pay for them). They buy from, and compete with, the international auctioneers for the best examples that emerge on the market, and jade collectors will have differing views on which source is the best to patronize.

Auctioneers are useful as far as volume allied to quality is concerned and it is in their salerooms that the collector will be able to handle and compare a cross section of pieces – the essential ingredient of learning. In any auction of jade there will be a variety of opportunities and pitfalls. The opportunities usually lie in lots from the estates of deceased collectors placed in auction by lawyers or executors with little or no reserves and instructions to the auctioneer to sell. Other opportunities come with mis-catalogued lots, since cataloguers are usually working under pressure against printers' deadlines, and it could just be that a Ming jade has been catalogued as 19th-century. Bear in mind, though, that exactly the reverse can also happen and a 19th-century jade could be catalogued as Ming!

Responsible and sensible representatives of the auction houses will on most occasions give good advice to potential buyers. Their depth of experience and knowledge of the subject is important, but the advice should be accepted only with the caveat that the auctioneer's primary obligation is to the seller and not to the buyer and their job is to achieve the highest price possible. The auction catalogues invariably

contain conditions which minimize as much as possible any obligations to the buyer. Dealers who buy at these auctions are obviously aware of all this, and a private collector, no matter how knowledgeable and experienced, will frequently commission a dealer to check the lots in which he has an interest, and assess condition, quality and aesthetics.

The relationship between a good dealer and his client is crucial in the forming of a good collection of jade, even to the extent of the responsible dealer preventing the collector buying jades from his own stock that are just not suitable for the particular collection or client. It is also often the case that collectors 'trade up' and early purchases of jade are returned to the dealer against better, rarer or more unusual examples. The good dealer will steer a collection in the way he feels his client wants to go, but all collectors invariably make their own mistakes as part of the learning process and ultimately it is the collector who has to live with the jades and should make the final decision on acquisitions.

Allied to the tighter guarantee a good dealer usually gives, some may allow potential purchasers to take away a jade on approval, to see if it sits in harmony with other examples in their collection. The jade may then be returned as being unsuitable or inappropriate, as jades have special qualities which can jar when not in keeping with other pieces; of course, on the occasion when the example is entirely suitable, a good jade enhances others and the collection is greater than the sum of its parts.

The overall foundation should be quality. As a general rule, it is always better to buy a good 19th-century jade than a poor 18th-century one. Many dealers use names that they hope will strike an emotive cord in the collector's psyche; we see, consequently, advertisements depicting 'Ming' jades that perhaps never saw the 14th- to 17th-centuries, and jades 'from the reign of the Qianlong Emperor (1736–95)' that may have some stylistic similarities but which are naively interpreted, soulless, later-Qing examples.

Great discoveries and bargains have been found, and no doubt will continue to be, but frustratingly they are not as plentiful as they once were. The collector should be suspicious of bargains from supposedly knowledgeable sources and it is usually the case that the best-quality jades are found with the best dealers, where even the more humble items of stock are superior to the best of the jades found in lesser hands: 'Golden nails are only found where the golden coaches go.'

FIG. 10

FIG. 10 **CARVED BOULDER**
Chinese, 18th-century. A large, carved nephrite boulder depicting two Uighur miners moving an uncarved jade stone from one of the jade rivers in Xinjiang Province. Poems are inscribed on the reverse.

Collecting and Collections

Jade caught the imagination of the West somewhat late in the scale of events; the stone that had been appreciated and held in such high regard by the Chinese for thousands of years was very much a 19th- and 20th-century Western collectors' discovery. The European armies entered mainland China and sacked the Summer Palace outside Beijing in 1860 and again in 1900. The soldiers looted the palaces and what was not removed and taken back to Europe was sold locally. It is recorded that the local Chinese inhabitants also helped themselves to what was left and this, allied to what had been stealthily removed over some time by corrupt eunuchs at the imperial court, led to a flow of fine jades and other works of art never seen before or again.

One story connected with the sacking of the Summer Palace concerns the fine jade buffalo with a bronze horn which later arrived in Lord and Lady Gladwyn's collection (illustrated in *Chinese Art* by Lion-Goldschmidt and Moreau-Gobard, page 192). This beast, of a type known to have been made for the palaces, was said to have been the subject of a dispute between some Chinese. The looted buffalo's ownership was disputed, and the argument was about to be settled by a gross act of vandalism: the physical division of the buffalo among the disputants. A European officer chanced upon the scene in time to purchase the beast but not quickly enough to save one of its horns, hence the bronze replacement.

Western interest in fine jades flourished after the European armies had secured the rights of trade and after the sacking of the palaces. The Chinese antique dealers of Beijing and Shanghai did a flourishing trade with those businessmen, collectors and museums whose eyes had been opened to the imperial taste and to the best jades.

Before this exposure to the finest pieces, the foreign barbarians, as the Chinese saw the Westerners, had seen or understood very little about jade. Their ignorance is revealed by the gift given on 14th September 1793 by the Emperor Qianlong to Sir George Staunton, Secretary to the British Embassy to China. Now in the Victoria and Albert Museum, it is a *ruyi* sceptre of traditional size (length 14 in/36 cm); the head is modelled as a *lingzhi* fungus, the stem with fruiting peaches. The term *ruyi* means 'as you wish' and these sceptres were a traditional gift – some magnificent examples with dates and inscriptions were in the imperial collections. The catch is that the Staunton example is of poor quality: it is a dull, greenish tone, and the relief and pierced work are rather coarse and perfunctory. The Chinese knew that the members of this embassy would not have any idea what constituted a good jade and selected the gift accordingly.

The continuing presence of Westerners in mainland China and their greedy and untutored interest in acquiring Chinese art led to the inevitable skulduggery that arises when a limited supply meets a demand backed by money: in other words specially made 'antiques'. One particular collector, A. de Tanner, has the claim to fame that his whole collection was seemingly made for him. The two-part catalogue of his collection serves in fact as a useful guide to the fakes and reproductions prevalent at the time and de Tanner jades and their like do emerge in various parts of the world from time to time, fooling the unwary and uneducated.

One of the great jade stories is that of the imperial jade *bi* which was found in an English country garden. This amazing disc was from the Summer Palace in the Forbidden City and the bronze base was later found by the owner in a box under the workbench in his garage. A relation of the owner was said to have acquired it either from the palace or from the Temple of Heaven, the only place where the emperor would perform obeisance before heaven in his supplications for a favourable crop. Laufer concurs that there was in fact a *bi* of this type in the altar of the Temple of Heaven. The discovered piece was later bought by Aristotle Onassis.

Great historical collectors include Queen Marie of Yugoslavia, who bought superb jades, principally of the 17th and 18th centuries; the late King Gustav of Sweden, who was himself an archaeologist and much interested in archaic and animal carvings; various members of European royal families; Greek shipowners and, of course, many dedicated collectors from Hong Kong, Taiwan and the United States. Japan has no great tradition of interest in jades but they are beginning to learn from other Oriental connoisseurs. Many of the old collecting names will be known from the generous donations they have made to museums throughout the world: The Heber Bishop Collection in The Metropolitan Museum of Art; The Sonnenschein Collection in the Art Institute of Chicago; The Avery Brundage Collection in San Francisco; and the Walker Collection in Minneapolis. In England, two famous names associated with top-quality Oriental works of art, particularly jades, are Kitson and the Buchanan Jardine family, who had connections with trading in the East. Many other great collectors prefer, of course, to remain anonymous.

FIG. 11 **TROPHY VASE** *Chinese, 18th-century. Height: 9⅛ in (23.2 cm). A fine jade trophy vase of flattened ovoid section, with twin cylinder handles on the neck over a baluster body, all on a spreading foot. The stone is of celadon green tones with a broad area of white suffusion with a russet brown edge. The base is incised with a six-character mark reading:* Da Qing Qianlong Fang Gu *(made in the Qianlong period in the Qing copy of the antique).*

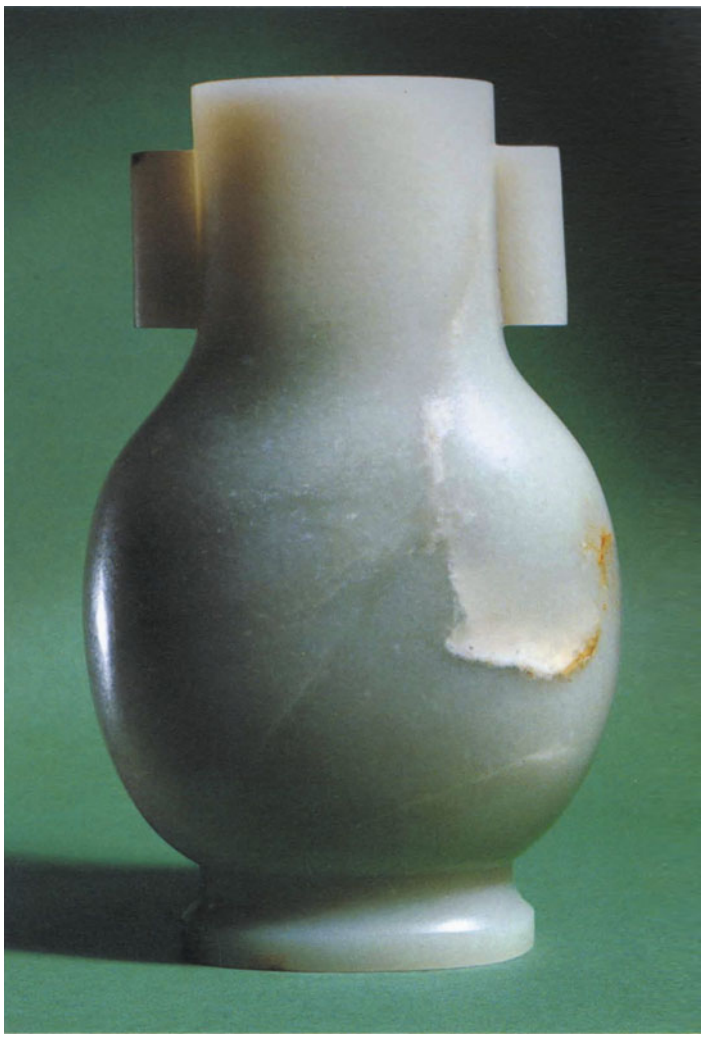

FIG. 11

PUBLIC COLLECTIONS OF JADE

This geographic listing of jade collections has been limited to those in museums open to the public. There are many fine private collections, both extant and being accumulated, but their owners for obvious security reasons do not desire any publicity.

It would be informative to include some kind of indication of the size and importance of individual exhibitions. Unfortunately, such a classification breaks down because what is important for the viewer is what is on display, not what collection(s) the museum may hold. In two of the major art museums in the USA less than 1 per cent of the jade collections bequeathed to them is on display. In several instances the collections were donated to museums with the proviso that they must always be on display, often as study collections, but because of the pressure of museum space, wills may be broken.

Thus the following list will just have entries made without comments. It has not been possible to individually inspect each museum and we would prefer to err on the side of completeness rather than on omission. A number of countries are not listed since, to the best of our knowledge, there is no recorded jade collection in any of their museums.

Jade collections are not necessarily only in fine arts museums but may also be found in museums of anthropology, ethnology, geology, natural history and so on. In some instances the viewing hours are so limited and the lighting so poor that the viewer is well advised to bring a flashlight for close inspection.

FIG. 1

FIG. 1 GOURD-SHAPED VASE
Chinese, 18th/19th-century. Height: 5 in (12.7 cm). A fine, yellow jade vase and cover in the shape of a double gourd, carved in relief with leaves, tendrils and smaller gourds, and a bat on the top. The fine, even yellowish-green stone is well hollowed.

ARGENTINA ≈
Buenos Aires National Museum of Oriental Art

AUSTRALIA ≈
Melbourne National Gallery of Victoria
Sydney Art Gallery of New South Wales

AUSTRIA ≈
Vienna Museum of Ethnology ~ Natural History Museum

BELGIUM ≈
Brussels Royal Museum of Art and History
Ghent Museum of the Treaty of Ghent

BURMA ≈ (MYANMAR)
Rangoon Natural History Museum

CANADA ≈
Montreal Montreal Museum of Fine Arts
Toronto Royal Ontario Museum
Victoria Art Gallery of Greater Victoria ~ British Columbia Minerals Museum

CHINA ≈ (THE PEOPLES' REPUBLIC OF)
Note: more and more Museums in China are continually opening to the public each year and the list below is undoubtedly behind the times.
Beijing Geology Museum ~ Palace Museum
Guandong Nan Yu Museum (Western Han tomb finds) ~ History Museum
Jinan Shandong Provincial Museum
Jinzhou Liaoning Provincial Museum
Kaifeng Honan Provincial Museum
Louyang Henan Provincial Museum
Nanjing Kiangsu Provincial Museum
Shanghai Art and History Museum
Shenyang (Mukden) Liaoning Northeast Museum ~ Qing Imperial Palace
Tianjin City Museum of History ~ Hopei Provincial Museum
Taiyuan Shansi Provincial Museum
Xian Shensi Provincial Museum

CHINA ≈ (REPUBLIC OF)
Nankang Academia Sinica Exhibition
Taipei National Museum of History ~ National Palace Museum ~ Taiwan Provincial Museum

COSTA RICA ≈
San José Museum of Jade of the National Insurance Institute ~ Natural History Museum

CZECHOSLOVAKIA ≈
Lysa Nad Lamen Museum of Ancient Oriental Culture
Opava Silesian Museum of Natural History
Prague Museum of Natural History

DENMARK ≈
Copenhagen National Museum

FRANCE ≈
Fontainebleau Far Eastern Museum
Lyon Guimet Museum
Paris Cernuschi Museum ~ Ennery Museum ~ Guimet Museum

GERMANY ≈
Bad Driburg St. Xavier Mission Museum
Bad Wildungen Asiatic Museum
Berlin Museum of Ethnology ~ Museum of Far Eastern Art ~ Pergamon Museum
Braunschweig Count Ulrich Museum
Bremen Overseas Museum
Dresden Museum of Ethnology
Idar-Oberstein Mineral Museum
Köln (Cologne) Museum of Oriental Art
Munich Museum of Ethnology

GREAT BRITAIN ≈
Brighton University of Sussex Museum
Bristol Bristol Museum and Art Gallery
Cambridge Fitzwilliam Museum ~ University Museum of Archaeology and Ethnology
Clacton St. Osyth's Priory
Durham Gulbenkian Museum
Edinburgh Royal Scottish Museum
Glasgow Burrell Museum
London British Museum ~ British Museum of Natural History ~ Geological Museum ~ Museum of Mankind ~ Victoria and Albert Museum
Luton Werner Collection (Fabergé)
Manchester City Art Gallery
Oxford Ashmolean Museum

Port Sunlight Lady Lever Art Gallery
Windsor Windsor Castle

GREECE ≈
Corfu Sino-Japanese Museum

GUATEMALA ≈
Antigua Jades, S.A.
Guatemala City Archaeological Museum

HONG KONG ≈
Victoria City Museum and Art Gallery ~ Fung Ping Fan Museum
Shatin Gallery of the Chinese University

HUNGARY ≈
Budapest Ferenc Hopp Museum

INDIA ≈
Bombay Prince of Wales Museum
Calcutta Indian Museum
Hyderabad Salarjung Museum
New Delhi Archaeological Museum ~ National Museum of India
Varanasi Bharat Kala Bhavan

IRAN ≈
Teheran Treasury of the Crown Jewels

IRELAND ≈
Dublin Chester Beatty Museum

ITALY ≈
Milan Museum of Ancient Art ~ Museum of Far Eastern Art
Naples Oriental Institute
Parma Museum of Chinese Ethnography
Rome Luigi Pigorini Museum ~ National Museum of Oriental Art
Turin Museum of Ancient Art

JAPAN ≈
Kobe Hakutsuru Art Museum
Kyoto University Archaeological Collection ~ Yurinkan Collection
Tokyo Goto Art Museum ~ National Museum (Ueno) ~ National Museum of Antiquities (Okura) ~ University Archaeological Collection ~ University Museum of Art

KOREA (REPUBLIC OF) ≈
Kyongju City National Museum
Seoul National Museum

MEXICO ≈
Campeche Archaeological Museum
Chiapas Chiapas Regional Museum
Jalapa Archaeological Museum
Merida Archaeological Museum ~ Yucatan Museum of Anthropology
Mexico City National Anthropological Museum
Palenque Archaeological Museum
Teotihuacan Teotihuacan Museum
Villahermosa Park Museum (outdoor) ~ Tabasco Regional Museum

NETHERLANDS ≈
Amsterdam Baron van Walien Collection ~ National Museum of Far Eastern Art
Leiden National Museum of Ethnology
Otterloo Kröller-Müller Museum
Rotterdam Museum of Ethnology

SINGAPORE ≈
Art Museum and Exhibition Gallery

SPAIN ≈
Madrid Institute of Gemology ~ National Archaeological Museum ~ National Museum of Anthropology

SWEDEN ≈
Stockholm Museum of Far Eastern Antiquities

SWITZERLAND ≈
Geneva Baur Collection
Schöenenwerd Bally Foundation Museum
Zürich Museum Rietberg

TURKEY ≈
Istanbul Topkapi Palace Museum

FIG. 2 **FAT-TAILED RAM**
Chinese, Han Dynasty. Length: 2⅜ in (6 cm). A good example of the period, this recumbent ram has a flat base, a feature associated with the Han Dynasty. It also relates to the large stone animals found on the 'spirit paths' leading to important tombs. The stone is a green tone with traces of calcification and wear.

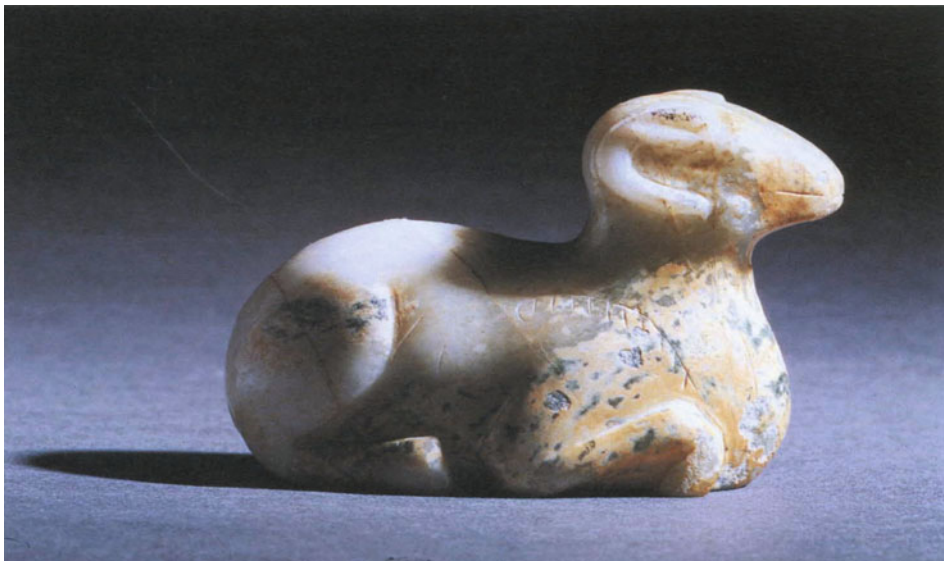

FIG. 2

U.S.S.R. ≈
Leningrad Chernyschev Geological Museum ~ Hermitage Museum
Moscow Mineralogical Museum ~ Museum of Oriental Art

UNITED STATES ≈
Alabama, Birmingham Birmingham Museum of Art
Arizona, Phoenix Phoenix Art Museum
California, Berkeley Robert H. Lowrie Museum of Anthropology
California, Cathedral City Museum of Antiquities and Art
California, Los Angeles Los Angeles County Museum of Art
California, Monterey Art Asia Museum
California, Oakland Oakland Museum
California, Pasadena Pacific Asian Museum
California, Sacramento E. B. Crocker Art Gallery
California, San Diego Fine Arts Gallery of San Diego
California, San Francisco Asian Art Museum of San Francisco ~ The Avery Brundage Collection ~ The Fine Arts Museums of San Francisco
California, Santa Barbara Santa Barbara Museum of Art
California, Stanford Stanford University Museum and Art Gallery
Colorado, Boulder University of Colorado Museum
Connecticut, Hartford The Wadsworth Atheneum
Connecticut, New Haven Peabody Museum of Natural History ~ Yale University Art Gallery
Delaware, Winterthur Henry Francis Du Pont Winterthur Museum
Florida, West Palm Beach Norton Gallery
Georgia, Atlanta The High Museum of Art
Hawaii, Honolulu Honolulu Academy of Fine Arts

FIG. 3 **BOULDER**
Chinese, 18th-century. Height: 11½ in (29 cm). A fine large boulder worked in high relief with a scene of two scholars on a rocky promontory, observing a crane in flight above a pavilion. The stone is a green tone with russet markings. The natural shape of the boulder is retained, with no cutting or turning of the base.

FIG. 3

Illinois, Carbondale Southern Illinois University Museum
Illinois, Chicago Art Institute of Chicago ~ Field Museum of Natural History
Illinois, Elmhurst Lizzadro Museum of Lapidary Art
Illinois, Elsah School of Nations Museum
Indiana, Indianapolis Indianapolis Museum of Art
Iowa, Cedar Rapids Coe College Art Gallery
Iowa, Davenport Davenport Museum
Louisiana, New Orleans Middle America Research Institute, Tulane University ~ New Orleans Museum of Art
Maine, Brunswick Bowdoin College Museum of Art
Maryland, Baltimore Museum of Art ~ Walters Art Gallery
Massachusetts, Boston Museum of Fine Arts ~ Isabella Stewart Gardner Museum
Massachusetts, Cambridge Fogg Art Museum ~ Peabody Museum of Archaeology and Ethnology
Massachusetts, Northampton Smith College Museum of Art
Massachusetts, Springfield George Walter Vincent Smith Museum
Massachusetts, Worcester Worcester Art Museum
Michigan, Ann Arbor University of Michigan Museum of Art
Michigan, Bloomfield Hills Galleries of Cranbrook Academy of Art
Michigan, Detroit Detroit Institute of Arts
Minnesota, Minneapolis Minneapolis Institute of Arts ~ Walker Art Center
Missouri, Kansas City Nelson-Atkins Museum of Art
Missouri, St. Louis St. Louis Art Museum
New Jersey, Newark Newark Museum
New Jersey, Princeton The Art Museum, Princeton University
New Mexico, Roswell Roswell Museum and Art Center
New York, Brooklyn The Brooklyn Museum
New York, Buffalo Albright-Knox Art Gallery ~ Buffalo Museum of Science
New York, New Paltz State University College Art Gallery
New York, New York City American Museum of Natural History ~ Chinese Museum, Chinatown ~ The Metropolitan Museum of Art
New York, Poughkeepsie Vassar College Art Gallery
Ohio, Akron Akron Art Institute
Ohio, Cincinnati Cincinnati Art Museum
Ohio, Cleveland Cleveland Museum of Art
Ohio, Columbus Columbus Gallery of Fine Arts
Ohio, Dayton Dayton Art Institute
Ohio, Toledo Toledo Museum of Art
Oklahoma, Norman University of Oklahoma Museum of Art
Oregon, Portland Portland Art Museum
Pennsylvania, Philadelphia Philadelphia Museum of Art ~ The University Museum
Pennsylvania, Pittsburgh Carnegie Institute Museum of Art
Pennsylvania, University Park Museum of Art, Pennsylvania State University
Texas, Fort Worth Kimbell Art Museum
Texas, Houston Museum of Fine Arts
Texas, Snyder Diamond 'M' Foundation Museum
Virginia, Norfolk Chrysler Museum
Virginia, Richmond Virginia Museum of Fine Arts
Washington, Seattle Seattle Art Museum
Washington, D.C. Dumbarton Oaks Collection ~ Freer Gallery of Art, Arthur M. Sackler Gallery ~ National Gallery of Art ~ National Museum of Natural History

YUGOSLAVIA ≈
Zagreb Museum of Jade

All help in improving these listings would be welcome from readers and information should be sent to the FRIENDS OF JADE, P.O. Box 135, Wallington, Surrey, SM5 4PB, England.

GLOSSARIES

Chinese Language Glossary – Pinyin/Wade-Giles

DYNASTIES

Han	*Han*
Jin	*Chin*
Liao	*Liao*
Lin	*Lin*
Manzu	*Man-tsu*
Ming	*Ming*
Qi	*Ch'i*
Qin	*Ch'in*
Qing	*Ch'ing*
San dai	*San dai*
Shang	*Shang*
Song	*Sung*
Sui	*Sui*
Taiping	*T'ai-p'ing*
Tang	*T'ang*
Tianguo	*T'ian-kuo*
Wei	*Wei*
Xia	*Hsia*
Yuan	*Yuën*
Zhou	*Chou*

EMPERORS

Chenghua	*Ch'eng-hua*
Chongzhen	*Ch'ung-chen*
Daoguan	*Tao-kuan*
Daogunag	*Tao-kuang*
Dingling	*Ting-ling*
Guangxu	*Kuang-hus*
Haizong	*Hai-tsung*
Hongli	*Hung-li*
Hongzhi	*Hung-chi*
Hongwu	*Hung-wu*
Huizong	*Hui-tsung*
Jianwen	*Chien-wen*
Jiaqing	*Chia-ch'ing*
Jingtai	*Ching-t'ai*
Kangxi	*K'ang-hsi*
Longqing	*Lung-ch'ing*
Qianlong	*Ch'ien-lung*
Qin Shi Huangdi	*Ch'in Shih Huang-ti*
San Dai	*San-Tai*
Shunzhi	*Shun-chih*
Taichang	*T'ai-ch'ang*
Tianqi	*T'ien-ch'i*
Tianshun	*T'ien-shun*
Tongzhi	*T'ung-chih*
Wanli	*Wan-li*
Xianfeng	*Hzien-fêng*
Xuande	*Hsu'an-te*
Xuantong	*Hsu'an-t'ung*
Xuan Ling	*Hsu'an Ling*
Yongle	*Yung-lo*
Yongzheng	*Yung-cheng*
Zhengde	*Cheng-te*
Zhenguan	*Chen-kuan*
Zhengtong	*Cheng-t'ung*
Zhiyuan	*Chih-yuen*
Zhu Yuanzhang	*Chu Yuen-chang*

AREAS

Anhui	*An-hui*
Banpo	*Pan-p'o*
Chu	*Ch'u*
Fujian	*Fu-chien*
Gansu	*Kan-su*
Guangdong	*Kuang-tung*
Hebei	*Ho-pei*
Heilongjiang	*Hei-lung-chiang*
Henan	*Ho-nan*
Huizhou	*Kuei-chou*
Hunan	*Hu-nan*
Jiangnan	*Chiangnan*
Jiangsu	*Chiang-su*
Jiangxi	*Chiang-hsi*
Jin	*Chin*
Liaoning	*Liaoning*
Luoyang	*Luo-yang*
Qi	*Ch'i*
Qin	*Ch'in*
Qinghai	*Ch'ing-hai*
Qinling	*Ch'inling*
Shandong	*Shan-tung*
Shanxi	*Shanhsi*
Shaanxi	*Shaanhsi*
Sichuan	*Su-ch'uan/Szŭch'uan*
Sui Xian	*Sui-hsien*
Wei	*Wei*
Weiwu'erzu	*We-wu Erh-tsu*
Wu	*Wu*
Wu Xian	*Wu Hsien*
Xinjiang	*Hsin-chiang*
Xiyugou	*Hsi-yu'kou*
Yue	*Yu'eh*
Yunnan	*Yu'n-nan*
Zhao	*Chao*
Zhejian	*Che-chiang*
Zheng	*Cheng*

CULTURES

Banshan	*Panshan*
Cishan-Peiligang	*Tzŭshan P'ei-kang*
Daixi	*Tai-hsi*
Fengjian	*Feng chien*
Hemudu	*Hê-mu-tu*
Hongshan	*Hung-shan*
Huating	*Hua-t'ing*
Liangzhu	*Liang-chu*
Longshan	*Lung-shan*
Machang	*Mach'ang*
Majiabin	*Ma-chia-pin*
Majiayao	*Ma-chia-yao*
Nuzhen	*Nu'chen*
Qinglongquan	*Ch'ing-lung-ch'üan*
Qinwangzhai	*Ch'in-wang-chai*
Qujialing	*Ch'ü-chia-ling*
Semu	*Se-mu*
Shilingxia	*Shihling-hsia*
Shixia	*Shih-hsia*
Songze	*Sung-tsê*
Xiongnu	*Hsiung-nu*
Yangshao	*Yang-shao*
zhaomu	*chao-mu*
zhongfa	*chung-fa*

PLACE NAMES

Aluke erxin Banner	*A-lu-k'e-erh-hsin Banner*
Anqing	*An-ch'ing*
Anyang	*An-yang*
Aohan	*Ao-han*
Balinyou Banner	*Pa-lin-yu Banner*
Balinzuo Banner	*Pa-lintso Banner*
Banshan	*Pan-shan*
Baoshan	*Pao-shan*
Beijing	*Pei-ching*
Beixin	*Pei-hsin*
Chaoyang	*Ch'ao-yang*
Chengdu	*Ch'eng-tu*
Chengguan Hall	*Ch'eng-kuan Hall*
Chifeng	*Ch'ih-feng*
Dadu	*Ta-tu*
Daling	*Ta-ling*
Datong	*Tat'ung*
Daixi	*Tai-hsi*
Dawa	*Ta-wa*
Dawenkou	*Ta-wen-k'ou*
Dian	*Tien*
Dongnuan Chamber	*Tung-nuan Chamber*
Dongshanzui	*Tung-shan-tsui*
Dunyang	*Tun-yang*
Erligang	*Erh-li-kang*
Erlitou	*Erh-li-t'ou*
Fanshan	*Fan-shan*
Fengyang	*Feng-yang*
Fujian	*Fu-chien*
Fuquan Shan	*Fu-ch'uan-shan*
Fuxin	*Fu-hsin*
Fuxingdi	*Fu-hsing-t'a-la*
Gezuo	*Ko-tso/Ke-tso*
Guanghan	*Kuang-han*
Guangzhou	*Kuang-chou*
Hami	*Ha-mi*
Hangzhou	*Hang-chou*
Hanshan	*Han-shanang-chou*
Helin	*Ho-lin*
Hemudu	*He-mu-tu*
Henan	*Ho-nan/Henan*
Hetian	*Ho-t'ien/Heti'ien*
Hongshan	*Hung-shan*
Huaian	*Huai-an*
Huating	*Hua-t'ing*
Huicang	*Hui-ts'ang*
Hunan	*Hunan*
Hutougou	*Hu-t'ou-kou*
Jiangling	*Chiangling*
Jiangping	*Chien-p'ing*
Jiangxi	*Chiang-hsi*
Jinan	*Chi-nan*
Jingzhou	*Ching-chou*
Jiujiang	*Chiu-chiang*
Kuandian (mines)	*K'uan-tien*
Kunlun	*K'un-lun*
Liang Cheng Zhen	*Liang-ch'eng-chen*
Lianghuai	*Liang-huai*
Liaohai	*Liao-hai*
Lingjiatan	*Ling-chia-t'un*
Liaohai	*Liao-hai*
Lingyuan	*Ling-yuan/Ling-yuen*
Lingzi	*Ling-tzu*
Longshan	*Lung-shan*
Luoyang	*Luo-yang*
Machang	*Ma-ch'ang*
Majiabin	*Ma-chia-bin*
Majiayao	*Ma-chia-yao*
Mangniu	*Mang-niu*
Miaodigou	*Miao-ti-kou*
Minfeng	*Min-feng*
Nanjing	*Nan-ching*
Nanyang	*Nan-yang*
Ningbo	*Ning-po*
Niuheliang	*Niu-ho-liang*
Qinglongquan III	*Ch'ing-lung-ch'uan III*
Qingpu	*Ch'ing-p'u*
Qinwangzhai?	*Ch'ion-wang-chai*
Qinzhong	*Ch'in-chung*
Qujialing	*Ch'u-chialing*
Sanguan Dianzi	*San-kuan Tien-tzu*
Sanxindui	*San-hsing-tui*
Shanghai	*Shanghai*
Shashi	*Sha-shih*
Shenyang	*Shen-yang*
Shilingxia	*Shih-ling-hsia*
Shixia	*Shih-hsia*
Songze	*Sung-tse*
Suixing	*Sui-hsing*
Suzhou	*Su-chou*
Tai an	*T'ai-an*
Taicang Zhou	*T'ai-ts'ang Chou*
Taihuan	*T'ai-huan*
Taipei	*T'ai-bei*
Tianjin	*T'ien-chin*
Tianshan	*T'ien-shan*
Tunyao	*T'un-yao*
Wang Meng	*Wang Meng*
Weichang	*Wei-ch'ang*
Wengniute	*Weng-niu-t'e*
Wuhan	*Wu-han*
Wumen	*Wu-men*
Wushan	*Wu-shan*
Wuxi	*Wu-hsi*
Wuxian	*Wu-hsien*
Wuzhong	*Wu-chung*
Xiajiadian	*Hsia-chia-tien*
Xi'an	*Hsi-an*
Xianyang	*Hsien-yang*
Xiaotun	*Hsiao-t'un*
Xiaoxian	*Hsiao-hsien*
Xi Du Fu	*Hsi Tu Fu*
Xincun	*Hsin-ts'un*
Xingding	*Hsing-ting*
Xinjiang	*Hsin-chiang*
Xiuyan	*Hsiu-yen*
Xun Xiang	*Hsün-hsiang*
Yangshao	*Yang-shao*

Yangzhou	*Yang-chou*
Yanshi	*Yu-hang*
Yingxu	*Yin-hsu*
Yuhang	*Yu-hang*
Yunshuo	*Yun-shuo*
Yutian	*Yu-t'ien*
Yuyao	*Yu-yao*
Zhanglingshan	*Chang-ling-shan*
Zhaowudameng	*Chao-wu-ta-meng*
Zhengzhou	*Chêng-chou*
Zhen Rui	*Chen Jui*
Zhen Xuan	*Cheng Hsuan*
Zhian	*Chih-an*
Zhou	*Tsou*

JADE MATERIALS

Ba stone	*Pa stone*
Baolan stone	*Pao-lan stone*
canhuang	*ts'an-huang*
citiekuang	*ts'u-t'ieh-k'uang*
fangjieshi	*fang-chieh-shih*
feicui	*fe-ts'ui*
fushanshi	*fu-shan-liu-shih*
gailushi	*kai-lu-shih*
heiyunmu	*hei-yun-mu*
huashi	*hua-shih*
jia stone	*Chia stone*
Jiezhou stone	*Chieh-chou stone*
jin	*chin*
juanyunmu	*chuan-yun-mu*
laguang yu	*la-kuang yu*
Lantian stone	*Lan-t'ien stone*
linhuishi	*lin-hui-shih*
lulianshi	*lu-lien-shih*
lunishi	*lu-ni-shih*
luoshiliushi	*luo-shih-liu-shih*
luotiekuang	*luo-t'ieh-k'uang*
Maoshan stone	*Mao-shan stone*
maoyan toushanshi	*mao-yen t'ou-shan-shih*
maoyan yu	*mao-yen yu*
Moyu Xiashui Sha	*mo-yu hsia-shui sha*
nachangshi	*na-ch'ang-shih*
pi zao yu	*p'i tsao yu*
putong yu	*p'u-t'ung yu*
shewenshi	*she-wen-shih*
shimian	*shih-mien*
shimo	*shih-mo*
shiying	*shih-ying*
Taiwan ruanyu	*T'ai-wan juan-yu*
touhuishi	*t'ou-hui-shih*
toushan shi	*t'ou-shan shih*
toushan shimian	*t'ou-shan Shih-mien*
yangqi shi	*yang-ch'i shih*
yeshewenshi	*yeh-she-wen-shih*
yu	*yu*
Yuanhua stone	*Hsuan-hua stone*
xieshi	*hsieh-shih*
xieweichang shi	*hsieh-wei-ch'ang-shih*
Zhong stone	*Chung-chou stone*
zuanshi mofangpin	*tsuan-shih mofang-p'in*

JADE ITEMS AND DESIGN

bei	pei
bi	*pi*
bixie	*pi-hsieh*
chan	*ch'an*
chang	*ch'ang*
cheng ya	*ch'êng ya*
chi	*ch'ih*
chilong	*ch'ih lung*
chui	*ch'ui*
cong	*ts'ung*
dao	*tao*
ding	*ting*
er-zhui	*erh-chui*
fu axe	*fu axe*
furong	*fu-jung*
ge	*ko/kê*
gongbi	*kung-pi*
gu	*ku*
guan	*kuan*
guang	*kuang*
guaishi	*kuai shih*
guan	*kuan*
gui	*kui*
gui be	*kui pi*
haidongqing	*hai-tung-ch'ing*
han	*han*
Han badao	*Han pa-tao*
heng	*hêng*
hu	*hu*
huan	*huan*
huang	*huang*
hu fu	*hu fe*
jie	*chieh*
ju	*chü*
jue	*chüeh*
kang mao	*k'ang mao*
kwan	*k'uan*
leiwen	*lei-wen*
lian	*lien*
lingzhi	*ling-chih*
liu pi	*liu p'i*
liu qing	*liu ch'ing*
lohan/luohan	*luo-han*
long	*lung*
lu	*lu*
nao	*nao*
meihua lu	*mei-hua lu*
mie lin	*mieh lin*
qilin/kylin	*chi'i-lin*
pei	*p'ei*
ping	*p'ing*
pu pi	*p'u p'i*
rhyton	*rhyton*
ruyi	*ju-yi*
shan	*shan*
shou	*shou*
Siwang school	*Su-wang school*
sui	*sui*
tang	*t'ang*
taotie	*t'ao-t'ieh*
t'i	*t'i*
tie	*t'ieh*
ting	*t'ing*
tingzi	*t'ing tzŭ*
wa	*wa*
ya chang	*ya ch'ang*
yu fu	*yü fu*
yu shao	*yü shao*
yu zhi	*yü chih*
yunlong	*yun-lung*
yi	*hsi*
xiao xi	*hsiao hsi*
xibi	*hsi pi*
xuanji	*hsüan-chi*
ya duo	*ya t'o*
yi	*yi*
yingqing	*ying-ch'ing*
you	*yu*
yuan	*yüen*
yue axe	*yüeh axe*
yunlei	*yün lei*
yuntou	*yün-t'ou*
zan	*tsan*
zhang	*chang*
zhi	*chih*
zhizi pattern	*chih-tz'u*
zhu	*chu*
zhulong	*chu-lung*
zhuo	*cho*
zi	*tzŭ/tsŭ*
zun	*tsun*

THE EIGHT IMMORTALS

Cao Guolao	*Ts'ao Kuo-lao*
Han Xiangzi	*Han Hsiang-tzu*
Han Zhongli	*Han chung*
Lan Caihe	*Lan Ts'ai-ho*
Lu Dongbin	*Lu Tung-pin*
Tie Guaili	*T'ie Kuai-li*
Zhang Guoloao	*Chang Kuo-lao*

BOOKS

Cha Yu Ke Hua	*Ch'a yu K'e Hua*
Gugong Yi Lu	*Ku-kung Yi-lu*
Jiu Tang Shu	*Chiu T'ang Lu*
Li Ji – Qu Li	*Li-chi – ch'u-li*
Tang Chao	*T'ang Ch'ao*
Yan-Shi Jia-Xun	*Yen-shih Chia-hsun*
Xi Du Fu	*Hsi-tu-fu*
Zhou Li	*Chou Li*
Zhou Yi	*Chou Yi*
Zui Gen Lu?	*Chui T'ang Shu*

PEOPLE

Bai Yanhu	*Pai yen-hu*
Ban Gu	*Pan Ku*
Cixi	*Ts'u-hsi*
Fang zong	*Fang Tsung*
Fu Kun	*Fun K'un*
Gao Lian	*Kao Lien*
Gao Yuan	*Kao Yuen*
Gao Zong	*Kao-tsung*
Guo Pu	*Kuo P'u*
Haizong	*Hai-tsung*
Jia Quan	*Chia Chu'uan*
Jin Tingbiao	*Chin T'ing-biao*
Lu Zigang	*Lu Tsu-kang*
Na Zhiliang	*Na Chih-liang*
Nuwa	*Nu Wa*
Pu Yi	*P'u Yi*
Qin Shi Jia Xun	*Chin Shih Chia Hsun*
Quiu Chuji	*Ch'iu Ch'u-chi*
Ruan Kuisheng	*Juan K'ui-sheng*
Shen Defu	*Shen Te-fu*
Shi Huang Di	*Ch'in-Shih Huang-ti*
Qin Shi Sou	*Shih Sou*
Tao Zongyi	*T'ao Tsung-yi*
Wang meng	*Wang Meng*
Wu	*Wu*
Xi Wang Mu	Hsi Wang Mu
Xiao Xun	*Hsiao Hsun*
Yan Shi Jia Xun	*Yen Shih Chia Hsun*
Yan Zhidui	*Yen Chih-tui*
Yang Guifei	*Yan Kui-fei*
Yang Hanchen	*Yang han-ch'en*
Yao Renzong	*Yao jen-tsung*
Yao Wenhan	*Yao Wenhan*
Yu Xing	*Yu Hsing*
Zaichun Tsai-ch'un	*Tsaitian Ts'ait'ien*
Zhang Bangyan	*Chang Pang-yen*
Zhang Geer	*Chang Ke-erh*
Zhang Hongzhao	*Chang Hung-chao*
Zhang Mingqi	*Chang Ming-ch'i*
Zhang Xinglian	*Chang Hsing-lien*
Zhao Shuhan	*Chao Chu-han*
Zhou Jingde	*Chou Ching-te*
Zhu Houcong	*Chu hou ts'ung*
Zhu Yongtai	*Chu Yung-t'ai*
Zhu Yuanzhang	*Chu Yuen-chang*

TOMBS

Fan Wenhu	*Fan Wen-hu*
Fu Hao	*Fu Hao*
Hei Hanli	*Hei Han-li*
Lu Shen	*Lu Shen*
Ning Wang Xitong	*Ning Wang Hsi-t'ung*
Qianyu	*Ch'ien-yu*
Qin Shi Huangdi	*Sh'in-Shih Huang-ti*
Shi meng	*Shih Meng*
Wang Jian	*Wang Chien*
Wang Xingzu	*Wang Hsing-tsu*
Xu Fu	*Hsu Fu*
Xuan Wangsun	*Hsuan Wang-sun*
Zhang Shicheng	*Chang Shih-ch'eng*
Zhu Houcong	*Chu Hou-ts'ung*
Zhu Jingqing	*Chu chin-ch'ing*
Zhu Yuanzhang	*Chu Yuen-chang*
Zhu Yuzhun	*Chu Yu-chun*
Zhutan	*Chu-t'an*

Glossary of English terms

ABRASIVES natural or manufactured powders of sufficient hardness to grind stones.
ADDORSED the placing of figures back-to-back, as on a coat of arms.
ALLOCHROMATIC minerals like jadeite and nephrite that are colourless when in a pure form.
AMPHIBOLES rock-forming minerals composed largely of silica, calcium, iron and magnesium. Nephrite is an amphibole.
ARCHAIC belonging to an earlier period. With Chinese jades this usually means up to the Wei Dynasty.
ARCHAISTIC a polite term for jades reproduced in archaic styles.
ARGILLITE hardened mudstone without cracks.
ARTIFACTS articles made by humans, especially primitive tools and weapons.
BURIAL jades that have been unearthed, often for mortuary purposes.
CABOCHON a style of carving and polishing precious stones into convex shapes without any facets. Popular with Imperial grade jadeite.
CARBORUNDUM silicon carbide, a compound of carbon and silicon used as an abrasive.
CHATOYANCY a scintillating effect caused by parallel fibres in a stone. Usually called 'cat's eye' when in precious stones.
CHICKEN BONE whitish opaque jade colour. Can be from burial disintegration or made from heating

translucent nephrite.
CHLOROMELANITE a variety of jadeite with a very high iron content that gives a blackish green stone. Mined chiefly in Burma.
CHROMITE (iron chromite) a black mineral often found as specks in nephrite.
CORUNDUM a hard crystallized aluminia used as an abrasive.
COUNTRY ROCK rocks surrounded by a jade lode
DIOPSIDE JADE diopside/jadeite mixes. Found often in Meso-american jades, like Olmec. Diopside itself is closer to nephrite in chemical composition.
DIORITE an igeneous rock consisting chiefly of feldspar and hornblende
FINIAL a knop or terminal to a vessel or vase cover, sometimes used as a decorative device, such as a 'dragon finial'.
FLANGE a projection apertaining to an edge or rim.
GROSSULARITE a kind of garnet, a silicate of calcium and aluminium.
IMPERIAL when referring to jadeite, a stone approaching emerald in green colour and translucency or transparency. When referring to nephrite means the choicest mutton fat white.
IN SITU in the original jade mines.
JADEOLOGIST a jade specialist. Coined by Sir Charles Hardinge.
KNOP a finial or decorative swelling.
LABRETS ornaments worn in a hole pierced in the lip.
LENTICULAR shaped like a lentil i.e. biconvex.
LITHIC consisting of stone.
LODE a deposit of jade separated from the adjoining rock by definite boundaries.
MESO-AMERICAN jade both sourced and worked in Central America, usually ranging from Mexico to Costa Rica.
NEOLITHIC AGE latter part of the Stone Age.
PALEOZOIC AGE roughly 300 to 600 million years ago.
PLAQUE a disc or tablet, either independent or as a fixed inset in another vessel.
PLEISTOCENE AGE up to 1,600,000 years ago.
PRECAMBRIAN AGE roughly 600 million years ago and beyond.
PSEUDOJADE jade-like material, usually mineral, that is neither jadeite nor nephrite
PYROXENES a group of minerals composed of metasilicates of magnesium, iron and calcium, often with aluminium, sodium and manganese. Jadeite is a pyroxene.
QUATERNARY AGE roughly from recent times to 1,600,000 years ago.
RAISED LINE thin line, often executed with two finely depressed parallel lines that leave the false appearance of a raised threadline between them; original relief working to form a raised line was relatively rare and was a lengthy process.
RETICULATED piercing worked into a network.
REGAL aventurine.
RIND outer casing, often blended with the inner mineral in jade carving.
RITUAL ceremonial use of jade, especially in ancient China.
RODINGITE a mineral in the calcium silicate family.
SERPENTINE a mineral composed mainly of hydrated magnesium silicate.
SHANGHAI talc/soapstone.
SILVER PEAK malachite.
SOUTH AFRICAN grossularite.
SIMULANT a material that has the appearance of another, such as nephrite or jadeite.
STYRIAN pseudophite – an aluminous serpentine.
TECTONIC relating to the forces responsible for changes in the structure of the Earth's surface.
TERRACE flat platform of earth with sloping sides.
TERRAIN a region where a specific rock or group of rocks predominate.
TILL the unstratified unsorted mass of rock and gravel left behind from glacial action.
TRANSVAAL hydrogrossular garnet.
TREMOLITE a mineral of the same chemical composition as nephrite, that can be turned into nephrite under heavy pressure and intense heat.
TRIPLET composite (three-part) stones consisting partly, or not at all, of genuine material, such as jadeite.
VERDITE trade name for green serpentine marble.
VESUVIANITE (otherwise known as Idocrase) a glassy mineral that is a complex hydrated silicate of calcium and aluminium.
VOLUTES a scroll or spiral of a decorative and ornamental nature.

Glossary of Chinese terms

JADE MATERIALS

BA STONE precious stone
CANHUANG yellow pigment
CITIEKUANG magnetite
FANJIESHI calcite
FEICUI Burmese jadeite
FUSHANSHI vesuvianite
GAILUSHI grossulite
HEIYUNMU biotite
HUASHI talc
JIN chin
JUANYUNMU sericite
LAGUANG YU waxy nephrite
LINHUISHI apatite
LULIANSHI epidote
LUNISHI chlorite
LUOSHILIUSHI uvarovite
LUOTIEKUANG chromite
MAOYAN TOUSHANSHI cat's eye tremolite
MAOYAN YU cat's eye nephrite
MOYU XIASHUI SHA special polishing sand
NACHANGSHI albite
PUTONG YU common nephrite
SHEWENSHI serpentine
SHIMIAN asbestos
SHIMO graphite
SHIYING quartz
TAIWAN RUANYU Taiwan nephrite
TOUHUISHI diopside
TOUSHAN SHI tremolite
TOUSHAN SHIMIAN tremolite asbestos
YANGQI SHIJI actinolite
YESHEWENSHI antigonite
YI ZAO YU rough jade skin
YU jade, nephrite
XIESHI sphene
XIEWEICHANG SHI microcline
ZUANSHI MOFANGPIN cubic zirconia

JADE ITEMS AND DESIGN

APSARAS celestial musicians and dancers in attendance on Buddhas
BEI cup
BI circular disc used in the worship of the God of the heavens
BI CONG disc with tube; a present from a feudal prince to an Emperor
BIXIE mythical beast like a unicorn; amulet to ward off evil influences
CHAI ladies' hairpin
CHAN spade-shaped blade
CHANG half-tablet, held in hand to toast host (also used to worship God of the South, and used in State ceremonies)
CHANG TI half-tablet with disc and point, used in worship of mountain and river gods
CHENG YA central bottom piece of a girdle pendant
CHI a cap ornament
CHILONG dragon
CHUI awl-shaped pendant
CONG a cylinder enclosed in a rectangular tube, used in the worship of the God of the Earth; badge of rank in the Chou dynasty
DAO square-ended blade
DING in form of bronze food vessel
ER-ZHUI earring
FU AXE wealth axe with flat, wide blade
FURONG lotus
HAN in form of cicada
GE dagger
GONGBI style of painting
GU in form of bronze wine vessel
GUAN tubular beads
GUANG in the form of pouring vessel
GUI sceptre in the form of a blade
GUI BE tablet combined with disc, used in the worship of the sun, moon and stars
HAN flat disc or tear-drop shape with central hole for insertion in mouth
HAN BADAO Han Dynasty feudal rule
HENG central top piece of a girdle pendant
HU jade shaped like a tiger, used as an offerintg to the God of the West
HUAN disc with width of rim equal to that of central hole. A symbol of unity or reunion, sometimes a bracelet
HUANG half disc, used in the worship of the God of the North, sometimes black
HU FU tiger tally, used as an emblem of authority, especially in the mobilization of troops
asjie tablet used as a credential for a mission
JU bead; central lower piece of a girdle ornament
JUE ring with segment missing, forming a wedge-shaped seal
KANG MAO a pendant seal
KO a halberd; a ritual jade
KOU a buckle
KUAN 1. head-covering or cap used to cover hair knots; 2. a tube of jadestone
KUAN CHI a cap pin for a gentleman
KUEH a broken ring, a semicircle of jade
KUEI a tablet that comes in a variety of forms, sometimes resembling agricultural implements; used for worshipping the God of the East; token conferred on feudal princes by the Emperor
KUI-DRAGON a small, primitive form of dragon usually appearing on bronzes
LEIWEN thundercloud pattern
LIAN bronze cylindrical vessel on 3 feet
LINGZHI kind of mushroom
LIU PI keeping the skin
LIU QING keeping the green skin – of bamboo
LOHAN enlightened, saintly man
LONG carving a dragon used in prayer for rain
LU in form of bronze burner
MAO short tablet, and emblem of authority used by the Emperor
MEIHUA LU sika deer
MIE LIN bed pendants for a diadem
PEI dangling pendant
PEN a sword guard
PI circular disc used in the worship of the God of the heavens
PING in form of vase
PU PI disc with a rush pattern
QILIN mythical unicorn; many variations
RHYTON a horn-shaped drinking vessel
RUYI auspicious double-curved sceptre combining ru = you and yi = thought or idea
SANDAR CHAR three-cut cicada
SHAN mountain, hill or peak
SHOU long life or longevity
SUI a girdle clasp
SUSAN CHI disc with cogs or teeth; perhaps an astronomical instrument
TAOTIE animal mask
TI white jade piece worn on girdle, meaning sincerity
TIE an archer's thumb ring; sometimes kueh
TING OR HU tablet, worn by the Emperor in his girdle and used as a base for writing
TINGZI nail-like edge
TSAN cicada
WA pig
XI pin form, sometimes thought to be a knot unraveller
XIAO XI small knot loosener
XIBI small disc used as a girdle pendant
XUAN jade used as astronomical instrument
XUANJI flat disc with serrated edge and hole
YA CHANG half tablet with a tooth; badge for mobilising troops and administering military posts
YA DUO thick edges
YI in form of bronze cooking vessel
YIN an official seal
YINGQING a type of ceramic, literally 'shadow blue'
YU bronze wine vessel with swing handle and cover
YUAN 1. flat ring or disc with a hole twice the diameter of the rim width, used for summoning statesmen and others. 2. a ring of jade with sides wider than the hole
YU ZHI ceremonial axe used in military performances
YU FU fish tally, used in the same way as the hu fu
YUNLONG 'cloud and dragon', type of working used for rocks
YU SHAO tip for staff used in ancient rituals
YUAN jade disc with very large hole
YUE AXE wide-bladed disc axe, with central hole and symmetrical side notches
ZHANG flat sword with slender hilt projections
ZHI form
ZHIZI PATTERN repeated zhi pattern
ZHULONG pig dragon
ZHUO bracelet
ZUN in form of bronze vessel
ZHONGFA form of social structure

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≈ BORN, GERARD M. *Chinese Jade: An Annotated Bibliography.* Celadon Press, Chicago, 1982. 431 [3 blank] pp. tipin col. front pl. included in pag (p. [1–2]); 28 line drawings, 23.5 × 15.2 cm. Works in English only.
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≈ *Chinese Art.* Volume 1. 104 illustrations. HMSO, London, 1904. Vol. 1: 156 pp.; 104 photos on 87 bound-in f not included in pag; 1 fig.; Vol. 2, 151 pp. + [1 blank]; 135 photos on 124 bound-in f; 113 figs. 19.6 × 14 cm. Highly esteemed survey of the major divisions of Chinese art, in which the chapter on jade in Volume 1, pp. 134–51, 11 photos, is much referred to in later works on jade. It is not long, but it provides an excellent epitome of the subject from which much can be learned even now. Topics include nomenclature, mineralogy, deposits, colours, early inscriptions on plaques, ancient or tomb jades, jade carvings in rituals, and carvings from hardstones other than jade.
≈ *Chinese Art.* Second edition, revised. 1909. 148 pp.; 151 pp.; pls.
≈ *L'Art Chinois. Traduit de l'Anglais sur la deuxième édition et annoté par H. d'Ardenne de Tizac, Ouvrage illustré de 240 gravures hors-exte.* Librairie Renouard, Paris, 1910. (Another ref gives publ as 'Laurens'). 359 pp.
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≈ CAMMANN, S.V.A. A Rare Jade Book, *Expedition,* Spring 1980, Vol. 22, No. 3, Philadelphia, 28 cm.
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≈ CHANG, JUIN-MOK & NG, MICHEL. *Traditional Jade Knotting,* Hong Kong, 1990, pp. 48 inc. pls. 35 cm.
≈ CHAPMAN, FREDERICK R. 'The working of greenstone by the Maoris'. A paper read before the Otago Institute. *Trans and Proc New Zealand Institute.* Wellington, 24, 1892, pp. 479–539, litho pl XXXVIII. Also reprinted. 63 [1 blank] pp.; pl. 21.8 × 13.8 cm.
≈ CHANG, JOO-WON. *Jade and Hardstone Carvings,* Seoul, 1984, pp. 45 inc. pls. All Korean Nephrite.
≈ CH'EN MENGLEI and others. *Ch'in ting ku chin t'u shu chi ch'eng.* The great *lei shu* or encyclopaedia compiled by order of the Emperor K'ang-hsi. First published 1726. Edition of 1888.
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≈ The T'ai-Ping – Ch'ang Culture, *Hsieh-Ta Journal of Chinese Studies*, Vol. I, Foochow, 1949.
≈ **CHENOWETH, HELEN STILES** and **BHEND, TED.** 'The story of the jade clock', *Lap J*, 12, 6, Feb. 1964, pp. 754–60, *passsim*; 13, 1, April 1969, pp. 14–20, *passim*; 2, June 1969, pp. 314–26, *passim*, illus. Reprinted: 'The Story of The Jade Clock by Helen Stiles Chenoweth and Ted Bhend . . .' Copyright 1959 and 1962 by *The Lapidary Journal*. Printed by Arts & Crafts Press, San Diego, California. 11 p + [1] p blank; 17 photos; 29.1 × 21.9 cm. Full-size grandfather clock made from various American jades and American gemstones for bearings; case of American black walnut; made by members of San Francisco Gem and Mineral Society as a club project. The clock is said to keep accurate time.
≈ **CHIHARA, KAZUYA.** Science of Jadeite.
≈ **CHINESE ART.** *Selections from the Encyclopedia Britannica, 14th Edition*, New York, 1932, pp. 69 inc. 59 pls. Kunz on jade. 28 cm.
≈ **CHINESE ECONOMIC JOURNAL.** *'The story of jade', no. 1, 1927, pp. 1–21.*
≈ **CHINESE GOVERNMENT.** *Illustrated Catalogue of Chinese Government Exhibits for the International Exhibition of Chinese Art in London.* Volume 4. *Miscellaneous* [6], 191 [1 blank], [1], [1 blank] pp.; many photos, the jade section containing over 61. 26.6 × 19 cm. Treats the minor arts: tapestry, embroidery, jade and hardstone carvings, cloisonné, red lacquer, fans, furniture, writing accessories, archeological exhibits, and ancient books. Jade section, pp. 31–68, depicts and describes 61 objects of jade but also some of quartzes, stone, rhinoceros horn, and silver.
The section is completed with a 'Supplementary List of Jade (Lent by Ch-anh Nai-Chi) . . .' Photos of fair quality only.
≈ *Chinese Jade*. Exhibition of Chinese jade objects, China House, New York, 1946, 16 pp., 8 illus, 23 × 15 cm.
≈ *Chinese Jade, Ancient and Modern*. Descriptive catalogue illustrating the most prominent pieces of a collection of jade articles. Dietrich Reimer, Berlin, 1925, 139 pp.
≈ **CHINA INSTITUTE IN AMERICA.** *Art Styles of Ancient China*, Exh. Cat., New York, 1967, 26 cm.
≈ **CHIN-MEI-TANG ST.** *Ancient Jade, The Elected Treasured Possessions of the Chinese Folk*, Taiwan, 1989, pp. 128 inc. pls. 30 cm.
≈ **CHOU, MARK.** *Dictionary of Jade Nomenclature*, Hong Kong, 1987, pp. 150 inc. pls. 21.5 cm.
≈ **CHRISTIE, MANSON & WOODS.** *Cseh Collection: The Collection of Important Chinese Jades Formed by Count von Cseh of New York City*, London, 1963, 20 pp., 18 pls., 24 × 18 cm.
≈ *Chinese Snuff-Bottles and Small Hardstone Carvings* . . . Which Will Be Sold at Auction by Christie, Manson & Woods . . . on Monday, April 5, 1971. 72 pp., 3 photo pls. on 2 glossy f. 24.1 × 15.3 cm.
≈ *Chinese Jades, Snuff Bottles and Other Hardstone Carvings* . . . Which Will Be Sold at Auction by Christie, Manson & Woods Ltd . . . at Their Great Rooms, 8 King Street, St James's, London, SW1Y 6QT . . . on Monday, January 26, 1976. 33 [1], [2 blank] pp.; 44 photos on 14 f. 24.2 × 15.2 cm. Lots 1–94, snuff bottles in various materials and employing various techniques; remainder carvings, containers, statuettes, animal figures etc, many large and fine in jade, rock crystal, bowenite, rose quartz, amethyst, aventurine.
≈ *Chinese Jades, Snuff Bottles and Other Hardstone Carvings* . . . Which Will Be Sold at Auction by Christie, Manson & Woods Ltd . . . at Their Great Rooms, 8 King Street, St James's, London, SW1Y 6QT . . . on Monday, February 7, 1977 . . . 43 [1] pp.; 3 col photos on 2 pls.; 43 b&w photos on 15 pls. 23.3 × 17.5 cm. Notable for large and important jades as well as a number of archaic pieces and richly coloured imperial jadeite small carvings (col pl.).
≈ *Chinese Jades and Other Hardstone Carvings* . . . Which Will Be Sold At Auction By Christie, Manson & Woods Ltd. . . . At Their Great Rooms, 8 King Street, St James's, London SW17 6QT . . . on Monday, February 13, 1978 . . . 33, [4] pp. 2 colour pls. 63 photos. 24.2 cm. Superb 'hand of Buddha' carving including, also belt buckles, small imperial jadeite pendants.
≈ **CHU, ARTHUR AND CHU, GRACE.** *The Collector's Book of Jade by Arthur and Grace Chu.* Crown Publishers, Inc., New York, 1978. 144 pp.; 203 figs. (mainly photos); 3 unnumb photos; 20 col photos on 4 f bound-in. 25.2 × 17.6 cm.
≈ **CH'U CHUNG-JUNG.** *Actual Size Pictorial Book of Ancient Chinese Jades (Gu Yu Tu Lu Chuji)*, 4 fasc., pp. 5, 208 pls. Beijing. 29.5 cm. org. *c*1890 with reprints 1939, 1987, etc.
≈ **CHU TE-JUN.** *Ku yu t'ou*, or 'illustrations of ancient jade', in two books, 1753. Not seen; taken from S.W. Bushell's article 'On jade in China', 1900, which see. Bushell states it was first published in the first year of the period Chih-cheng (AD 1341), but later incorporated as a third work in a volume containing two discourses on ancient bronzes edited by Huang Sheng, published in 1753. Bushell quotes, in translation, from this work but gives no pagination. Laufer, *Jade*, p. 8, which see, gives the author as Chu Teh-Jun, noting that the republication referred to above was with the edition of Wang Fu's *Po ku t'u*; he notes that the explanations appended to the illustrations are meagre but several were reproduced in his book.
≈ **CITY OF GREATER SHANGHAI.** *Guide, Chinese Early Jade and Porcelain exposition*, City Museum of Greater Shanghai, 1937. 2 p, 1, 29 p; 19 cm.
≈ **CITY OF MANCHESTER ART GALLERIES.** *The John Yates Collection of Chinese Jade and Other Hard Stones.* Manchester Art Galleries, Manchester, 1931, 26 p.
≈ **CLARK, GRAHAME.** *Symbols of Excellence. Precious Materials as Expressions of Status.* Cambridge University Press, Cambridge, London, New York, New Rochelle, Melbourne, Sydney, 1986. 126 pp.; 12 col. pls. (on wrap-around leaves, bound-in, not included in pag), 43 figs. (photos, drawings). 24.5 × 18.8 cm. Clark's thesis is simple: man has used gems and precious metals from time immemorial to express status, authority, taste or whatever symbolic use is deemed by the owner or wearer as appropriate to his own person. Clark gives specific examples in ivory, rhinoceros horn, shells, coral, amber, jet, jade, gold and precious stones, supporting his remarks by numerous references and citations from historical and archaeological literature for the most part, but also referring to treatises which deal with gemstones specifically, or with jades. Clark's convincing arguments as to the fundamental importance of these as 'symbols of excellence' provide reasons enough to collect and cherish same without guilt or fear of being accused of 'conspicuous wastefulness'.
≈ **CLARKE, FRANK WIGGLESWORTH and MERRILL, GEORGE PERKINS.** 'On nephrite and jadeite', *Proc USNM*, 11, 1888, pp. 115–30, pl. 33; also issued separately. Examinations of jades from Alaska and Costa Rica; Merrill made microscopical investigations, Clarke the chemical analyses. Results compared to jades from other localities according to other publ accounts; important contribution.
≈ **CLUNAS, CRAIG.** Jade Carvers and Their Customers in Ming China, *O.S.C. Transactions*, Vol. 50, 1985–86, London. 28.5 cm.
≈ **CLUTIUS AUGERI (Cluyt, Auger).** *Calsvee sive dissertatio lapidis nephritici seu jaspidis viridis, a quibusdam callois dicti, naturam, proprietates et operatones exhibens, quam (ex sermone belgico) sermone latino recensuit Gul. Laurenberg.* Rostochii (Rostock), 1627. [12] f. Not seen: an extended analysis of this paper in Fischer, *Nephrit und Jadeit*, pp. 102–5, which see. Discusses nephrite and the belief that it is some form of green jasper; compares same to callaite or Persian turquoise. The 'calsvee', 'calsoe', or 'calsoy' is called by the Persians 'roccha vecchia', or 'old rock', here referring to an old trade term for genuine Persian turquoise.
≈ **COGGINS, C.C. & SHANE, O.C.** *Cenote of Sacrifice*, Univ. of Texas Press, 1984, pp. 175 inc. pls.
≈ **COLEMAN, R.G.** 'Jadeite deposits of the Clear Creek area, New Idria district, San Benito County, California', *J Petrology*, 2, 2, 1961, pp. 209–47, 11 figs., plate (2 figs.), 8 tabs. Also separate.
≈ **CRIPPEN, RICHARD, A. JR.** 'Nephrite jade and associated rocks of the Cape San Martin region, Monterey County, California', *Calif Div Mines Spec Rpt.* 10–A, San Francisco, 1951. 14, [2 blank] pp. 14 figs. (2 sketch maps). 28 × 21.5 cm.
≈ **DAMOUR, AUGUSTIN-ALEXIS.** 'Notice sur la distribution géographique des haches et des autres objets préhistoriques en jade, nephrite et jadéite', *Revue Archéologique*, Paris, ns, 36, 1878, pp. 12–32.
≈ 'Nouvelles analyses sur la jadéite et sur quelques roches sodifères', *Bull Soc Fr Min Crist*, 4, 1881, pp. 157–64. Jadeites from Asia, Mexico and Europe.
≈ **DAVIDSON, MARTHA.** 'Chinese jade; 300 years of master craftsmanship', *Art News*, New York, 36, 1938, pp. 118–32.
≈ **DAVIS, FRANK CECIL.** *Chinese Jade.* Published privately by the author, Tewin Wood, Welwyn, Herts. [2 blank], [2], 68 pp.; front pl. tip-in + 19 pls. on 10 f bound-in 10 figs. 18.4 × 12 cm. 2nd edn., The Commodore Press Ltd., London, 1944. Called a 'second edition' on p. [6] but essentially identical. Page size same.
≈ **DAWSON, GEORGE MERCER.** 'Note on the occurrence of jade in British Columbia and its employment by the natives. With quotations and extracts from a paper by Prof. A.B. Meyer, on nephrite and analogous minerals from Alaska', *Canadian Record of Science*, 2, 6, April 1887, pp. 364–79, figs.; also issued sep. The source of the nephrite as boulders and pebbles apparently in gravels on the Fraser River.
≈ **DELARIO, A.J.** 'Jade through the ages', *R & M*, 35, 11/12, 1960, pp. 578–83.
≈ **DENMAN, CAROLYN.** 'Jade; a comprehensive bibliography', *Amer Oriental Soc J*, 65, April 1945, pp. 117–26. *C.* 320 entries, mostly articles; not annotated. This list was augmented by F. A. Johns by *c.* 64 publications, mostly on early Chinese jades, in *J. Amer Oriental Soc*, 72, 1952, pp. 111–12.
≈ **DESAUTELS, PAUL E.** *The Jade Kingdom.* Van Nostrand Reinhold Company, New York, 1986. [1], [1 blank], 118 pp.; 43 col photos on both sides of 8 f pp. 86–7; 51 b&w photos; 33 line drawings; 3 tabs. 27.8 × 21.5 cm.
≈ **DEVINE, HERBERT J.** *The Herbert J. Devine Collection of Early Chinese Jades.* [N.p., n.d.), 16 plates, 17½ cm.
≈ **DIESELDORFF, ARTHUR.** 'Beiträge zur Kenntniss der Gesteine und Fossilien der Chathaminseln sowie einiger Gesteine und neuer Nephritfundorte Neu-Seelands. *Inaugural-Dissertation zur Erlangung der Doktorwurde der Hohen Philosophischen Fakultät der Universität Marburg* vorgelegt von Arthur Dieseldorff aus Hamburg'. Marburg, Universitäts-Buckdruckerei (R. Friedrich), 1901. 57 [1] pp. 4 tipin pls. 22.7 × 14.8 cm. Petrographic examinations of specimens and fossils collected by H. Schauinsland during a visit by the latter to New Zealand's Chatham Island group in

1896–7. The third part of this doctoral dissertation describes nephrite as first reported from D'Urville and Stephens islands at the extreme north of South Island, and *in situ* serpentinite on D'Urville Island, pp. 42–54. A sketch map shows localities.
≈ **DIGBY, ADRIAN.** *Maya Jades,* British Museum Publicaion, 1972, pp. 33, 17 pls. 22.5 cm.
≈ 'Ueber Nephrit, darunter in situ auf Neu-Seeland', *Sitzungsb der königl-bayerischen Akad der Wiss zu München,* 1901, pp. 47–52.
≈ 'Nephrit im Muttergestein und neue Nephritfundorte auf Neu-Seeland', *Centralbl für Min,* Stuttgart, 1901, pp. 334–44, fig. (map).
≈ **'DISCOURS'** *Discours touchant les merveilleux effets de la pierre néphritique.* Orléans, 1684; also in 1689. Not seen. Reissued: 'Revue et augmentée de plus experiénces', 81 pp. Gatterer pp. 50 ff; according to Fischer, *Nephrit und Jadeit,* 2nd edn. 1880, p. 115, citing the initials 'D.S.R.' of the unnamed author, the work itself is 'useless'.
≈ **DIETRICH, V. & DE QUERVAIN, F.** *The Nephrite-Talc Source at Puschlave in Graubünden,* Contributions to the Geology of Switerland, Bern, 1968, pp. 78 inc. pls. and map. 30 cm.
≈ **DOBRETSOV, NIKOLAY LEONTYEVICH and TATARINOV, ALEKSANDR VASILYEVICH.** *Jadeite and Nephrite in Ophiolites.* Editor-in-Chief N.V. Sobolev. Publishing House 'Nauka', Siberian Division, Novosibirsk, 1893. 122 [4], [2 advert] pp.; 40 tabs, 38 figs. 26 × 16.8 cm.
≈ **DOHRENWEND, DORIS.** *Chinese Jades in the Royal Ontario Museum.* Toronto, Ontario, 1971. [2 blank], 135 [1 blank] pp.; 2 col photos, *c.* 220 figs. (mostly photos).
≈ Jade Demonic Images from Early China, *Ars Orientalis,* Vol. 10, 1975. 30 cm.
≈ **DRUCKER, PHILIP.** 'The Cerro de las Mesas offering of jade and other materials', *Smithsonian Inst. Bu Amer Ethnol, Anthropol Papers,* No. 44, from *Bu Amer Ethnol Bull,* 157, 1955, pp 25–68, Pls 27–54. 23.2 × 14.7 cm. Objects recovered from a mound in 1941 in the State of Vera Cruz, Mexico, but writer did not see them until he travelled to Mexico City in 1952 to visit the Museo Nacional; generally small-size objects, human figurines, plaques, ear-spools, discs, beads etc.

≈ **EASBY, ELIZABETH K.** 'The Squier jades from Toniná, Chiapas', in: *Essays in Pre-Columbian Art and Archaeology* by S.K. Lothrop and others, 1961. pp. 60–80, which see.
≈ *Pre-Columbian Jade from Costa Rica.* (Photographs by Lee Boltin.) André Emmerich Inc., New York, 1968. 103, [1] pp.; 68 figs. (includ 35 col photos & 35 b&w photos). 23.6 × 15.5 cm.
≈ **EASTER, S.E.** Jade, *National Geographic Magazine,* Vol. XIV, No. 1, January 1903. 25 cm.
≈ **EMMONS, GEORGE T.** 'Jade in British Columbia and Alaska, and its use by the natives', *Indian Notes and Monographs,* Misc No. 35, Museum of the American Indian, Heye Foundation, New York, 1923. 53 pp., 25 col. pls. of jade objects.
≈ **ESKENAZI, GIUSEPPE.** 'Chinese Jades from a private collection'. 8 June–9 July 1976. Foxglove House, 166 Piccadilly, London W1V 9DE. 51 [1 blank] pp. 28 b&w photos, 2 col. photos. 29.7 × 20.9 cm.
≈ *Exhibition of Special China-Peking Arts and Crafts.* Ed. John Dryden. Tamar Publications, Inc., Washington, D.C., 1979 (on dj only). 79 [1 blank] pp.; 54 col. photos. (27.9 × 21.5 cm.

≈ **FELLENBERG, LUDWIG RUDOLF VON.** 'Analysen einiger Nephrite aus Turkistan', *Verhandl Schweiz Naturf Ges,* 52. Jahresversammlung, Jahresbericht 1868, pp. 38–56. Also separately, 20 pp.
≈ [Analyses of two nephrites] *Ausserordentlichen Vereinigung der Schweizerische Naturforscher in Interlaken,* 12 Oct. 1870, pp. 138–50. Analyses of an oriental specimen and rolled pebble from a Siberian locality near Irkutsk. Not seen. Also in: *Mitt naturf Ges in Bern,* Jg 1870, pp. 712–44.
≈ [Analyses of jades] *Verhandl Schweiz Ges in Solothurn,* 53 Jashresversammlung, Jahresbericht 1869, Solothurn 1870, pp. 88–104. European and Chinese nephrites and jadeites.
≈ **FINLAYSON, ALEXANDER MONCRIEFF.** 'The nephrite and magnesian rocks of the South Island of New Zealand', *Quart J Geol Soc,* London, 65, 1909, pp. 351–81, pls. 15–16 (each with 6 thin-sect photos); 2 figs.
≈ **FISCHER, LEOPOLD HEINRICH.** *Nephrit und Jadeit . . .* E. Schweizerbart'sche Verlagshandlung, Stuttgart, 1875. 2nd edn, 1880. [4], XLIV, 411 [4] pp.; 131 wood engrav; 2 litho col. pls. tip-ins. 23.3 × 15.2 cm. A most important bibliographical work.
≈ **FLINT, D.J. & DUBOWSKI, E.A.** Review of Cowell Nephrite Desposits, *Geological Survey,* June 1986.
≈ **FLINT, D.J. & DUBOWSKI, E.A. & OLLIVER, J.G.** Nephrite Deposits near Cowell, South Australia, *Geological Survey,* November 1984, pp. 8 + 24 pls.
≈ **FONG, WEN.** *The Great Bronze Age of China,* Metropolitan Musuem of Art, New York, 1980, pp. 385 inc. pls. 31 cm.
≈ **FORDE, C. DARYLL.** 'On the use of greenstone (jadeite, callais, etc.) in the megalithic culture of Brittany', *J Roy Anthropol Inst,* London, 60, 1930, pp. 211–34, 4 figs; also in printed wrap separate, 27.1 × 19 cm.
≈ **FORNARO, CARLO DE.** *The 'Legend' booklets, published in New York City by the jewellery firm of Marcus & Co. and issued to customers. 19.6 × 13.5 cm.* Twelve booklets altogether of which one deals with jade, Isvara's Ring, The Legend of the Jade. 1902, 15 [1] pp.
≈ **FOSHAG, WILLIAM FREDERICK.** 'Chalchihuitl – a study in jade'. *Amer Min,* 40, 11/12, 1955, pp. 1062–70. Studies mineralogy of jadeite, diopside-jadeite, chloromelanite of Meso-America, with remarks on nomenclature, chemical analyses, descriptions of varieties, reports on recent find of jadeite in Motagua River valley.
≈ 'Mineralogical studies on Guatemalan jade', *Smithsonian Miscellaneous Collections,* Vol. 135, No. 5, 1957. Separate: [2], 60 [1] pp.; 8 photos on glossy doubleleaf tipin at end of text; 2 figs. (map); 4 tabs. 24.5 × 16.2 cm. Reprinted with new preface, 1984.
≈ **FRANCHI, S.** 'Ueber das Vorhandsein von Jadeitgesteinen in den Westalpen und in Ligurien', *Bollettino Reale Comitato Geologico d'Italia,* Firenze, 31, 1900, pp. 119–28. Con firms jadeite in Neolithic sites from petrographicchemical studies on 60 specimens; most proved to be jadeites, chloromelanites or eclogites. Ref *Zs Krist,* 35, 1902, pp. 521–2.
≈ **FROMME, J.** 'Über die Entstehung des Nephrites und des Carcaro von Harzburg', *Centralbl Min. Geol. Paläont,* Stuttgart, Jg 1915, pp. 431–45, 4 figs. Origin of nephrite from serpentine not established.
≈ **FU ZHONGMO, ed.** *The Art of Jade Carving in Ancient China* or *Gu Yu Jing Ying,* Hong Kong, 1989, pp. 296 inc. pls. 30.5 cm.
≈ **FULLER, RICHARD E.** *Chinese Jades in the Seattle Art Museum.* Seattle, 1971, 72 pp., 61 pls. (2 col), 18 × 14 cm.

≈ **GALERIE WOLFERS.** *Collection Su Hsioung-Tsang. Jades de la collection Weiping Hsioung-tsang Su. Pierres dures.* Exposition (4–17 Avril, 1954). Bruxelles, 1954. 28 pp., 4 pls., 4 text figs.; 15 × 11 cm. Data from Yang 2020 and Han-Shang Tang List 28, London, 1985, no. 106, wherein the date is given as 1951, and 'includes a preface by Xu(Su) who was an honorary ambassador in Belgium, and an outline of Henri Michel's theories on the astronomical use of jades'.
≈ **GAMBOA, FERNANDO.** *Master Works of Mexican Art from Pre-Columbian Times to the Present.* Los Angeles County Museum of Art. October 1963 – January 1964. Los Angeles: by the museum, 1963. [7], 296 pp.; *c.* 170 photos. 23.8 × 15.9 cm. Among 2,200 objects were carved jades, other carved stones and several mosaics.
≈ **GETZ, JOHN.** *The Woodward Collection of Jades and Other Hard Stones.* Privately printed, 1913. (Printer: De Vinne Press, New York.) 107 pp.; 66 text photos.
≈ *The Morgan Whitney Collection of Chinese Jades and Other Hard Stones Donated to the Isaac Delgado Museum of Art, City Park.* Limited illustrated edition, New Orleans, 1914. 51 pp. ([1–4] blank). 22.5 × 14.8 cm.
≈ *Catalogue of Chinese Art Objects Including Porcelains, Potteries, Jades . . . Collected by Edward R. Bacon.* With illustrations in colour and photogravure. New York: privately printed for Virginia P. Bacon, 1919. 315 pp., including front; 63 pls. (part col., mounted). 31 cm. Pages 205–47 are on jades, mostly decorative items of the 17th and 18th centuries.
≈ *The Pratt Collection of Jades and Other Hard Stones at Vassar College.* Privately printed, 1920 (Np; colophon: The Marion Press, Jamaica, New York.) 62 [2] pp.; 3 blank f tip-ins ahead and after text; 2 glossy photo pls. bound-in. 23.5 × 14.7 cm.
≈ **GEMS AND GEMOLOGY.** Vol. XVII, Spring 1982, Jade articles by Walker, Tucker, Koivula. 28 cm.
≈ **GIESELER, G.** 'Le jade dans le culte et les rites funéraires en Chine sous les dynasties Tcheou et Han', *Revue Archéologique,* Paris, July-Dec. 1916, pp. 61–118.
≈ 'Les symboles de jade dans le Taoisme', *Revue de l'Histoire des Religions,* Paris, 105, 1932, pp. 158–81.
≈ **GIGLIOLI, ENRICO HILLYER.** *Materiali Per Lo Studio Della 'Età Della Pietra' Dai Tempi Preistorici All'Epoca Attuale. Origin e sviluppo della mia collezione.* Firenze, Tipografia Di Salvadore Landi, 1901. 'Estratto dal *Supplemento* al volume XXX dell'*Archivio per l'Antropologia e l'Etnologia.* [2] 248 pp. (with parallel pagination of text pp. 19–264); 57 figs. (photos & line drawings); 24.8 × 17 cm. Includes jade objects.
≈ **GODFREY, GERALD.** *Stones of Virtue.* Exh. Cat. Godfrey Col., Dayton Art Institute, 1989, pp. 52.
≈ **GOETTE, JOHN ANDREW.** *Jade Lore.* Kelly and Walsh, Shanghai – Hong Kong – Singapore, 1936. [16], 321 [3 blank] pp.; col front pl. with tissue, tip-in; 101 figs. (includes map, 5 sketches). 24.6 × 19 cm. Another by Reynal & Hitchcock, New York, 1936(?). 29.1 × 19 cm. Text same. Both versions are scarce and much in demand. Reprinted by Ars Ceramica, Ann Arbor, Michigan, *c*1976. 321 pp.; illus., col pls.
≈ Jade and Man in Life and Death, *Tien Hsia Monthly,* Vol. III, No. 1, Aug. 1936, Shanghai. 25.5 cm.
≈ **GOODWIN, PETER.** *Points on Judging Jade. A Guide to Prospective Purchasers . . .* nd; *c.* 1957. 16 pp.
≈ **GILLERMAN et al.** *Grenville L. Winthrop, Retrospective for a Collector,* Exh. Cat., Fogg Museum, Boston, 1969, pp. 261. 21.5 cm.
≈ **GORER, EDGAR and BLACKER, J.F.** *Chinese Porcelain and Hard Stones, Illustrated by Two Hundred and Fifty-four Pages of Gems of Chinese Ceramic and Glyptic Art.* B. Quaritch, London, 1911. Added title in French; text in English and French. 2 vols. 254 pls. (most in col). 322 cm. A deluxe edition was bound in 4 vols. The standard edition limited to 1,000 copies. Group 12 of vol. 2 on Chinese hard stone carvings; pls. 230–47 are of jades which the authors believe to be the first colour pictures of the objects. Jades mostly Ch'ien Lung.
≈ **GROSS, G.** 'Jade, der neue Schmuckstein des Schweizer Heimatwerkes', *Heimatwerk,* Zürich, 28, 4, 1963, pp. 129–48, illus.
≈ **GÜBELIN, EDOUARD.** 'Jadealbit – ein neuer Schmuckstein aus Burma', *Zs Dt Ges Edelsteink,* 51,

1965, as separate of 20 pp., 13 figs. (one in col, one map). Describes the handsome green massive material found in the jadeite deposits.
≈ 'Jadeit, der grüne Schatz aus Birma', *Lapis*, 3, 2, 1978, pp. 17–28, sketch map, col photos.
≈ **GUGONG BOWUYUAN ed.** *The Essence of Chinese Jades* or *Gu Yu Jinghua*. Intro. by Yang Boda, pp. 23 + 150 pls., Shanghai, 1987. 21.5 cm.
≈ **GUMP, ABRAHAM LIVINGSTON & TAYLOR, FRANK.** *Jade Hunt by A. Livingston Gump. As told to Frank J. Taylor*. H.S. Crocker Company, San Francisco, [nd, 1938(?)]. P. [2]: 'Jade Hunt . . . first appeared in the *Saturday Evening Post* of June 12, 1937' [vol. 209, pp. 17, 71–4, fig.]. [20] pp.; 10 photos. 22.8 × 16.5 cm.
≈ **GUMP, RICHARD.** *Jade: Stone of Heaven*. Doubleday & Company, Garden City, New York, 1962. 256 pp.; 189 figs. (18 col, 1 doublep map). 23.3 × 15.3 cm.
≈ **GURE, DESMOND.** 'Some unusual early jades and their dating', *Trans Orient Ceramic Soc*. London, 33, 1960–2, pp 41–59, illus.
≈ 'Selected examples from the jade exhibition at Stockholm, 1963; a comparative study', 'Reprinted from *The Museum of Far Eastern Antiquities* [Stockholm] *Bulletin* No. 36, 1964, pp. 117–158. Plates 1–34; pls. on [18] f, the last blank, bound-in. 26.4 × 19 cm. Outgrowth of a lecture by Gure given in connection with opening of the exhibition (see Gyllensvärd, 1963, for catalogue). The introduction explains stylistic clues used to date jades; text describes objects.
≈ An Early Jade Animal Vessel and some Parallels, *O.C.S. Transactions*, Vol. 31, 1957–59, London. 28.5 cm.
≈ **GYLLENSVÄRD, BO (ED).** *Celadon. Jade Finds. Specimen. Scientific Results*. Exhibition arranged by The Museum of Far Eastern Antiquities and AB Gustavsbergs Fabriker at The National Museum, Stockholm, May–June 1963.
≈ *Celadon. Jade Fynd*. Föremål. Forskningsresultat. Utställning arrangerad av Ostasiatiska Museet Och AB Gustavsbergs Fabriker på Nationalmuseum. Stockholm, Maj–Juni 1963. 'Utställningskommissarie: Bo Gyllensvärd'. Back wrap: 'Almqvist & Wiksell/ Gebers Förlag Ab Stockholm-Göteborg-Uppsala'. 55 [1 blank] pp.; sketch map, 7 photos, 4 pls. (3 col tip-ons). 20.8 × 19 cm.

≈ **HALLEMA, ANNE.** *Het Jade In De Oud-Chineesche Kunst*. Koninklijke Kunstzaal Kleykamp. s'-Gravenhage, Netherlands, 1928. 63 [1 blank] pp.;
≈ **HAMADA, KOSAKU.** *Yuchikusaizo-Kogyokufu* or *The Early Chinese Jades in the Collection of the Late Riichi Uyeno*. Tokyo, nd (*c.* 1936). 30 'leaves', 12 pls. (single sheets) bound- in; 33 text figs. (photos, drawings, woodcuts, maps). 36.4 × 26.8 cm. Plate vol. of loose sheets: [6] pp. (a folded sheet – a single) + 28 col pls. 36.9 × 27 cm.
≈ *Ku yü shou* or *Guyu gaishuo [Jade: A Summary]*. Shanghai, x, 84 pp., many b&w text figs., 22 × 16 cm. Not seen, from Hansford, *Chinese Jade Carving*, p. 131, who gives the date as 1936; the second reference title is from Han-Shan Tang, London, Booksellers, List 28, 1985, item 28, 'translated by Hu Zhaochun from Japanese, Yang 5'.
≈ **HAMADA, YOSHITO.** The Jade Road. *Memoirs of the Research Department of the Toyo Bunko, No. 29, Tokyo, 1971, 26.5 cm.*
≈ **HANSFORD, SIDNEY HOWARD.** *Chinese Jade Carving*. Lund Humphries. London and Bradford, 1950. 145 [3] pp. + 16 bound in glossy f bearing 70 photos; 12 text figs. (map); col front pl. on glossy f tip-in. 24.6 × 18.4 cm. First detailed study of exactly how jades are carved.
≈ *A Glossary of Chinese Art and Archaeology*. 1954.
≈ *A Glossary of Chinese Art and Archaeology*. The China Society, London, 1972. 'Second edition revised 1961 . . . reprinted 1972'. 'China Society Sinological Series No. 4'. 104 pp. [4 blank] f. numerous ideographs in text, 112 line drawings on both sides of pp. 89–96. 21.9 × 15.9 cm.
≈ 'Jade and jade carving in the Ch'ing dynasty', *Trans Oriental Ceramic Soc*. London, 35, 1964, pp. 29–40. Reprint. Valuable historical essay on problems associated with acquisition of raw nephrite in the 18th century.
≈ *Chinese Carved Jades*. Faber and Faber, London, 1968. 131 pp.; col. front glossy pl. tip-in + 7 other tip-in pls.; 96 b&w photos on 48 glossy f bound-in at end; 6 figs. 24.7 × 15.5 cm. New York Graphic Society, Greenwich, Connecticut, 1968. Identical except for title and publ data.
≈ *Jade: Essence of Hills and Streams. The Von Oertzen Collection of Chinese and Indian Jades*. Purnell and Sons, Cape Town – Johannesburg – London, 1969. [4], 220 pp.; 8 col glossy pls., cut out & mounted; *c.* 400 figs. & map. 28 × 21.7 cm.
≈ *The Evolution of Technique in Chinese Jade Carving* Thesis for M.A., London University, 1942, pp. 197 + pls. + Biblio. 26 cm.
≈ *The Seligman Collection*, Vol. I, Arts Council of Great Britain, London 1987, pp. 129 + 80 pls. 31 cm.
≈ What is Nan-Yang Yu? *Asia Major*, Vol. XI, Part 2, London, 1965. 25.5 cm.
≈ **HARDINGE, SIR CHARLES EDMUND.** *Jade: Fact and Fable, with Lists of Reported Finds of Jade-stone and of Prehistoric Objects of Worked Jade*. Published for The Gulbenkian Museum, School of Oriental Studies, University of Durham, by Luzac & Co., London, 1961. 67 [1 blank] pp. 21.7 × 13.9 cm.
≈ **HARTMAN, JOAN MARCIA.** *Chinese Jade through the Centuries. From Private and Museum Collections. October 24, 1968–January 26, 1969*. China House Gallery, The China Institute in America, 125 East 65th Street, New York, NY 10021. 48 pp.; 89 photos. 26 × 17.7 cm. Brief introduction to jade-carving art followed by the catalogue.
≈ *Chinese Jade of Five Centuries*. Charles E. Tuttle Company, Rutland, Vermont and Tokyo, Japan, 1969. 172 pp.; 51 text photos (10 col & one serving as front).
≈ *Indianapolis Museum of Art. Three Dynasties of Jade*. P. 43: 'Richard L. Warrum, Editor and Designer . . . Speedway Press, Indianapolis, Indiana . . . in an edition of 1200 copies in March, 1971 by the Indianapolis Museum of Art. [3], 43 [2 blank] pp.; pagination begins verso of 2nd f; first & last f on translucent parchment-type paper. Front photo + 71 others. 17.7 × 25.5 cm.
≈ *Ancient Chinese Jades from the Buffalo Museum of Science*. China House Gallery, China Institute in America, 125 East 65th Street, New York, NY 10021, 1975. 80 pp.; 3 col & 121 b&w photos. 23.6 × 20.3 cm.
≈ **HARTMAN-GOLDSMITH, JOAN.** *Chinese Jade*, Images of Asia Series, Oxford Univ. Press, 1986, pp. 81 inc. pls. 20 cm.
≈ **HAYASHI MINAO.** *Chūgoku kodai saigyoku zuigyoku (Ceremonial jade in ancient China). Toho Gakuho*, no. 40, March 1966, pp. 161–323.
≈ **HEIKENEN, PATRICIA, (ED.).** *Jade as sculpture. On exhibit Minneapolis Museum of Art, Saint Paul, Minnesota, 19 February–26 March, 1975. Rare Art, Inc., New York, 9 April–6 June, 1975. Indianapolis Museum of Art, Indianapolis, Indiana, 17 June–1 August, 1975*. Minnesota Museum of Art, St Paul, 1975. 81 pp., illus. col. pls.
≈ **HEMRICH, GERALA I.** *The Handbook of Jade*. Gembooks. Mentone, California, 1966. 81 pp. (includes back cover); 40 figs. 20.9 × 13.8 cm.
≈ **HILTON, JAMES.** 'Remarks on jade', *Archaeol J*, London, 45, 1888, pp. 187–205.
≈ **HO, TIEN-SHIN.** *Prehistoric Site Lian-chu*, Shanghai, 1937, pp. 16 + 20 pls. Early notice of Liangzhu jades.
≈ **HOCHSTETTER, FERDINAND VON.** 'Über das Vorkommen und die verschiedenen Abarten von neuseelandischen Nephrit (Punamu der Maoris)', *Sitzungsber d k Akad d Wiss Wien* 49, 1864, pp. 466–80; also issued separately. Important first authoritative account.
≈ *Hong Kong Colony*. Hong Kong Museum of Art.
≈ *Chinese Jade Carving*. Hong Kong 1984. Eng. and Chinese text. 302 pp. 291 col pls. 'An important exhibition jointly presented by the Min Chiu Society and the Urban Council of a definitive 291 examples of jade carving. Articles by Ip Yee on the "Terminology of archaic jade"; by Cheng Te-k'un on "A general survey"; and Brian McElney on the "In Search of Song Jades".'
≈ **HSI YÜ WEN CHIEN LU.** According to Nott, *Chinese Jade Throughout the Ages*, p. 169, 'published in AD 1777, by a Manchu author, an excellent treatise on Chinese Turkestan and the working of the jades quarries. (An extract from this excellent writing will be found in Bushell, *Chinese Art*, vol. 1, p.129, and Pope-Hennessy, *Jade*, p.7)'.
≈ **HSU, EDWARD Y.** *Jade. Information Series . . .* Issued by Hong Kong Tourist Association (1961: 'Information Series No. 2'). 16 pp.; 16 b&w photos; 10 col photos. 18.7 × 12.8 cm. For tourists interested in buying jade: general information, history of jade in China, mineralogy, colours, imitations and substitutes, notes on special forms, Chinese terms. Useful.
≈ **HSÜ SHOUCHI.** *Yu p'u lei pien . . .* A handbook giving explanations of the terminology of jade. 4 chs. 1889. Not seen, from S.H. Hansford, *Chinese Jade Carving*, 1950, p.131.
≈ **HUANG JUN (ED).** *Illustrated Catalogue of Objects from Anyang* or *ye zhong pian yu chu ji*, Beijing, 1935, 2 vol.
≈ **HUANT, C.K.** [Two gemstones – blue chalcedony and nephrite – from eastern Taiwan.] *Taiwan Mining Industry*, 17, 1965, pp. 58–65.
≈ **HUMPREYS-DAVIES, G.** *An Exhibition of Chinese Art*, Exh. Cat., Auckland, N.Z., 1937, pp. 49, 21 pls.
≈ **HUNAG CHÜN.** *Heng-chai ts'ang-chien ku-yü-t'u (Illustrations of ancient jades collected or seen, in the Heng-chai studio)*. Peking, 1935. Not seen, from Loehr and Huber, *Ancient Chinese Jade*, 1975, p.435.

≈ **INTERNATIONAL EXHIBITION OF CHINESE ART.** London, 1935/6, two volumes (1) Catalogue, pp.264, (2) Illustrations, pp.288. 21.5 cm.
≈ **IP YEE, CHENG TE-K'UN & MCELNEY, B.S.** *Chinese Jade Carving*. Catalogue by Ip Yee. Jointly presented by the Urban Council, Hong Kong and the Min Chiu Society. Organized by the Hong Kong Museum of Art. 21.10.83 – 24.12.83. [2 blank], 302 [2], [2 blank] pp.; the first and last f are pastedowns; 303 col photos; 6 line drawings. 28.3 × 21.5 cm. Contents in Chinese and English. Includes two essays: 'Chinese Jade: A General Survey', pp. 29–33 by Cheng Te-K'un, and 'In Search of Song Jades', pp. 34–8 by B.S. McElney. A handsome, well-produced catalogue, describing 291 examples of generally small but very fine carved jades ranging in age from Neolithic to modern, with notes on material, size, shape, significance etc, contributed by members of the Min Chiu Society, Hong Kong. Most are shown in good-quality colour photographs. Other essays: how exhibit arranged, method of specimen selection, jade materials and dating problem, terminology, the Song jades.
≈ **ISHIDA, MOSAKU.** *The Use and Variety of "TAMA" in the Nara Period*, Central Federation of Nippon Culture, Tokyo, 1941, pp. 25 inc. pls. 22.3 cm.
≈ **IWAO, SHUICHI.** 'Albitite and associated jadeite rock from Kotaki District, Japan: A study in ceramic raw materials', *Geol Survey Japan Rept* No. 153, 1953, pp. 1–25, illus, pls., maps, diagr, tabs. 26 cm. True

jadeite of lapidary quality but occurring only in very small amounts.

≈ **JAQUILLARD, D.** 'Une découverte de l'occident contemporain; le jade chinois de haute époque', *Etudes Asiatiques*, Bern, 16, 1962, pp. 1–61.
≈ **JAQUILLARD, PIERRE.** *Matière et présence: remarques sur quelques jades archaïques de Chine.* Neuchâtel, 1974, 38 pp., 16 pls. (4 col). 22 × 18 cm. Not seen: Han-Shen Tang, London, list 28, 1985, no. 40: 'printed in a limited edition of 600 copies . . . delves into some problems associated with archaic jades'.
≈ **JAYNE, HORACE HOWARD FURNESS.** *A Handbook of the Chinese Collections in the Norton Gallery and School of Art.* Palm Beach Art Institute, Palm Beach, Florida, 1972. Unpaged: [1, ii, 97 pp.], illust. Includes archaic jades.
≈ **JENYNS, SOAME.** *Chinese Archaic Jades in the British Museum.* The Trustees of The British Museum, London, 1951. [2]p + [20] bound-in f bearing 40 photo pls. 24.8 × 18.5 cm.
≈ **JENYNS, SOAME R. & WATSON, WILLIAM.** *Chinese Art. The Minor Arts II. Textiles. Glass and painting on glass. Carvings in ivory and rhinoceros horn. Carvings in hardstone. Snuff bottles. Inkcakes and Inkstones.* Universe Books, New York, 1965. 323 [1] pp., 65 col photo cut-outs tipped-in to text f; 149 text illus.
(some multiple, some ill f tipped-in or bound-in, but all included in pag). 33 × 25.2 cm.
≈ **JOHNS, F.A.** Some material additional to C. Denman's Jade: a comprehensive bibliography', *J Amer Orient Soc*, 72, 1952, pp. 111–12.

≈ **KAO, J. & YANG, Z.S.** *Jade Suits and Han Archaeology, Archaeology Magazine*, Vol. 36, No. 6, Nov./Dec. 1983, New York. 28 cm.
≈ **KALKOWSKY, ERNST LOUIS.** 'Geologie des Nephrites im südlichen Ligurien', *Zs Dt Geol Ges*, Jg 1906, Bd 58, Aufsätze, H 3, pp. 307–78, pl. (geol cross-sect). Also issued in pale grey print wrap. 74 + [2]pp. 22.2 × 14.4 cm. Geology of a region SSE of Genoa, Italy, where nephrite was found as alluvial pebbles and *in situ;* discoveries, structure and mineralogy of nephrites from 11 deposits; suggested origin. Author disparages quality of the material but is convinced that gem-quality material will be found.
≈ 'Der Nephrit des Bodensees', *Sitzungsber u Abhandl Naturwiss Ges 'Isis' in Dresden*, Jg 1906, Abhandl H 1, pp. 28–41, 1 ill. Also separate. Investigated mineralogically 97 nephrite artefacts from various lake-dweller sites in Switzerland. Amounts found, distribution, forms of artefacts, alteration, varieties, i.e., 'common stony nephrite', 'homogeneous schistose nephrite' and 'wavy textured nephrite'. Thin-section examinations, inclusions identified.
≈ **KARLGREN, BERNARD.** Some Fecundity Symbols in Ancient China, *Bulletin of the Museum of Far Eastern Antiquities,* No. 2, Stockholm, 1930, pp. 54 inc pls.
≈ **KELEMAN, PAL.** *Medieval American Art. A Survey in Two Volumes.* Volume 1. Macmillan, New York, 1944. [1], [1 blank], 414 [2 blank] pp. 27.8 × 21 cm. Chap. 8, pp. 283–311, on 'Jade and other semiprecious stones', with illustrations for same being in the plates volume, pls. 235–58 (not seen). Most of this text treats jade, its nature, types, and then describes the many objects depicted according to artistic merits and significance. Other gemstones are rock crystal, turquoise, obsidian, serpentine, amber, calcite onyx and cryptocrystalline quartz varieties.
≈ **KIDDER, ALFRED V., JENNINGS, JESSE D. & SHOOK, EDWIN M.** *Excavations at Kaminaljuyu, Guatemala.* With Technological Notes by Anna O. Shepard. Publication 561, Carnegie Institution of Washington, Washington, D.C., 1946. 284 pp. + bound-in pls. section comprising [50] f text interspersed with [48] pale cream, heavy paper leaves bearing photos & drawings, also 4 such f bearing col illus. & 1 fold plan on white, translucent paper. Altogether 207 figs. in the main text part. 29.2 × 22.8 cm. The detailed report on the astounding wealth of archaeological treasures found in a series of Pre-Columbian Indian mounds in Guatemala, including those of jadeite.
≈ **KING, C.W.** 'On a ceraunia of jade converted into a gnostic talisman', *Archael J*, 1868, pp. 103–18.
≈ **KOBERT, RUDOLF.** *Ein Edelstein der Vorzeit und Seine Kulturhistorische Bedeutung. Nach einem im Rostocker Alterumsverein gehaltenen Vortrage. Für Ärzte Apotheker, Lehrer der Naturwissenschaften und Freunde der Kulturgeschichte.* Verlag Von Ferdinand Enke, Stuttgart, 1910. [4] pp. + 45 [1 blank] pp. + 10 bound-in pls. + [10 advert] pp.; there are 36 text figs., with the 25 photos on pls. 26.8 × 18 cm. A lecture originally delivered to the Rostock, Germany, antiquarian society on nephrite and its cultural-historical importance.
≈ **KOLESNIK, YURIY NIKOLAEVICH.** *Nephrites of Siberia.* Izdatelstovo 'Nauka' Sibirskoe Otdelenie Novosibirsk, 1966. 149, [3] pp.; 56 figs. (diagrs, photos, maps 91 fold); 12 tab. 25.7 × 16.6 cm. Strong on minerology.
≈ **KRAFT, JAMES LEWIS.** *Adventure in Jade.* Henry Holt, New York, 1947. [2 blank], [9] [1 blank], 81 [2] pp.; tip-in col photo glossy front pl. 21.2 × 14 cm.
≈ **KUNZ, G.F.** *The Metropolitan Museum of Art. Hand-Book No. 10. The Heber R. Bishop Collection of Jade and Other Hard Stones.* The Metropolitan Museum of Art, New York, nd (*c.* 1904). 104 pp. 21.8 × 14 cm. Kunz not credited as author but in a letter by Luigi Cesnola, then director of the museum, dated 20 Jan., 1904, and present in the copy of this catalogue in the USGS Library, Cesnola accepted Kunz's offer to prepare same, and indicated that the room to house the Bishop Collection would be finished February 1904.
≈ *The Printed Catalogue of the Heber R. Bishop Collection of Jade. Comptes Rendus, 10e Sess, Internat Geol Congr, Mexico*, 1906, 1907, pp.253–70. An article with similar title appears in a supplement to the *Bull Metro Mus Art*, New York, May 1906, 'Occasional Notes No. 2', [12]pp.; illus.
≈ *Gems and Precious Stones of Mexico, ibid* 1029–80. Somewhat enlarged version of similar article by Kunz in *Trans AIME*, 1901, 1902 which see above. Adds material to turquoise and opal; includes description of the enormous 2-vol. set of Heber R. Bishop's *Investigations and Studies in Jade*, which see.
≈ **KUO PAO-CHÜN.** 'Ku yü hsin ch'üan' ('New notes on old jades'), *Bull Inst History & Philology, Academia Sinica*, 20, pt 2, 1949, pp.1–46, 17 pls.
≈ **KUTTNER, FRITZ A.** 'The musical significance of archaic Chinese jades of the pi disk type', *Artibus Asiae*, 16, 1953, pp.25–50, illus.
≈ **KUWAYAMA, GEORGE.** *Chinese Jade; From Southern California Collections. Los Angeles County Museum of Art, Oct. 26, 1976–Feb. 6, 1977.* Los Angeles, by the museum, 1976. 74 pp.; illus. 26.5 cm.
≈ **KU YÜ T'OU PU.** *Illustrated Description of Ancient Jade.* Peking, 1176. According to S.W. Bushell's article, 'On jade in China', 1900, 'this is a catalogue, in one hundred books, with more than seven hundred figures, of the collection of jade belonging to the first Emperor of the Southern Sung dynasty, who had resigned the empire to his son in the year 1175, the year before it was published by an imperial commission of nineteen members, including one writer and four artists, presided over by the President of the Board of Rites, Lung Ta-yuan, the author of the original preface'.

≈ **LACROIX, ANTOINE FRANÇOIS ALFRED.** 'La jadéite de Birmanie: les roches qu'elle consitue ou qui l'accompagnent. Composition et origine', *Bull Soc Fr Min*, 53, 1930, pp.216–54, figs., pls. 1 & 2. Reviews knowledge of Burma jadeite and previous work.
≈ **LAING, ELLEN J.** Ch'ing Dynasty Pictorial Jades and Painting, ARS Orientals, Univ. of Michigan, Vol. 16, 1986, pp.32 inc. pls. 30 cm.
≈ **LALLY, JAMES & CO.** *Chinese Works of Art.* Exh. Cat., 60 pls. w/text, New York, 1988. 28 cm.
≈ **LANDMAN, H.B.** *Chinese Jade Carving (Tonkin Collection),* Museum of Art, Penn State Univ., Exh. Cat., 1983, pp.42 inc. pls. 20.5 cm.
≈ **LA PLANTE, JOHN.** *Arts of the Chou Dynasty.* Exh. Cat., Stanford Univ., 1958, pp.64 inc. pls. 28 cm.
≈ **LAWTON, THOMAS.** *Asian Art in the Arthur B. Sackler Gallery.* Inaugural Catalogue, Smithsonian Institute, 1987, pp.336 inc. pls. 29 cm.
≈ **LAUFER, BERTHOLD.** *Jade. A Study in Chinese Archaeology and Religion. The Mrs T.B. Blackstone Expedition.* Chicago, February 1912. 370 pp.; 68 tip-in photo pls. (6 col, one with blank tissue); 24 with printed tissues, 4 with blank tissues; 204 figs. 22.9 × 15.4 cm. Reprints 1946, 1967, 1974. One of the classics of jade but also much criticized.
≈ *Archaic Chinese Jades Collected in China by A.W. Bahr. Now in Field Museum of Natural History, Chicago.* 36 pls., 3 of which are coloured. New York. Privately printed for A.W. Bahr, Lakeside Press, Chicago, 1927. 51 [1 blank] pp. + [20] glossy f bound-in.
≈ **LEAMING, STANLEY.** *Rock and Mineral Collecting in British Columbia. Geol. Survey Canada Paper* 72–53, Ottawa, Canada, 1973. 138 pp. 23 text photos, 32 figs. (mainly sketch maps), 22 tabs. 24.7 × 16.4 cm.
For the collector and prospector, telling how to recognize favourable geological formations and discover gemstones and minerals. Large sections devoted to chalcedonic gemstones, rhodonite, nephrite jade and some other minor species.
≈ *Jade in Canada. Geol Survey Canada Paper* 78–19, Ottawa, Canada, 1978. 59 [3 blank] pp.; 21 photos, maps; 6 tabs. 28 × 21.6 cm. By far the most authoritative treatment on the famous nephrite deposits of the province.
≈ **LEE, BOLTON.** *What One Should Know about Jade.* The Jade Store, 80 Nanking Road, Shanghai, China. 23 [3 blank] pp.; 3 photos pls tip-in. 19.9 × 12.4 cm.
≈ **LEE, SIOW MONG.** *Understanding Jade.* Singapore, 1988, pp.100 inc. pls. 23.5 cm.
≈ **LEHMANN, JOHANN GOTTLOB.** 'Historia et examen chymicum lapidis nephritici.' *Novi Commentari Academiae Scientiarum Imperialis Petropolitanae,* St Petersburg (Petrograd), 10, 1766 pp.381–412; not seen. Extract in 'Geschichte und chymische Untersuchung des Nieren-(Gries-) Steines', *Neues Hamburgisches Magazin,* Stück 23, year (?), pp.403–42; not seen. Referred to in H. Fischer, *Nephrit u Jadeit,* 2nd edn., 1880, p.131.
≈ **LEVY, PERCY R.** Personal Preference in Jade, *The Connoisseur Yearbook,* 1966. 31 cm.
≈ **LI FENG HUNT or LI FENGGONG.** *Yü ya* [or *Yu ya*] [*Dictionary of Jade*]. Canton, 1935. 106 pp., many illus. 26 × 20 cm. Not seen; from Loehr & Huber, *Ancient Chinese Jades,* 1975, p.436; Hansford, *Chinese Jade Carving,* p.133, gives 'allusions to jade in Chinese literature, 100 pp., half-tone reproductions of inked-squeezes. Canton: 1935'. Han-Shan Tang, London, List 28, 51, 1985, 'a rare work illustrating rubbings of a variety of archaic jades accompanied by comments'.
≈ **LI GENGFU (ED).** *On Jade* or *Shi Yu,* pp.297 inc. pls. Taipei, 1988. 19.5 cm.
≈ **LI JIUFANG.** *PRC Archaeological Finds.* A Selection between 1976 and 1984. Exh. Cat., Beijing, 1987, pp.90 inc. pls. 25.5 cm.
≈ **LIANG WEI MEI.** *An Illustrative Study of Ancient Jades.*

Len Hseung Yun, Hong Kong, 1939. Printed by Asiatic Litho Printing Press, 390 King's Road, Hong Kong. Sole Agent: New Life Dispensary Library. Tung man Road, Canton, China. [47]f, printed verso only, rectos in blank; 35 glossy colour plates illustrate 65 jades; monochrome portr pl. of author. 21.3 × 15.2 cm.

≈ **LIBERTY & COMPANY.** *Jade Amulets. Historical notes with coloured illustrations and interpretations of the most characteristic forms.* Liberty & Co., London (nd; 1921).

≈ **LIGHT INDUSTRY PUBLISHING HOUSE.** *Chinese Arts and Crafts.* Light Industry Publishing House, Foreign Languages Press, Peking, 1973. [216] pp.; 222 photos, most col. 32.6 × 25 cm. Pictorial album of Chinese crafts articles and ornament. There are 28 stones shown which were carved from jades, serpentine, agalmatolite, porphyry and chalcedonies, with one vase identified as 'pink jade', which appears to be a mottled salmon-pink and pale grey rock, possibly thulite.

≈ **LIMUR, COMTE DE.** *Le Jade Océanien en Gisement dans La Baie de Roguédas près Vannes (Morbihan). Extrait du Rapport Fait au Congrès pour l'Avancement des Sciences Françaises Pendant Sa Session de 1875, A Nantes.* Vannes, Imprimerie Galles, Rue de la Préfecture. 1875. 36 pp. 25 × 16.6 cm. A jade-like material, from a vein in granite near Baie de Roguédas, Vannes.

≈ **LION-GOLDSCHMIDT, DAISY & MOREAUGOBARD, JEAN-CLAUDE.** *Chinese Art. Bronze, Jade, Sculpture, Ceramics.* Trans. Diana Imber, with a foreword by George Savage. Universe Books Publishers, New York, 1962. The jade part is on pp.133–95; identities of jade gemstones, uses of jades in various early societies, methods of carving, shapes and significance, Chinese jade objects by purpose of use discussed chronologically, descriptions of objects displayed on the plates and text photos, these in gratifying detail. Illustrations good to excellent.

≈ **LIU, T'I-CH'ING.** *Ancient Chinese Jade. Explanatory Notes on Mr T.C. Liu's Unique Collection of Examples of Chinese Art.* U.S.A. Representative: Mr Henry H. Wu. c/o Mr Z.Y. Loo, 737 Wai-Hai-Wai Road, Shanghai, China. No place or date; C. Denman, *Jade*, 1945, p. 120, gives the full spelling of Liu's name as above and the publisher as H.H. Wu, Shanghai, 1933. 85 [1] pp.; 2 photo portrs + 19 photos of jades and other objects. 4 figs.; 9 rubbings of inscriptions. 37.1 × 26.6 cm.

≈ **LOEHR, MAX JOHANNES JOSEPH.** *Early Chinese Jades. A Loan Exhibition Presented by the Museum of Art, University of Michigan, Alumni Memorial Hall, Ann Arbor. March 22 through April 22, 1953.* [36], [4 blank] pp., includes wrap; 10 photos. 22.9 × 15.2 cm.

≈ 'Lecture on Chinese jades [in the] Brundage collection', San Francisco, 1971, 23 pp. Delivered in the De Young Museum, Feb. 1971.

≈ **LOEHR, MAX.** *Relics of Ancient China.* The Paul Singer Collection, Exh. Cat., Asia Society, New York, 1965, pp. 170 inc. pls. 28.5 cm.

≈ **LOEHR, MAX & HUBER, LOUISA G. FITZGERALD.** *Ancient Chinese Jades from the Grenville L. Winthrop Collection in the Fogg Art Museum, Harvard University.* Fogg Art Museum, Harvard University, Cambridge, Massachusetts. 439 [3 blank] pp.; 19 col photos (includes front); 588 b&w photos: 15 figs. 28 × 24.3 cm.

≈ **LONG DAYUAN,** et al. *Guyu tupu* (illustrations of ancient jades). No place, 1779. 12 vols., 100 chs, many woodblock illus, 30 × 18 cm. Not seen: from Han-Shan Tang, London, List 28, no 53, 1985. 'Compiled by imperial order in 1176, this work has been condemned as a false book. In spite of that, the significance . . . lies in its content of gem-mounted vessels, and it is very useful for the study of such vessels.'

≈ **LONG SANG TI.** *Chinese Jade. Why Called 'Lucky Stone'.* Chinese Curios Co., New York City, 1926. 47 pp.; 23 figs. (mostly photos). 17.8 × 12.6 cm.

≈ **LOO, CH'ING-TSAI.** *Jades archaïques de Chine appartenant à M.C.T.* Librairie Nationale d'Art et d'Histoire, Paris et Bruxelles, 1925. 120 pp. illus.

≈ **LOO, C.T. & COMPANY.** *Exhibition of Chinese Arts.* C.T. Loo & Co., 41 East 57th Street, 595 Madison Avenue, New York, 1941. Special Sale, November 1, 1941 to April 30, 1942. [82] f; 976 items depicted on rectos of [79] f in photos. 28 × 21.3 cm. Offers many types of Chinese art but jades and some hardstone carvings comprise nos, 222–408, with illustrations on 13 of the plates.

≈ *An Exhibition of Chinese Archaic Jades.* C.T. Loo, 41 East 57th Street, New York, 1950. [128] pp.; 60 fullp photo pls. on rectos, expls versos, from p[8] onward.

≈ **LOTHROP, SAMUEL KIRKLAND, FOSGAG, WILLIAM FREDERICK & MAHLER, JOY.** *Robert Woods Bliss Collection Pre-Columbian Art.* Phaidon (distributed by Garden Books), New York, 1957. 285 [1]p., includes pls.; front col pl. tip-on; 31 text figs. + 1 sketch + 170 col & 75 b&w photos; altogether CLXII pls. on 80 glossy f; Pls. XXV–XXVI are double and fold inward; Pl. LXXXI cut-out & tipped-on; 25 sketch maps. 33.2 × 23.5 cm. Two later editions. Includes Meso-American jadeite ceremonial objects and carvings.

≈ **LOTHROP, SAMUEL KIRKLAND** et al. *Essays in Pre-Columbian Art and Archaeology.* Harvard University Press, Cambridge, Massachusetts, 1961. [11], 507 pp.; 229 figs. (includes 1 col fig. on a glossy f tip-in). 23.4 × 15.7 cm. Includes article on Meso-American jades by Elizabeth K. Easby and Carlos Balser (Costa Rican jadeites).

≈ **LU JINCHENG (ED).** *On Jade* or *Shuo Yu,* Taipei, 1988, pp. 139 inc. pls. 21 cm.

≈ **LÜ TA-LIN.** *K'ao ku t'u.* (Investigations of antiquities with illustrations). Laufer, *Jade*, 8, gives 'in 10 chapter, first published during the Sung Dynasty in 1092, and reedited by Huang Shêng in 1753 as an appendix to Wang Fu's *Po ku t'u*. In Chapter 8, a small collection of jades in the possession of Li Po-shih from Lu-kiang is figured, but without investigation.' S.H. Hansford, *Chinese Jade Carving*, 134 (no. 92) includes this work but also notes an edition of 1752 entitled *San ku t'u.*

≈ **LUZZATTO-BILITZ, OSCAR.** *Antiche giade Milans.* Fratelli Fabbri Editori, [3], [1 blank] pp. + pp. 7–158; there are no pp. 1–2!; 71 col figs. (except one).

≈ *Antique Jade,* trans. Francis Koval. No. 12 in the Cameo Series, Paul Hamlyn, London, New York, Sydney, Toronto, 1969. 158 pp. (first f blank); text is followed by another blank f; same illus. 18.6 × 13 cm.

≈ *Antike Jaden.* Schuler Verlagsgesellschaft, München, 1974. 160 pp.; 64 col photos (Pls. 42, 43, 45–48 of Ital edit omitted while Pl. 15, counted as two illus. in the Ital edit, are here counted as one).

≈ **LYONS, ELIZABETH.** *Mr and Mrs Ivan B. Hart Collection, Archaic Chinese Jades.* Catalogue by Elizabeth Lyons, edited by Robert J. Poor, with an Introduction by Charles Macsherry, Smith College Museum of Art, Northampton, Massachusetts, 1963. 72 pp. (first & last f blank); 50 text photos. 21.4 × 13.8 cm.

≈ 'Chinese jades; the role of jade in ancient China', *Expedition*, 20, Spring 1978, pp. 4–20, illus.

≈ **LYTLE, MIRIAM ANDERSON & LIZZADRO, JOHN S.** *The Lizzadro Collection. Chinese Jades and Other Hard Stone Carvings.* A John Racila Associates Book, Chicago, 1983. 124 pp.; 3 b&w photos; 69 col photos; 6 col maps (all on p. 115). Many col photos are spread over adjacent pages. 27.9 × 21.7 cm. An interesting but too-brief account of Lizzadro's acquisition of a large boulder of Alaskan nephrite which was subsequently sawn up and carved into two matching vases. The text describes important pieces, mostly jadeites and nephrites, many carved very elaborately. None of the objects is ancient. There was a limited edition in 1983.

≈ **MacFAIL, RUSSELL P. (ED).** Wyoming Jade: The Reminiscences of Allan Branham, *Lapidary Journal,* Publ., San Diego, 1980, 56 pp. 21.5 cm.

≈ **MADSON, MICHAEL E.** *It Ain't Jade. The Wyoming Jade Story.* Illustrations and artwork by Karey E. Huff. [2], 38 pp.; 7 line drawings. 23 × 15.1 cm.

≈ **MALLÉ, LUIGI.** *Vetri – Vetrate – Giade. Cristalli Di Rocca E Pietre Dure,* Museo Civico, Torino, 1971. 404 [1 blank] pp.; the illus. pages are unnumb; 116 photos of glass objects (11 col); 36 photos of painted glass (stained glass, mostly windows, 8 col); 47 photos of hardstone carvings; 19 photos of hardstone and other materials, ornamental objects (1 col). 23.6 × 16.8 cm. Catalogue of ornamental objects in the collections of the Civic Museum of Turin, Italy, in the following classes: blown and engraved glass, painted and stained glass, hardstone carvings in a section entitled 'Jades' though few objects are of this material; also rock crystal carvings, and intarsias.

≈ **MAMOUROVSKII, A. A.** *Mestorozhdenie nefrita na gore Bikilyar [Nephrite from Mt Biliyar].* Publications of the Petrographical Institute, *Lithogaea,* Moscow, no. 5, 1918, title in Russian and English. 52 [2], [2 blank] pp., 3 photo pls. of thin sects. Petrographical study that does not state if the nephrite is of lapidary grade.

≈ **MAY, EVALYN** *Jade for Beginners.* Illustrations by Katharine Modesti. Donald Moore for Asia Pacific Press, Singapore, 1969. [6], 65 [1 blank] pp; 22 sketches. 17.7 × 11.3 cm. 2nd(?) edn, 1979.

≈ **MCELNEY, BRIAN S.** *Jade Carvings from the Brian S. McElney Collection.* International Antiques Fair, Hong Kong, 1985. pp. 30–61; 64 pieces illustrated, 38 in col.

≈ **MENA, RAMÓN.** *Museo Nacional Departamento De Arqueologia. Catalogo De La Coleccion De Objetos De Jade.* Por El Profesor Jefe Del Departamento. Mexico. Talleres Graficos Del Museo Nacional De Arqueologia, Historia Y Etnografia, 1927. 78 pp.; 23 photos on 14 glossy f. 21.7 × 14.2 cm.

≈ **MENZIES, JAMES M.** *The Shang Ko.* The Royal Ontario Museum, 1965, pp. 406, 82 pls. 25.5 cm.

≈ **MERRITT, P.L.** 'The identification of jade by means of X-ray diffraction patterns', *Amer Min,* 17, 11, 1932, pp. 497–508, 4 figs., 5 tabs. Optical and physical properties of jades, patterns determined on numerous specimens of jadeite and nephrite as well as jade-like materials, i.e., serpentine, idocrase, agalmatolite, grossular.

≈ **MEYER, A.B.** *Jadeït and Nephrit-Objecte.* Königliches Ethnographisches Museum zu Dresden. II und III. A. Naumann und Schröder, Leipzig, 1882–3. A. *Amerika und Europe.* Large folio: 36 pp. text, 2 photo pls. (1 col). B. *Asien, Oceanien, Afrika.* 1883. Large folio: 33 pp. text, 4 photo pls.

≈ *Die Nephritfrage Kein Ethnologisches Problem. Vortrag Gehalten zu Dresden im März 1883.* R. Friedländer & Sohn, Berlin, 1883. 24 pp. 25.3 × 17.3 cm. Classic paper: Meyer completely demolishes the theory embodied in the so-called 'Nephritfrage' or 'jade question', to the effect that worked jades in Europe and America could only have been made from jade imported from Asia either as raw jade or even as worked objects.

≈ 'Über Nephrit und Ähnliches Material aus Alaska', *XXI Jb Vereins f Erdkunde Dresden,* 1884, pp. 1–21. Also separate: 21 [3 blank] pp.; 22.3 × 14 cm. Worked and raw nephrites from Alaska, obtained by various explorers and visitors from the natives, appear to confirm Meyer's view that the material is obtained locally and was not imported via the suggested Siberia-Alaska route from Asia. One of the explorers reported that natives told him of deposits of nephrite

at some unspecified place in the extreme NW portion of Alaska (probably the Kobuk River deposits). Substantial parts of this paper were translated and quoted by G. M. Dawson in his 'Note on the occurrence of jade in British Columbia . . . ', *Canad Rec Sci*, 1887, which see.
≈ 'Neue Beiträge zur Kenntniss des Nephrite und Jadeite', *Abhandl u Ber Königl Zool u Anthropol-Ethnogr Mus Dresden*, 1890–91, 1, 42 pp., 2 tissued photo pls. showing worked jade objects; *c.* 33 × 25.5 cm. 1. So-called nephrite from Iona, Hebrides, is serpentine. 2. Identified jadeite specimens from St. Marcel, Val d'Aosta and Ouchy, Lausanne. 3. Worked jadeites/nephrites from southern Tyrol made from local materials. 4. Jadeite objects found in many places in Italy but nephrites only from Calabria. 5. Sicilian nephrite objects, characterized by lack of schistosity and chlorite content, suggest a local source. 6. Nephrite/jadeite objects from Asia Minor probably made from local materials. 7. Local sources also likely for worked nephrites of Chukchi Peninsula and Japan.
≈ *Zur Nephritfrage (Neu Guinea, Jordansmühl u.a., Alpen Bibliographisches). Abhandlungen und Berichte des Königlichen Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden Bd. × 1902/3 – Nr. 4.* Mit zwei Tafeln und einer Abbildung. Verlag von R. Freidländer & Sohn, Berlin, 1903. 32 pp. 2 photos pls. 33.7 × 26.5 cm.
≈ **MICHIGAN ORIENTAL ART SOCIETY.** *Chinese Jades: The Great Tradition.* Exhibition sponsored jointly by Michigan Oriental Art Society and Cranbrook Institute of Science. Michigan Oriental Art Society, Detroit, *c.* 1977. 20 pp., illus., 23 cm.
≈ **MINNESOTA MUSEUM OF ART.** *Jade as Sculpture on Exhibit: Minnesota Museum of Art, Saint Paul, Minnesota, 19 February – 26 March, 1975. Rare Art, Inc., New York. New York, 9 April – 6 June 1975. Indianapolis Museum of Art, Indianapolis, Indiana, 17 June – 1 August 1975.* Minnesota Museum of Art, 1975. [2 blank], 80 [1], [1 blank] pp.; 6 text figs.; 1 b&w photo tip-on, 6 col pls. tip-on; 88 b&w photos on bound-in white f, the remainder of text f being green paper. 21.6 × 21.2 cm.
≈ **MITSUHARU, TERAMURA.** *Archaeological Jadeite in Japan* or *Kodai Gyokusako no Kenkyu*, Japan, 1966, pp. 223, 20 pls. 26.5 cm.
≈ **MIZUNO, SEIICHI.** *Bronzes and Jades of Ancient China*, Nihon Keizai, Tokyo, 1959, pp. 136, 168 pls. 25.5 cm.
≈ **MORGAN, HARRY TILTERTON.** *The Story of Jade. 'Jade, the Jewel that grants all desires in this world and the next.'* 1941. No place given but C. Denman gives 'Broadway Press, Los Angeles'. 16 pp.; 6 line drawings. 12.1 × 9.6 cm. Revised, 1944. Edited and copyrighted 1944 by Quon-Quon Company, Los Angeles 15 [sic].
≈ **MUELLER, DR. HERBERT.** *The Sunglin Collection*, Chinese Art and Archaeology, Exh. Cat., New York, 1930, pp. 107, 51 pls. 25.5 cm.
≈ **MUSHKETOV, IVAN VASILIEVICH.** 'Nefrit i ego mestorozhdeniya', *Gornoy Zhurnal*, no. 6, 1882, pp. 375–424 ['Nephrite and its occurrences', *Mining J*, St Petersburg]. Reprinted, with plates, in 'Sobranie Sochineniy Ivan Vasilievicha Mushketova', Vypusk 1, 1872–82 g, . . . [XV plates, charts, illustrations & 2 portraits], *Zapiski Imperatorskago Russkago Geograficheskago Obshchestva Po Obshchey Geografiy*, tom 39, vyp 1, St Petersburg 1910 [2], portrait insert, VI, 614 pp. Mushketov's article on nephrite of Turkestan, etc, extends over pp. 509–78, and includes a part-tinted fold map of the Kien-Lun, showing nephrite rivers and areas, a col pl. of nephrite thin sections, and three tinted view plates. In this extremely important study, the first of sound, professional quality on the nephrite occurrences in Turkestan, Mushketov carefully reviews past comments and visits by explorers and others who visited the area and spoke of the jade, and then describes the jade types, chemical composition, structure and comparisons with nephrites from other world sources, the jade questions etc.
≈ *Turkestan. Geologicheskoe I Orograficheskoe Opisanie Po Dannymy.* Sobrannymy Vo Vremya Puteshestviy S'y 1874 g. po 1880 g. Tomy Pervye. C.-Peterburgy, Tipografiya M. M. Stsiulevicha, 1886. [2], 741 [2], [1 blank] pp. *c.* 27 × 18.5 cm. The collected works of Mushketov include essentially the same material noted in the previous entry in Ch 10, pp. 365–99, with the same col litho pl. of nephrite thin-sects, tissued, 2 tinted view pls. (Tamerlane's tomb), and omitting the previous map of jade occurrences but substituting a large, full-col fold map 53 × 38.5 cm of the geology of the Turkestan Basin showing routes taken by various explorers, including the author.
≈ 'Zametka o nefrite i zhadeite s vostochnogo Pamira', *Izvestiya Russk Geogr Obshchestva*, 25, 6, 1889, 454–67.

≈ **NA CHIH-LIANG.** The Chi'i-Pi Jades. *The National Palace Museum Bulletin*, Part 1, Nov. 1966. Part 2, Jan. 1967. 23.5 cm.
≈ *Illustrated Description of Ancient Jades*, 2 Vol., Taipei, 1978, 25.6 cm. Ancient Chinese Jade volumes in Na's library.
≈ *Chinese Jades*, Teipei, 1964, pp. 83 12 pls. 17.5 cm.
≈ **NA CHIH-LIANG & NA ZHILIANG.** *Yü-ch'i t'ung-shih* [General History of Chinese Jade]. 2 vols. Hong Kong & Taipei, 1963, 1970. From Loehr & Huber, *Ancient Chinese Jades*, 1975, p. 436. The same in modern spelling (Na Zhiliang): *Yuqi tongshi*. Hong Kong, 2 vols., 1965; 209, 308 pp., 116 pls., many text figs. 26 × 19 cm. Not seen, from Han-Shan Tang, London, List 28, 1985, no. 61, 'a most thorough study of archaic jades, by the expert at the National Palace Museum [Taipei]'.
≈ *Chinese Seals. The Collection of Ralph C. Lee.* Photographs by Marjory Gay Walter. [At end: 'Privately printed by Allan Lee in Taiwan – 1966. Edition limited to 600 copies. This is copy No. 532.']. 112, [2] pp.; front portr photo; 40 (actually 44) photo pls. each showing photos of seals and red impressions; 20 text figs. (line drawings). 25.9 × 13.4 cm.
≈ *Chinese Jades: Archaic and Modern from The Minneapolis Institute of Arts.* Charles E. Tuttle Co., Rutland, Vermont and Tokyo, Japan, 1977. 176 pp.; 9 figs.; 29 col photos on 15 f bound-in; 191 b&w text photos. 26.7 × 18.8 cm.
≈ [as Na Zhiliang] *Gu yu jiancai.* Taibei, 1980, 267 pp., 58 pls. (24 col), many text figs., biblio. 29 × 22 cm, cloth. Not seen; from Han-Shan Tang, London, List 28, 1985, no. 60.
≈ [ed.] *Yuqi cidian [Dictionary of Chinese Jade].* Taibei, 1982, 2 vols., 456, 391 pp.; 3,448 text illus.; biblio. 22 × 15 cm. From Han-Shan Tang, London, List 28, 1985, no. 62. 'The first volume is a word dictionary . . . second volume contains 3448 illustrations of jades grouped by subjects, giving date, size and source, in Chinese only, but still useful.'
≈ *Gu yu lunwen [A collection of essays on antique jade].* Taibei, 1983, 733 pp., Chinese text, over 100 b&w illus, 4 col pls. 21 × 15 cm. *Ibid.*
≈ **NATIONAL MUSEUM OF HISTORY, REPUBLIC OF CHINA.** *Ancient Chinese Jade [Zhongguo Gudai Yuqi].* Taibei, 1981, 144 pp., 101 col pls.; text and captions in Chinese and English; 29 × 21 cm. Not seen; from Han-Shan Tang, London, List 28, 1985, no. 63: 'many objects excavated from Xincheng and Huixian in Henan Province . . . illustrates 138 selected objects including jades from private Taiwan collections on loan to the museum'.
≈ *Chinese jade [Zhongguo Yuqi].* Taibei: 1984, 198 pp., over 80 col pls.; text captions in Chinese & English; 23 × 21 cm. Not seen, from *ibid*, no. 64, 'basically an expanded version of the Museum's 1981 publication "Ancient Chinese Jade" . . . 20 supplementary jades, showing a total of 147 objects including items from other collections'.
≈ National Palace Museum, Republic of China. *Exhibition of Chinese Antiquities and Works of Art. September-November 1964.* Volume I, *Catalogue of the Treasures from The National Palace Museum and The National Central Museum.* Back wrap: 'Compiled and Published by the Preparatory Committee of the Exhibition of Chinese Antiquities and Works of Art. Taipei, Taiwan, The Republic of China'. In 3 vols., similar format. I: [22], 48 [1]pp.; 12 col photos, 193 b&w photos; II: [14], 63 [2]pp.; 7 col photos, 155 b&w photos; III: [10], 36 [1]pp., 8 col photos, 69 b&w photos. 26 × 19 cm.
≈ *Masterworks of Chinese Jade in the National Palace Museum.* National Palace Museum, Taipei, Taiwan, Republic of China, 1970. 92 pp. but only pp. 54–92 are numbered; pls. included in pag + [2 blank] pp.; 51 col photos on glossy bound-in f; 24 line drawings all on one p. 27 × 21 cm.
≈ *Masterworks of Chinese Jade in the National Palace Museum Supplement.* National Palace Museum, Taipei, Taiwan, Republic of China, 1973. 86 [2 blank]pp.; pls. includ in pag; only pp. 50–86 numbered; 51 col photos on bound-in glossy f; binding, etc, identical.
≈ *Masterpieces of Chinese Snuff Bottles in the National Palace Museum.* National Palace Museum, Taipei, Taiwan, Republic of China, 1974. 'The preparation of this book was under the expert supervision of Wu Fen-p'ei with the assistance of Lin Mei-hui. The text was translated into English by Alice R. Merrill.' 89 [1 blank] pp., but only pp. 50–89 numb & pls. included in pag; 56 col photos on 20 bound-in f. 27 × 21 cm.
≈ *Masterpieces of Chinese Ju-i Scepters in the National Palace Museum.* National Palace Museum, Taipei, Taiwan, Republic of China, 1974. 'Mr Yüan Te-hsing is responsible for the compilation of this volume. The appended drawings . . . are also by Mr Yüan, with the collaboration of Mr Hsiao Tzu-chüan. 107 [1 blank] pp., with pp. 46–51 & 60–107 numb; pls. included in pag; 51 col photos on 18 bound-in f; 59 figs. 27 × 21 cm.
≈ *Illustrated Catalogue of Ancient Jade Artefacts in the National Palace Museum.* Taibei, 1982, *c.* 400 pp. 367 col pls. & illus; 30 × 32 cm. Not seen, from Han-Shan Tang, London, List 28, no. 65, 'excellent documentation of jades from Shang through Song periods in text and colour illustrations. Text in Chinese & Engl.'
≈ *Catalogue of a Special Exhibition of Hindustan Jade* [in the Museum]. Taipei, 1983, 289 pp. 82 col pls., 45 b&w illus, 25 × 24 cm. From Han-Shan Tang, London, List 28, no. 66: 'an exemplary documentation of the carving of jades for the Indian and Near Eastern market. Text in Chinese and Engl.'
≈ **NATIONAL PALACE MUSEUM.** *Chinese Art in Overseas Collections – Jade*, Taipei, 1986, 200 pls. + short text. 26.5 cm.
≈ **NEBEL, WILHELM BERNHARD.** *Dissertatio de lapide nephretico novo.* Resp. Wilh. Duckenberg, Heidelbergae, 1733. *c.* 33 pp. On a stone, supposed to be nephrite, found at Herborn, Nassau, Germany, to which miraculous curative powers were ascribed.
≈ **NG, JOHN Y. & ROOT, EDMOND.** *Jade for You. Value Guide to Fine Jewelry Jade.* Limited Edition. Jade N Gem Corp. of America, Los Angeles, 1984. 107 [1 blank] pp.; 13 watercolour sketches, 2 b&w photo portrs of the authors; 17 b&w photos; 63 b&w line drawings; 58 col photos. 28.0 × 20.9 cm.
≈ **NICHOL, D.** 'Nephrite jade deposits near Cowell,

Eyre Peninsula', *South Australia Mineral Resources Review,* No. 141, 1977, pp. 11–26.
≈ **NOETLING, FRIEDRICH WILHELM** ("Fritz"). 'Note on the occurrence of jadeite in Upper Burma', *Rec Geol Survey India,* 26, pt 1, 1893, pp. 26–30, P1. I (col fold geol map); also issued in printed sepia wrap.
≈ 'Ueber das Vorkommen von Jadeit in Ober-Birma', *N Jb Min,* 1, 1896, pp. 1–17, P1. I; also separate. Essentially the same as above but 'significantly enlarged and revised', with the hand-col geol map now encompassing a considerably larger area.
≈ **NOTT, STANLEY CHARLES.** *The Catalogue of Ch'ien Lung Jades.* Not seen; Nott gives this title in several later works but sans pagination or other details; not in C. Denman; Yang 1730 but only title & date. Possibly Nott's earliest formal treatise on jade.
≈ *Catalogue of a Unique Exhibition of Chinese Hardstone Carvings.* Charles Nott Ltd., London, nd, *c.* 1930.
≈ *Catalogue of a Unique Exhibition of Superb Chinese Jade Carvings and Various Other Hardstones. Sung, Ming, Ch'ing Dynasties.* Charles Nott Ltd., London, nd, *c.* 1932. 55 [1]pp.
≈ *Chinese Jade Throughout the Ages. A Review of Its Characteristics, Decoration, Folklore and Symbolism.* Batsford, London, 1936. 193 [1 blank] pp.; col front pl. tip-in + 38 other col pls.; 109 b&w photos pls.; 73 line drawings. 28.4 × 18.9 cm. Also, Charles Scribner's Sons, New York.
≈ *Chinese Jade Throughout the Ages. A Review of Its Characteristics, Decoration, Folklore, and Symbolism.* Called 2nd edn. Charles E. Tuttle Company, Vermont & Tokyo, Japan, 1962. New edn pref precedes original, the latter retitled; else text same. 26.7 × 18.8 cm.
≈ *Chinese Jade Carvings of the XVIth to the XIXth Century. In The Collection of Mrs. George Vetlesen.* 3 vols. Produced for private circulation only. Batsford, London, 1939–40. Collection now in U.S. National Natural History Museum, Washington, D.C.
≈ *A Catalogue of Rare Chinese Jade Carvings,* The House of Jade, Palm Beach, Florida. 1940. 185 [3 blank] pp. Limited edn. (p.VIII), but quantity unstated.
≈ *An Introductory Lecture on the Symbolic Importance of Chinese Jade.* St Augustine: Record Co., 1941. 20 pp.; 27.3 × 19 cm. Symbolism, how symbols, motifs etc, obtained from Chinese folklore, religion, etc. A table of dynasties included.
≈ *An Analytical Lecture Surveying the Geographical Locations of Chinese Jade.* St Augustine: Record Co., 1941. 20 pp.; doublepage sketch map of China with localities of sacred mountains, jade mines, cities etc. Provenances of jade used by Chinese carvers but only the nephrite from Asiatic sources; some details on deposits, methods of mining, trade routes.
≈ *An Expository Historical Résumé Identifying One Hundred and One Famous Chinese Jades.* St Augustine: Record Co., 1941. 25 pp.; 5 tip-in photo pls., one is front; 21 figs. on both sides of a single f not includ in pag. Cultural significance of jade and carvings during several dynasties as deduced from the objects shown on the plates.
≈ *An Illustrated Annotation on the Working and Dating of Chinese Jades . . .* Recording a Lecture Presented at the University of Florida, The Fall Session, October 20th, 1941. St Augustine: Record Co., 1941. 50 pp.
≈ *Chinese Jades in The Stanley Charles Nott Collection.* The Norton Gallery and School of Art, West Palm Beach, Florida, 1942. 536 [2 blank] pp.
≈ *Chinese Art of World Renown; Being a Commemorative Survey of Priceless Chinese Art Displayed at 'Jadeholm'.* St Augustine: The Record Press, 1944.
≈ *Catalogue . . . Chinese Ceremonial Jade Carvings . . . Presented to the Norton Gallery of Art, West Palm Beach, Florida, 1941 to 1945, by Mr and Mrs Ralph H. Norton.* Norton Gallery of Art, West Palm Beach, 1945, 24 pp.
≈ *Chinese Culture in the Arts.* Chinese Culture Study Group of America, New York, 1946. 134 pp.
Voices from the Flowery Kingdom. The Chinese Culture Study Group of America, New York, 1947. 278 pp. 28 × 20 cm. 24 pls., 105 photos, 80 line drawings. A work on the symbolism of Chinese jade.
≈ *A Natural-Colour Photographic Record.* New York 1948. 16 pp. Identifies some of the world's most valuable and famous ritualistic Chinese jades.
≈ Exhibition of Chinese Jades, *Transactions,* Vol 40, London, 1973–75. Exh. Cat. Victoria & Albert Museum, pp. 164 + pls. of entire collection. 29 cm.

≈ **ORIENTAL CERAMIC SOCIETY.** *Exhibition of Chinese Jades,* 1948. 17 [1] pp.; 24 photos on 6 f. 27.8 × 21 cm.
≈ **ORIENTAL CERAMIC SOCIETY HONG KONG.** *Bulletin* No. 6, 1982–84. Articles by Morgan and by Forsyth. 29.5 cm.

≈ **PACIFIC ASIA MUSEUM.** *Chinese Jade – The Image from Within.* Exh. Cat., Pasadena, 1986. Catalogued by S.H. Foster. pp. 98 inc pls. 24 cm.
≈ **PAGES OF HISTORY.** *Jade in California.* Box Six, Sausalito, California, 1960. 34 pp.; 27 text sketches. 22.8 × 15.2 cm. Topics: lore of jade, mineralogy, California localities and prospecting advice. Accurate, good bibliography. New edition, 1965.
≈ **PALACE MUSEUM, PEOPLES REPUBLIC OF CHINA.** *The Selected Handicrafts from the Collection of the Palace Museum.* The Palace Museum Wen Wu Press, Peking, 1974. [112]pp but initial & final f pasted to covers, thus making the book itself of 58 f, or 116 pp.; 100 col photos. 25.9 × 23.5 cm. Excellent photographs of 100 objects that include about 35 jades and other carvings in lapis lazuli, quartz varieties, pyrophyllite, marble, amber, ivory, glass and rhinoceros horn. One of the jades is an enormous mountain-carving whose dimensions are given as 224 cm. tall and 90 cm. wide.
≈ **PALM SPRINGS DESERT MUSEUM.** *Chinese Jade Culture.* Exh. Cat., Palm Springs, 1990, pp. 155 inc. pls. 29.5 cm.
≈ **PALMER, JOCK PEGLER.** *Jade.* Spring Books, London, 1967. 44 pp.; 54 col photos on 24 glossy f bound-in at end; b&w front illus. of Chinese jade carver at work; 9 figs. 26.7 × 23.7 cm.
≈ **PARKE-BERNET GALLERIES.** *Sale Number 1027 . . . Chinese Jade Carvings. Snuff Bottles – Early Bronzes. Japanese Ivory Carvings. Lacquer Inro – Sword Guards. Property of Estate of the Late Dr Morton S. Hahn, New York . . . Public Auction Sale, January 11 and 12 at 2 p.m.* Parke-Bernet Galleries, New York, 1949.
≈ *Bensabott Collection: An Extensive Collection of Fei-ts'ui Jade & Other Semi-precious Jewelry, Chinese Jade, Rock Crystal & Other Statuettes & Figurines, Ivories & Netsuke . . . Belonging to R. Bensabott.* Parke-Bernet Galleries, New York, 1955.
≈ *Rare Chinese Jade, Coral & Other Semi-Precious Mineral Carvings. Water Buffalo. Pair of Covered Vases. Incense Burner. Statuettes of Kuan Yin. Property of the Estate of the Late Helen M. De Kay, New York, Greenwich, Connecticut. Sold by Order of the Executors. Public Auction, Thursday, December 8 at 1.45 p.m.* Parke-Bernet Galleries (affiliated with Sotheby & Co., London), New York, 1966.
≈ **PEARCE, G. L.** *The Story of New Zealand Jade, Commonly Known as Greenstone.* With drawings by Harry Dansey. Collins, Auckland and London, 109, [3 blank]pp.; 19 col photos on 4 bound-in glossy f; 3 sketch maps; 17 figs.; 7 headpc sketches. 20.9 × 14.2 cm. 2nd edn, 1978. 19 × 12.7 cm.
≈ **PELLIOT, PAUL.** *Jades Archaïques de Chine appartenant à M. C. T. Loo.* Publiés par M. Paul Pelliot, Membre de L'Institut, Paris et Bruxelles Librairie Nationale d'Art et d'Histoire. G. Van Oest, Editeur. 1925. 128 pp. 46 tip-in heliograv pls. in dk sepia, each with many objects and preceded by f bearing pls.; no recto, explan verso. 34.8 × 26.8 cm. Highly esteemed detailed description of jades in C. T. Loo's collection.
≈ **PENDERGAST, DAVID M.** *Altun Ha – A Guidebook,* Govt. of Belize, 1969, pp. 48. 19.5 cm.
≈ **PETAR, ALICE V.** 'Jade', *U.S. Bureau of Mines, Washington D.C., 6844 Information Circular. I.C.* 6844, Jan. 1936, tf + 16 pp.
≈ **PINDER-WILSON, A. & WATSON, W.** *British Museum Quarterly,* Vol. XXIII, No. 1, London, 1960. 26 cm. Jade articles.
≈ **PIRAZZOLI-T'SERSTEVENS, MICHELE.** Chinese Jade from the Collection of Louis XIV, *Arts Asiatiques,* Vol. XXV, Paris, Summer 1972. 22 cm.
≈ **POOR, ROBERT J.** *Jade as Sculpture.* Saint Paul, Minnesota, 1975. 21.5 × 21.5 cm. 80 pp. 6 col pls. tip-in; numerous illus.; 2 line drawings. Catalogue of 110 exhibits, all illustrated, at the Minnesota Museum of Art, Rare Art Inc. and Indianapolis Museum of Art, 1975.
≈ **POPE-HENNESSY, DAME UNA CONSTANCE.** *Early Chinese Jades.* Ernest Benn, London, 1923. 148 [1], [1 blank]pp. + pls. sect; 64 pls. on glossy f; 8 pls. col; 13 text figs. 28 × 22 cm. Also Frederick A. Stokes Company, New York, 1923.
≈ 'Jades'. In Leigh Ashton's *Chinese Art,* London, 1935, pp. 86–102, pls. XX-XXIII.
≈ *A Jade Miscellany.* Nicholson & Watson, London, 1946. [blank f] + 60 pp. + [blank f]; front tip-in glossy photo pl opposite to p. [4].
≈ **PRIEST, ALAN.** The Bishop Collection, *Bulletin of the Metropolitan Museum of Art,* New York, 1937.
≈ **PROSKOURIAKOFF, TATIANA.** 'Jades from the Cenote of Sacrifice, Chichen Itza, Yucatan'. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Massachusetts, 1974.

≈ **R., D.S.** *Discours touchant les merveilleux effects de la pierre néphritique.* Orléans, 1684; also other edns in same place, 1689 and 1713. 81 pp.
≈ *Ancient China – Art and Archaeology* British Museum Publications, London, 1980, pp. 240 inc. pls. 24 cm.
≈ **RAWSON, JESSICA.** 'The surface decoration on jades of the Chou and Han dynasties', *Oriental Art,* London, 21, 1, 1975, pp. 36–55.
≈ **RAWSON, JESSICA & AYERS, JOHN.** *Chinese Jade throughout the Ages. An Exhibition Organised by The Arts Council of Great Britain and the Oriental Ceramic Society. 1st May – 22nd June 1975. Victoria and Albert Museum.* Oriental Ceramic Society, London, 1975. 152 pp.; 9 col, 151 b&w photos; sketch map inside back cover.
≈ **READ, B.E. & PAK, C.** Minerals and Stones, *Bulletin of the Peking Society of Natural History,* Vol. III, Part 2, Peking, 1928, pp. 120. 25.5 cm.
≈ *Recent Discoveries in Chinese Archaeology,* Foreign Languages Press, Beijing, 1984, pp. 107, 12 pls. 28 articles. 26 cm.
≈ **RÉMUSAT, JEAN-PIERRE-ABEL.** *Histoire de la Ville de Khotan, Tirée des Annales de la Chine et Traduite du Chinois; Suivie de Recherches sur la substance minérale appelée par les Chinois Pierre de Iu, et sur le Jaspe des anciens.* De L'Imprimerie de Doublet, Paris, 1820. [3], [1 blank], XVI, 239 [1]pp. 17.3 × 10.8 cm.
≈ Eng. trans. in part. *'A Research Study on the Mineral Substance which the Chinese Call 'Yü' Stone, and on the Jasper of Antiquity.'* Bull Friends of Jade, Wallington, Surrey, England: Friends of Jade, Robert L. Frey, Edit. Vol. 1, no. 1, Fall 1980, pp. 1–50.
≈ **RIENAKER, VICTOR GEORGE ROBERT.** *Chinese Art (Tenth Article)* – 'Jade', I, *Apollo,* 41, 1945, pp. 42–54; II, 64–7; III, 109–12; IV, 145–7; V, 42, 1945, 157–9.
≈ **RIMANN, EBERHARD.** 'Nephrit und Asbest von Paakila, Finnland', *Zentralbl Min Geol Pal,* Jg 1936, Abt

A, Nr 11, pp. 321–7 & Nr 12, pp. 353–68, fig. Also issued sep. The antho-phyllite-asbestos deposit of Paakila, Finland.

≈ **ROBLEY, HORATIO GORDON.** *Pounamu. Notes on New Zealand Greenstone.* Guilford & Co., London, 1915. viii, 83 [1 blank] pp.; 52 sketches. 24.3 × 18.2 cm.

≈ **ROSENZWEIG, D.L. & A.** Jadeite and Nephrite, *Journal of the International Chinese Snuff Bottle Assn.*, Vol. XVIII, No. 2, Summer 1986. 28 cm.

≈ **ROSTOVTZEFF, M.** *The Animal Style in South Russia and China,* Princeton Monographs in Arts & Archaeology, Vol. XIV, PU Press, pp. 112, 34 pls.

≈ **RUFF, ELSIE (MRS GORDON GLENNIE).** *Jade of the Maori.* Gemmological Association of Great Britain, London, 1950. [6], 89 [1 blank] pp.; tinted front pl. tip-in; 14 figs. (1 map) on 7 tip-in glossy f. 21.6 × 14 cm. Paperback reprint, 1960.

≈ 1954–1964, numerous serialized articles on jade as follows: 'Jade story – European', *J Gemm,* 4, 8, 1954, pp. 336–47, illus.; 5, 1, 1955, 6–16; 3, 141–52; 5 (Jan. 1956), 274–91; 8, 402–21; 6, 5 (Jan. 1958), 226–44. 'Jade story – American', *ibid.*, 7, 1, 1959, 18–31; 4, 141–60; 6 (April 1960), 236–46. 'Jade of the East'. *The Gemm,* 29, 344, 1960, 41–7, illus., to 30, 361, 151–4, or 13 articles altogether. 'The Jade Story', *Lap J,* 14, 4, 1960, 296–309, *passim,* illus. thence to 17, 10, 1964, 1042–51; comprising 27 parts altogether.

≈ **SAKIKAWA, NORIYUKI.** *Jade.* Japan Publications, Inc., Tokyo, 1968. 61pp. + map of 2 pp.; 14 col photos, 20 b&w photos; 1 diagram. 18.4 × 12.8 cm.

≈ **SALMONY, ALFRED.** *Carved Jade of Ancient China.* Printed at the Gillick Press, Berkeley, California, 1938. [4 blank], [8], 85 [1 blank], [83], [5 blank] pp.; 72 photos on 38 tip-in glossy f. 31.8 × 24 cm. Reprint by Han-Shan Tang, London, 1982, [8], 85, [1 blank], [162] pp.; 72 photos as before but on the same paper as text. 31.7 × 24 cm.

≈ *3000 Years of Chinese Jade. Arden Gallery, January 10th through February 11th, 1939.* New York, 1939. 110 pp. (first f blank) + blank f; 62 photos on 20 glossy f. 23.7 × 16.7 cm.

≈ *1941. Far Eastern Jades. Charles M. Pratt Collection,* Vassar College Art Gallery. Poughkeepsie, New York, 1941. 62pp. + [18]pp. (pl. tp & pls.); front photo + 16 photos (called 'pls.' I-XVI). 21.6 × 15.3 cm.

≈ *Archaic Chinese Jades from the Edward and Louise B. Sonnenschein Collection.* The Art Institute of Chicago, 1952.

≈ *Chinese Jade through the Wei Dynasty.* The Ronald Press Company, New York, 1963. blank f + v, 287 [1 blank] pp.; 46 text photo pls., printed one side only & included in pag (up to 8 objects per pl.). 26 × 18.2 cm.

≈ A Problem in the Iconography of Three Early Bird Vessels, *Archives of the Chinese Art Society of America,* Vol. I, 1945–46. 30.5 cm.

≈ Collecting Ancient Chinese Jades, A Popular Hobby in China and Here, *Hobbies,* Dec. 1944, Buffalo Museum of Science. 23 cm.

≈ The Identification of an Ancient Jade, *Journal of the Indian Society for Oriental Arts,* Vol. XV, Calcutta, 1947.

≈ **SAVAGE, GEORGE.** *Chinese Jade: A Concise Introduction.* Cory, Adams & Mackay ('Collectors Guidebooks'), London, 1964. 72, [2]pp.; 32 photos on 16 glossy f bound-in after text; 4 col photos on 4 bound-in glossy f, one serving as front; 13 text figs. 20.4 × 13.7 cm. Reprint October House, New York, *c.* 1964. 72 pp. 32 pls., part col. 21 cm.

≈ **SCHAFER, EDWARD H.** *Tu Wan's Stone Catalogue of Cloudy Forest. A Commentary and Synopsis.* University of California Press, Berkeley and Los Angeles, 1961.

≈ **SCHEDEL, JOSEPH J.** *The Splendor of Jade. Four Thousand Years of the Art of Chinese Jade Carving.* Dutton & Co., New York, 1974. 221 [3 blank] pp.; 97 col photos; 2 figs. 30.5 × 22.3 cm.

≈ **SCHLAGINTWEIT-SAKÜNLÜNSKI, HERMANN RUDOLPH ALFRED VON.** 'Ueber Nephrit nebst Jadeit und Saussurit im Künlün-Gebirge.' *Sitzungsberichte der mathematisch-physikalischen Classe der k.k. Akademie der Wissenschaften* 1873. München Akademische Buchdruckerei von F. Straub, 1873. pp. 227–67.

≈ **SCHNEEBERGER, PIERRE.** *The Baur Collection – Jades,* Geneva, 1972, pp. *c*200, inc. pls. 29 cm.

≈ *Selection of Handworked Pieces in the Imperial Palace Museum,* Beijing, Cultural Relics Publishing House, 1974, pp. text 3, 70 pls. 26.5 cm.

≈ *Seven Thousand Years of Chinese Civilization,* Exh. Cat., Venice, 1983, pp. 213 inc. pls. 25 cm.

≈ **SCHOETENSACK, OTTO.** 'Die Nephritoide des Mineralogischen und des Ethnographisch-Prahistorischen Museums der Universität Freiburg im Breisgau.' *Inaugural-Dissertation zur Erlangung der Philosophischen Doctorwürde Vorgelegt der Hohen Philosophischen Facultät der Universität Freiburg im Breisgau.* Druck von Gebr. Unger (Th.Grimm), Berlin, 1885. [4], 33 [1 blank], [1], [1 blank] pp. 24 × 14.8 cm. Published simultaneously in the *Zs f Ethnologie,* 1885, pp. 157–89. Descriptions and remarks on numerous specimens of nephrite and nephrite-like rocks and objects preserved in the mineralogical and ethno-graphic-prehistoric museums of Freiburg University.

≈ 'Nephritoid-Beile des Britischen Museums', *Zs f Ethnologie,* Berlin, 1887, pp. 119–48, 54 illus.

≈ **SCHOON, THEO.** *Jade Country.* Jade Arts, Sydney, New South Wales, 1973. 143 pp. (first f blank); col front photo of author; col map; 107 col photos; 20 col drawings. 24 × 18.2 cm.

≈ **SCHREITER, R.** 'Nephrit von Ebendorf in der Bayerischen Oberpfalz', *Sitzungsber u Abhandl naturwiss Ges 'Isis' in Dresden,* 191, pp. 44–7, 76–88.

≈ **SCOTT, D. C., WILDY, R. I. & HARRIS, R. J.** 'Nephrite jade deposits near Cowell', *S Austral Dept Mines & Energy Rpt* 2, 1978, 30 pp, 3 maps.

≈ **SEATTLE ART MUSEUM.** *Chinese Snuff Bottles in the Seattle Art Museum.* Seattle Art Museum, Seattle 1970. [7], 64 pp.; illus.; col pls., 18 cm.

≈ *Chinese Jades in the Seattle Art Museum.* Seattle Art Museum, Seattle, 1972. Unpaged: [74] pp. illus., 2 col pls. 'Most of the items are from the Eugene Fuller Memorial Collection.'

≈ **SHREVE, RANDOLPH NORRIS.** 'Jade, a symbol of an ancient civilization', *Chinese Culture Quarterly,* 1, 1958.

≈ **SKELTON, ROBERT.** *The Shan Jahan Cup,* Victoria & Albert Museum Publication, London, 1966, 10 pp.

≈ **SKINNER, H. D. & SIMMONS, D. R.** *The Maori heitiki.* First published 1940, reprinted 1942, 1946. Second edition. Otago Museum, Dunedin, 1966. 30 [2 blank] pp.; 40 figs. (46 photos). 23.7 × 17.6 cm.

≈ **SMITH, W. CAMPBELL.** 'Jade axes from sites in the British Isles', *Proc Prehistoric Soc,* Cambridge, 29, 1963, pp. 133–72, 3 figs., 9 pls. 'Descriptions and chemical analyses of nephrite and jadeite axes . . . a total of 69 were examined although many less were analyzed . . . only two proved to be nephrite.'

≈ **SOTHEBY AND CO.** *Catalogue of Chinese Hardstone Carvings, Cloisonné Enamels and Other Works of Art, Export Porcelain, Which Will Be Sold by Auction by Messrs. Sotheby & Co. Day of Sale: Tuesday, 12th November 1974.* Illustrated catalogue (60 plates, 2 in colour).

≈ *The Kitson Collections, Catalogues of important Chinese jade, cloisonné, amber & lacquer & Chinese ceramics.* 40 + 36 + 36 pp. 88 pl. (3 col). 23.6 × 17.7 cm.

≈ *Catalogue of Fine Chinese Jades, Snuffbottles, Works of Art and Ceramics, Which Will Be Sold by Auction by Messrs. Sotheby & Co.* Photo front pl. + 74 [2] pp.; 32 other photos on 20 pls. 24.5 × 15.7 cm. Snuffbottles: lots 183–233; jades and hardstone carvings: lots 279–361; many jades are fine, large, important.

≈ **SOTHEBY'S HONG KONG.** *Fine Chinese Jade Carvings and Jade Jewellery.* 19th November 1985 at 3 pm precisely at The Furama Hotel, Hong Kong. Sotheby's Hong Kong, 1985. [88] pp.; 66 col & 31 b&w photos. 27 × 20.8 cm. One of the most remarkable, finely photographed catalogues that I have seen.

≈ **SOTHEBY PARKE BERNET (HONG KONG).** *Catalogue of Fine Jade Carvings. Also Works of Art, including Two Early Chinese Rugs, Which Will Be Sold by Auction by Sotheby Parke Bernet (Hong Kong) Ltd.* 54 [2] pp.; 8 col photos on 6 pls.; 34 b&w photos. 24.4 × 17.9 cm. Large, fine jade carvings, including an unusual white jade vase ornamented with appliques of coloured stones: also statuettes; only a few lots are not hardstone pieces.

≈ **SOTHEBY PARKE BERNET INC.** *Chinese Jade and Other Semi-Precious Mineral Carvings.* Sotheby Parke Bernet Inc., New York, 1973. Sale Number 3461. [4], 15 [1] pp.; 18 b&w photos. 23.5 × 22.2 cm. Vessels, carvings and screens, large in size and high in quality.

≈ *Fine Chinese Jades and Works of Art.* Sale Number 4346. Sotheby Parke Bernet Inc., New York, 1980. [112]pp.; 227 photos (8 col). 23.5 × 22.2 cm. Of the 388 lots, nos. 187–388 are hardstone carvings made from soapstone, malachite, serpentine, several chalcedonic varieties of quartz, many examples of rose quartz and rock crystals, but mostly carvings in nephrite and a lesser number in jadeite.

≈ *Fine Chinese Jades, Works of Art and Snuff Bottles.* Sale Number 4551Y. Sotheby Parke Bernet Inc., New York, 1981. [114]pp.; 161 b&w and 5 col photos. 23.5 × 22.2 cm. Lots 1–240 snuff bottles in all materials and types, many in hardstones; 316–29 are rhinoceros horn; 337–544 are jades of many types including examples of Moghal work and other embellished jades, large and small.

≈ **SPINK & SONS.** *A selection of Chinese carvings in jade on view at Spink and Sons Galleries,* London, SW1. 27 [1] pp., illus., 21 cm.

≈ *A Selection of Fine Works of Art on View at Spink & Sons Galleries,* London, 1927. 96 pp.; front col pl., cut-out & mounted on pale brown paper, tip-in; 182 photos. 29 × 20.2 cm. The first group of photos includes illustrations of 32 jade and hardstone carvings, all of high quality, with dimensions, period and price. Many are important pieces and some have reappeared in later books on jade.

≈ *A Selection of Chinese Carvings on View at Spink & Sons Galleries.* London, 1941. [2], 48 [2]pp.; 100 sepia-tone photos. 20.4 × 16.5 cm. A handsome catalogue, beautifully illustrated, showing examples of lacquer, wood, amber, soapstone, jade, ivory, horn, various hard-stones, glass and rock sculptures and carvings. Each article is identified, dimensioned and dynasty assigned; prices in pounds sterling.

≈ *An exhibition of Fine Jade.* London, 1981, 28 pp.

≈ **SQUIER, EPHRAIM GEORGE.** *Observations on the Chalchihuitl of Mexico and Central America.* Extract from *The Annals of The Lyceum of Natural History of New York.* New York, 1869. (Orig publ in the *Annals,* 1869, pp. 246–65, 19 figs.) [1], [1 blank], 22 [2 blank] pp.; 19 wood engrav. 22.1 × 14.2 cm. An important early paper on the jades and jade-like green stones employed in ornaments and small carvings by the Indians of Mexico and Central America.

≈ **STIRLING, MATTHEW W.** 'Expedition unearths buried masterpieces of carved jade', *Nat Geogr,* 80, 3, Sept. 1941, pp. 277–302, 14 photos, map, 11 col pls. Includes a number of jadeite carved objects uncovered in a site near Cerro de las Mesas, south of Veracruz, Veracruz State, Mexico.

≈ **STIRLING, MATTHEW W. & STIRLING, MARION.** 'Finding jewels of jade in a Mexican swamp', *ibid.*, 81, 11, Nov. 1942, pp. 635–61, 15 photos, map, 12 col photos. Investigation of two tombs near La Venta,

Veracruz State, yields jadeite objects among other artefacts.

≈ **STONEY, GEORGE M.** *'Explorations in Alaska', US Naval Inst Proc.,* Annapolis, Maryland, 25, whole no. 92, 1899, pp. 799–849; concluded in whole no. 91, 533–84. This is the famous report on Stoney's finding of nephrite jade deposits along the Kobuk River.

≈ **STRONG, HILDA ARTHUR.** *A Sketch of Chinese Arts and Crafts.* Peiping, 1926. Rev. edn. 1933. [10], [2 blank], 329 [3 blank] pp.; tip-in photo front pl. + 9 others tip-in; 17 figs. 16.8 × 11.5 cm.

≈ **SULLIVAN, MICHAEL.** *The Barlow Collection of Chinese Ceramics, Bronzes and Jades,* london, 1963, pp. 173 + pls. 28 cm.

≈ **T'ANG JUNG-TSO** (styled Hsi-Wu). 'Yü-Shuo: A Discourse on Jade with Researches on the History of Jade'. Translated by Stephen W. Bushell in Bishop, R. H., *The Bishop Collection, Investigations and Studies in Jade,* pp. 321–70.

≈ **TAN, LI-PING ET AL.** 'A mineralogical study of the Feng-tien nephrite deposits of Hualien, Taiwan'. *Republ China, Nat Sci Council Spec Publ 1,* 1978, 81 pp.; 22 tab, 56 ref.

≈ **TANNER, P. D.** *Chinese Jade Ancient and Modern. Descriptive Catalogue, Illustrating the Most Prominent Pieces of a Collection of Jade Articles, with Special Reference to Sepulchral Jades.* In two volumes. Dietrich Reimer/Ernst Vohsen/Berlin 1925.

≈ **TAYLOR, I. GRANT.** *Chinese Jade.* Grants, London, 1930(?). 48, [8]pp.; 3 actual photo prints of jade objects tipped-in. 14.9 × 14.5 cm.

≈ **TERRIEN DE LACOUPERIE, A.** *Western Origin of the Early Chinese Civilization,* London, 1894, pp. 418. 26 cm.

≈ **TIANJIN CITY ART GALLERY.** *Collection of Chinese Art – Jade.* PRC, 1984, pp. 242 inc. pls. 40 cm.

≈ **TIFFANY & CO.** *Catalogue of The Tiffany & Company Collection of Jade and Rock Crystal.* Tiffany & Company, New York, 1899. 87 [1] pp. 19 × 12.5 cm.

≈ **TILL, BARRY & SWART, PAULA.** Mountain Retreats in Jade, *Arts of Asia,* July–August 1986. 30 cm.

≈ *Treasures from the Imperial Palace Museum (Jade-Ceramics-Books),* National Palace Museum, Taipei, 1985, pp. 20 inc pls. 15 cm.

≈ **TORBERT, PRESTON M.** *The Ch'ing Imperial Household Department Imperial Workshops,* Harv. Univ. Press, 1977, pp. 267. 23.5 cm.

≈ **TRAUBE, HERMAN.** 'Ueber den Nephrit von Jordansmühl in Schlesien', *N Jb Min,* B-Bd 3, H 2, 1884, pp. 412–27; also separate. First full mineralogical description of the nephrite occurrence near Jordanova, Dolny Slask, Poland, formerly German Silesia.

≈ **TROUSDALE, WILLIAM.** 'The long sword and scabbard slide in Asia', *Smithsonian Contributions to Anthropology,* No. 17, Smithsonian Institution Press, Washington, D.C., 1975. [1], [1 blank], 332 pp.

≈ **TRÜBNER, JÖRG.** *Yu und Kuang.* Klinkhardt und Biermann, Leipzig, 1929, 32 pp. 69 pls.

≈ **TSIANG, KATHERINE R.** *Radiance and Virtue – The R. Norris Shreve Collection of Chinese Jade and Other Oriental Works of Art.* Indianapolis, 1983. 88 pp., 40 pls., 52 ill, 28 × 21 cm. From Han-Shan Tang, London, List 28, 1985, no. 97, 'mostly Qing jades, some in archaistic style'.

≈ **TURNER, FRANCIS JOHN.** 'Geological investigation of the nephrites, serpentines, and related "greenstones" used by the Maoris of Otago and South Canterbury', *Trans Roy Soc NZ,* 65, 1935, pp. 187–210. Also separate. Detailed description of the New Zealand rocks in and related to the deposits of nephrite and serpentine; relative varietal abundances; possible sources; list of specimens examined.

≈ **UHLIG, J.** 'Nephrit aus dem Harz', *N Jb Min,* Jg 1910, Bd 2, 1910, pp. 80–103, fig. Also issued separately. Minor occurrence of nephrite in Radautal, near Harzburg, Harz Mts, Germany.

≈ 'Der Nephrit von Harzburg', *Ibid.,* 1914, B-Bd 39 (Festbd Bauer), pp. 450–81. Also separate.

≈ **UMEHARA, SUEJI.** *Shina Kogyoku Zuroku: Selected Specimens of Chinese Archaic Jade.* Kyoto Daigaku Bunkabu Kokogaku Shiryo 4, Kyoto, 1955. 5 [Eng], 13 pp, 110 pls. (3 col). 31 × 25 cm. From Han-Shan Tang, London, List 28, 1985, no. 98: 'author illustrates what he considers to be genuine archaic jades, contrary to doubtful specimens published by Laufer and Salmony, or as seen by him. Included are 373 objects, many from Japanese private and museum collections.'

≈ *Kyoto University Archaeological Collection,* Kyoto, 1951, pp. 12 text, 61 pls. 25.5 cm.

≈ *Tomb of Lady Hao at Yinxin in Anyhang,* Beijing, 1980, Cultural Relics Publishing House, pp. 288, 138 pls. 26.5 cm.

≈ **UNION OF SOVIET SOCIALIST REPUBLICS.** 'Noveyshie svedeniya o mestorozhdenii nefrita v Vostochnoy Sibiri', *Zhurnal Ministerstva Vnutr Del,* 37, 2, 1852, pp. 170–86.

≈ **UNIVERSITY MUSEUM, UNIVERSITY OF PENNSYLVANIA.** *Archaic Chinese Jades. Special Exhibition, February 1940.* The University Museum, Philadelphia. [2 blank], 58 [4 blank] pp.; front photo; 16 text photos called 'plates'. 26.6 × 19.5 cm.

≈ **VALENTINI, PHILIPP JOHN JOSEPH.** 'Two Mexican Chalchihuites, The Humboldt Celt, and The Leyden Plate', *Proceedings of the American Antiquarian Society,* April 27, 1881. Press of Chas. Hamilton, Worcester, Massachusetts, 1881. 24 pp.; title wood engrav. + 7 others. 24.8 × 15.2 cm. As urged by Dr Heinrich Fischer, who presented him with two facsimile plaster casts of the objects, Valentini describes two shallowly incised jadeites of Meso-American workmanship, first giving an extensive summary.

≈ **VON SCHAHIDULLACHODJA IM KÜENLÜN-GEBIRGE, NEPHRIT.** *Zs f. Ethnologie,* 24, 1892, pp. 19–33. Describes nephrites from K'un Lun mountains; gives details on structure and mineralogy as found in thin-sections and with chemical analyses.

≈ **WALKER ART CENTER, MINNEAPOLIS, MINNESOTA.** *Descriptive Catalogue of Carved Jades, Crystal, Blue, Aquamarine, Pink, Rose . . .* Minneapolis, 19?. 87 pp., illus.

≈ *Jades of the T. B. Walker Collection at the Walker Art Center, Minneapolis, Minnesota.* 194-?. 92 pp., 35 pls., dynasty chart, 28 × 22 cm.

≈ **WALTHER COLLECTION.** *Collection Walther. Pierres Dures de la China Jades – Cristaux de Roche – Agates, Turquoise – Améthyste etc. des Dynasties Ming et Tsing. Céramique de la Chine . . . dont la Vente Aura Lieu à l'Hôtel Drouot . . . Les Lundi 31 Mars, Mardi 1er et Mercredi 2 Avril 1924.* Paris, 1924. [4 blank], 34 [1], [5 blank] pp.; 8 photo pls. bound-in. 32.1 × 22.6 cm.

≈ **WANG TA-LUNG** or **WANG DALONG.** *T'ao chai kü yu t'u . . . Descriptive catalogue of jades in the Tuan-fang collection.* Also given in Han-Shan Tang, London, List 28, 1985, no. 99 as 'Taozhai Guyu Tu [Illustrations of jades in Taoshai collection]'. Shanghai, 1936, 2 vols., 294 pp., many woodblock illus. 33 × 22 cm.

≈ **WARD, FRED.** 'Jade Stone of Heaven', *Nat Geogr,* 172, 3, Sept. 1987, pp. 282–315, *c.* 40 col photos & tinted diagrs.

≈ **WASHINGTON, HENRY STEPHENS.** 'The jades of Middle America', *Proc Nat Acad Sci* 8, 11, 1922, pp. 319–26; also sep in *Papers, Geophys Lab, Carnegie Inst Wash* no. 473. Among the first authoritative thin-section and other studies of jadeite objects from the cenote of Chichen Itza, Yucatan, Mexico: colour, fracture, cleavage, polish, hardness, density, chemical composition, refractive indices and phase diagram.

≈ 'The jade of the Tuxtla statuette', *Proc US Nat Mus,* Washington, D.C., 60, art 14, 1922, pp. 1–12, Pls. 1–2; also issued sep in printed wrap. Mineralogy and properties etc. of a statuette found on the coast of the Gulf of Mexico, *c.* 100 miles SW of Veracruz, Mexico. Provides remarks on archaeological significance.

≈ **WATSON, WILLIAM & MISH, J.L.** *Chinese Jade Books in the Chester Beatty Library.* Described, and the Chinese texts translated by William Watson; the Manchu texts translated by Dr J.L. Mish. Hodges Figgis & Company Ltd., Dublin, 1963. 47 [1]pp.; tip-in col front pl. + 12 photos on 7 tip-in f. 24.2 × 18.3 cm. Each 'book', forming a chapter, consists of a series of jade tablets incised with Chinese characters which tell a story, poem or song.

≈ **WATT, JAMES C. Y.** *Chinese Jades from Han to Ch'ing.* The Asia Society in Association with John Weatherhill Inc. Asia House Gallery Publications New York, 1980. 235 [1]pp.; 11 col photos; 5 text figs.; 268 figs. in catalogue. 24.1 × 21.9 cm.

≈ **WEBSTER, K. ATHOL.** *The Armytage Collection of Maori Jade.* Photography by John Queenborough. Cable Press, London, 1948. 79, [1 blank]pp.; 35 fullp photos. 21.7 × 13.9 cm. The collection is reputed to be one of the finest private collections of carved Maori jades in existence; it contains specimens of bowenite as well as nephrite.

≈ **WELTER, OTTO A.** 'Ein Beitrag zur Geologie des Nephrits in den Alpen und im Frankenwalde', *N Jb Min,* Jg 1911, Bd 2, 1911, pp. 86–106, 163; Pls 8 & 9. Also issued separately. Nephrite occurs near Salux, Val da Faller and other places in Switzerland, also in Frankenwalde, Germany.

≈ 'Bericht über neuere Nephritarbeiten', *Geol Rundschau.* Bd 2, H 2, 1911, pp. 75–87. Also issued separately. Lists 73 titles of recent literature on nephrite and the nephrite question, with comments; full paginations unfortunately not given. Compares views of various writers and investigators on the jade question.

≈ **WHITE, W. C.** *Tombs of Old Lo-Yang.* Shanghai, 1934. 177 pp. + 189 pls. S. H. Hansford, *Chinese Jade Carvings,* 1950, p. 138, states (p. 13): 'numerous carved jades are described and illustrated . . . [in this] important [work] . . . the jades were reported to have been dug, together with many other interesting objects, from a group of tombs containing inscribed bells of the Eastern Chou period, near the village of Chin-ts'un . . . Ho-nan.'

≈ **WHITLOCK, HERBERT PERCY.** *Jade and the Antique Use of Gems.* Reprinted from *Natural History* magazine for July–August and September–October 1932. Guide leaflet No. 79, The American Museum of Natural History, New York, 1934. 23 [1 blank] pp.; 39 photos. 25.5 × 17.5 cm.

≈ *Jade, Amber and Ivory.* Reprinted from *Natural History* magazine for September, 1934. Guide Leaflet Series, No. 84. The American Museum of Natural History, New York, 1934. 16 pp.; 26 photos.

≈ **WHITLOCK, HERBERT PERCY & EHRMANN, MARTIN L.** *The Story of Jade.* Sheridan House, New York, 1949. 222 [2 blank] pp.; 179 photos ('plates'), 10 figs., 6 tip-in col pls. 28 × 19.2 cm.

≈ **WILLETTS, WILLIAM.** *Chinese Art.* George Braziller, Inc., New York, 1958. Vol. 1: [2], 391 [3 blank] pp.; 57 photos on 16 bound-in f (not included in pag); figs. 1–62, maps 1–6, tabs 1–4. Vol. 2: pp. 393–802; 47 photos on 16 bound-in f (not included in pag); figs. 63–110, map 7, tabs 5–6 + fold map at end. 18 × 11.1 cm. 1958, Penguin Books edn, Harmondsworth, England.

≈ *Foundations of Chinese Art from Neolithic Pottery to Modern Architecture.* 322 illustrations in colour and black and white, 91 maps and line drawings. McGraw-Hill Book Company, New York, 1965. 456 pp.; 4 sketch maps, 4 tab; 87 text figs. (many in margins); 58 col photo on 20 glossy f bound-in; *c.* 255 b&w photos on 64 glossy bound-in. 26.8 × 21.8 cm.

≈ **WILLS, GEOFFREY.** *Jade.* Arco Publications, London, 1964. 121 [3 blank] pp.; 6 figs., 29 photos on 8 tip-in glossy f. 21.5 × 13.5 cm.

≈ *Jade, A Collector's Guide.* A. S. Barnes, South Brunswick, New York, 1964. 121 [7 blank] pp.; reprint of above. 20.9 × 14 cm.

≈ *Jade of the East.* Weatherhill/Orientations, New York, Tokyo, Hong Kong, 1972. 196 [2], [2 blank] pp.; 162 photos (*c.* 60 in col); 6 figs.; 3 sketch maps. 30.3 × 22.7 cm.

≈ **WILSON, CAROL GREEN.** *Gump's Treasure Trade. A Story of San Francisco.* Thomas Y. Crowell Company, New York, 1949. 288 [2 blank] pp.; glossy col front pl. tip-in portr of Gump; 7 other tip-in glossy pls. (6 col). 23.4 × 15.6 cm. 1965, reprinted with new epilogue & illustrations. 306 pp.; same col front pl. tip-in; 16 col & b&w photos on 12 bound-in & tip-in glossy f (pl. captions now upon photos).

≈ **WILSON, THOMAS.** 'Prehistoric art; or, the origin of art as manifested in the works of prehistoric man', *Rept US Nat Mus. Ann Rpt Bd of Regents of Smithson Inst* . . . June 30, 1896, 1898, pp. 325–664, tip-in front photo pl. + 74 tip-in photo pls.; 325 figs. In this large and important monograph, based on objects in the US National Museum, Washington, D.C., Wilson devotes much space to description and discussion of meanings or functions of many objects made from stones and minerals, some being gemstones. It is richly illustrated and annotated.

≈ 'Jade in America', *Congrès Internationale des Américanistes. 12 Session, Paris, 1900,* pp. 141–87, pls. 3–4 (pl 3 in col). Also separately: with additional numbering of pages [1–47]. 24.6 × 16.4 cm. One of the most valuable papers published in North America on jade and little known because of being embodied in a relatively obscure journal. Wilson commences with a review of all that was known of jade, its nomenclature, its sources etc., from the earliest mentions that he could find in the literature, citing such authors as Pliny, Agricola, Mandeville, Cesi, Aldrovandi and others, especially those who wrote of the jade of Mexico and the confusing terminology which was applied to green stones and therefore embracing nephrite, turquoise and even emerald. The use of jades in Mexico is especially treated, and the jade of the Pacific Northwest and Alaska.

≈ **WOBBER, DON.** *Jade beneath the Sea. A Diving Adventure.* Boxwood Press, Pacific Grove, California, 1975. 136pp.; front sketch map; 21 photos; 1 drawing. 21.5 × 13.5 cm. Skin-diving in Jade Cove, Monterey County, California, in search of boulders of nephrite.

≈ **WONG COLLECTION.** *The Wong Collection of Ancient Chinese Jades.* Bluett & Sons, London, nd, *c.* 1930. 35 [3 blank] pp.; tip-in front glossy col pl. with tissue; 21 photos on 16 tip-in and bound-in f. 24.9 × 18.3 cm.

≈ **WON-YONG, KIM.** *Recent Archaeological Discoveries in the Republic of Korea.* The Centre for East Asian Cultural Studies 1983. Published by the United Nations Educational, Scientific and Cultural Organization, Paris.

≈ **WOOD, JUSTIN.** A series of twelve descriptive, promotional booklets published in New York, probably at the expense of J. R. Wood, eminent jewellers at the time. The copyrights, dated either 1923 or 1924, are 'By Justin Wood', without further information. All are uniform as follows. 15.3 × 11.2 cm. Cut-out glossy col pl. of carved or cut gems loose or in mountings, 4.3 × 4.5 cm. pasted within a black frame on cover, with title of gemstone(s) below. Text paper size 14.6 × 10.7 cm. Includes a booklet treating amethyst and jade together.

≈ **WONG, K.C.** *Ancient Jades; Marvels of Chinese Civilization with Explanatory Notes and Illustrations.* 40 pp. 20 pl. Excerpted from 'Literature and Art', *c.* 1890.

≈ Ancient Jades, *China Journal of Arts and Sciences,* Vol. VII, Shanghai, 1927, series of 5 articles, Aug.–Dec. 25 cm.

≈ **WRIGHT, DOUGLAS J. K.** *A Collection of Fine Jade from the 18th and 19th Centuries.* 1974. 20 × 21 cm. (42)pp., fp., 9 col pls., 40 illus., tab.

≈ **WU TA-CHENG,** or **TA-CH'ENG** (today: Dacheng). *Ku yü t'u k'ao,* or *Guyu tukao* [*Investigations into ancient jades with illustrations*]. Shanghai, 1889, 2 vols.; a later reprint in 4 vols.; 144 double pages, including many with illus. 32 × 22 cm. Reprinted 1971. According to Goette, which see, the author issued some years later his *Su Ku Yü K-ao* [*Investigations into old jades with illustrations*], 'meant to supplement the former'.

≈ **XIA NAI.** *Jade and Silk of Han China.* Franklin D. Murphy Lectures III. Lawrence, 1983. 88 pp., 1 col pl., 17 figs., 59 illus. 27 × 22 cm. Trans. ed. by Chu-tsing.

≈ **XIA NAI ET AL.** *Yinxu yuqi* [*The Jades from Yinxu*]. Kaoguxue Zhuankan 11: 20, Beijing, 1981. 50 pp.; 121 exhibits each ill in col. 26 × 19 cm. From Han-Shan Tang, London, List 28, 1985, no. 108, 'includes 18 pp. English abstract and plate captions . . . jades . . . mainly from the Fu Hao tomb and are most important in giving us a firm dating of Shang period jades'.

≈ **XU SHOUJI.** *Yupu leibian* [*Encyclopaedia of Jade*]. No place, 1889, 4 vols. 25 × 16 cm. From Han-Shan Tang, London, List 28, 1985, no. 109, 'brings together material on jades from all branches of Chinese literature. Almost everything written which relates to jade, and nearly all phrases containing the word 'yu' are to be found in this scarce work.'

≈ **YAMANAKA AND COMPANY.** *Illustrated catalogue of antique and modern Chinese and Japanese objects of art.* New York, 1905, jades, pp. 29–38, 1 pl.

≈ *Illustrated catalogue of the remarkable collection of ancient Chinese bronzes, beautiful old porcelains, amber and stone carvings . . . comprising the private collection of a Chinese nobleman . . . to be sold at the American Art Galleries.* Catalogue written by Mr Dana H. Carroll. American Art Association, New York, 1914. [191]pp., illus. pls., 27 cm.

≈ **YAMANAKA COLLECTION.** *The Yamanaka Collection of Chinese and Japanese Treasures of Rare Artistic Distinction.* First Afternoon's Sale, Monday, February 7, 1916, at the American Art Galleries, beginning 2.30 o'clock. New York. [76]pp., including pls.; 44 photos, 5 bound-in pls. 26.2 × 17.8 cm. Offers 136 pieces, mostly jade and hardstone carvings; snuff bottles, vessels of several types, figurines, mountains, pendants, censers, altar sets and trees, which judging from the illustrations were all of high quality.

≈ **YAMANAKA & CO. LTD.** *Exhibition of Ancient Chinese Jade, October 1923. Held at the Galleries of Yamanaka & Co. Ltd.* London, 1923. 29, [1]pp.; 8 tip-in pls., tissued. 22.1 × 14.5 cm. A brief essay introduces the catalogue of 66 numbers, of which 39 are shown upon the plates; descriptions short, with dimensions, probable dates. Fair to good photographs.

≈ **YAMANAKA LIQUIDATION SALE.** *Collection of Chinese and Other Far Eastern Art Assembled by Yamanaka & Company Inc. Now in Process of Liquidation under the Supervision of the Alien Property Custodian of the United States of America.* New York, 1943. [232]pp., last f blank; front tip-in col pl. & another col pl., counted in pag; 103 pp. of photo ill. 27.8 × 21.2 cm. Large, richly illustrated catalogue of many fine pieces that were put up for sale upon seizure of the company's assets by the federal government in World War II. There are a large number of jade carvings, ancient and modern, also carvings in hardstones and coral.

≈ **YANG, HANCHEN ET AL.** *Xinjiang's Gems and Jades,* Hong Kong, 1986, pp. 164 text, pls. *c*25.21 cm.

≈ **YANG, JIANFANG.** *Jade Carving in Chinese Archaeology.* Vol. 1, Hong Kong, 1985, *c.*320 pp., 90 pls., 19 × 27 cm. From Han-Shan Tang, London, List 28, 1986, 'contains many ills and an account of antique jade based on the archaeological finds of recent years'.

≈ *Bibliography of Ancient Chinse Jade,* Chinese University Press, Hong Kong, 1982, 26.5 cm. Both English and Chinese.

≈ **YANG XIAONENG.** *Sculpture of Prehistoric China,* Hong Kong, 1988, pp. 168 inc 129 pls. 26.5 cm.

≈ *Sculpture of Xia and Shang China,* Hong Kong, 1988, pp. 302 inc. 257 pls. 26.5 cm.

≈ **YEH PO-WEN (RITZ & CO.).** *The Jade Carving Art in the Ch'ing Dynasty,* National Museum of History, Taipei, 1990, pp. 185 inc. pls. 30 cm.

≈ Bulletin of the Friends of Jade, Vol. I, London, 1980, pp. 50. 29.5 cm. Principally a translation into English of the jade section of Abel-Rémusat's *Histoire de la Ville de Khotan.*

≈ Vol. II, pp. 71, London, 1981. 16 jade articles including Roger Keverne's review of jade auctions for the years 1980 and 1981.

≈ Vol. III, pp. 88, 7 pls., London, 1983. 19 jade articles including auction reviews for the years 1982 and 1983.

≈ Vol. IV, pp. 96, London, 1985. 15 jade articles including jade auction reviews for the years 1984 and 1985 and jade book reviews.

≈ Vol. V, pp. 92, London, 1988. 8 jade articles including the jade auction review for 1986 and jade book reviews.

≈ Vol. VI, pp. 92, 6 pls., London, 1989. 13 jade articles including the jade auction reviews for 1987 and 1988 and jade book reviews.

≈ **YING-HO.** *Hsi Yü Shui tao chi. (Description of the rivers of Chinese Turkestan.)* Five books. Published in 1823, according to S. W. Bushell, 'On Jade in China', 1900. This work gives an itinerary from Yarkand to the jade mines in the Mirtái Mountains of Turkestan and also describes stations along the way, the 'jade-fishing' camps, quarries and the jades obtained from both types of deposit.

≈ **YODER, H.S. & CHESTERMAN, C.W.** 'Jadeite of San Benito County, California', *State of California, Division of Mines Spec Rpt* 10–C, Sept. 1951. 8 pp., 6 figs. (3 sketch maps). 28 × 21.5 cm. Jadeite occurrences *in situ.*

≈ **ZARA, LOUIS.** *Collectors' Blue Books. Jade.* Walker and Company, New York, 1969. 82 [2] pp.; 55 figs. (photos) + 2 col pls. on tip-in glossy f and included in pag. 20.8 × 14.8 cm.

≈ **ZHANG, WENJI.** *Zhongguo yuqi shi* (*The History of Chinese Jade*). Hong Kong, 1978. 173 pp., 77 col pls., 27 × 19 cm.

≈ **ZHOU, JINGHAN (ED).** *Jade materials: The Mandate of Heaven* or *Yu Shi Tian Ming,* Taipei, 1989, pp. 325. 21 cm.

≈ **ZHU DERUN.** *Guyu tu* (*Illustrations of old jade*). No place, 1752, 2 chs, many woodblock illus. 29 × 19 cm. From Han-Shan Tang, London, List 28, 1985, no. 113, 'originally published in 1341, this book was re-edited for the Qianlong emperor and published in 1752. It illustrates a variety of archaic jades with brief comments.'

NOTES TO CHAPTERS

JADE: A SPECIAL GEMSTONE (pp. 18–41)

[1] R. Gump (1962) *Jade: Stone of Heaven*, Doubleday & Co., New York, NY, pp. 14, 62, 68–9.
[2] P. C. Keller (1989) *Gemstones and Their Origins*, Van Nostrand & Reinhold, New York, NY, 7: 101–113.
[3] J. Y. Ng and E. Root (1984) *Jade for You: Value Guide to Fine Jewelry Jade*. Jade N Gem Corp of America, Los Angeles, p.16.
[4] B. Laufer (reprinted 1974) *Jade: A Study in Chinese Archaeology and Religion*, Dover Publications, Inc., New York, NY.
[5] G. R. Rossman (1974) Lavender Jade. 'The Optical Spectrum of Fe_3+ and Fe_2+-Fe_3+ Intervalance Charge Transfer in Jadeite from Burma.' *American Mineralogist*, Vol. 59, pp. 868-70.
[6] P. C. Keller *Gemstones and Their Origins*.
[7] *Ibid.*
[8] D. Hargett (1990) 'Jadeite of Guatemala: A Contemporary View.' *Gems and Gemology*, Vol. 26; No. 2; pp. 134–41.
[9] Gemological Institute of America (1980) *Colored Stone Course, Assignment 20, Jade*, Gemological Institute of America, Santa Monica, California.
[10] P. C. Keller and Wang Fuquan (1986) 'A Survey of the Gemstone Resources of China', *Gems and Gemology*, Vol. 22, No. 1, pp. 9-10.
[11] Wang Fuquan (1979) 'Precious Stones Found in China', *Lapidary Journal*. Vol. 33, No. 3, pp. 694-96.
[12] *Ibid.*
[13] R. Crowningshield (1972) Developments and Highlights at GIA's Lab in New York, 'An Age-old Problem', *Gems and Gemology*. Vol. 14, p.83.
[14] Gemological Institute of America (1980) *Colored Stone Course, Assignment 20, Jade*.
[15] L. J. Bergsten (1964) 'Inclusions in Jade', *Lapidary Journal*, Vol. 17, pp. 1076-8, 1080, 1196-9.
[16] R. Crowningshield (1973) Developments and Highlights at GIA's Lab in New York, 'Glass', *Gems and Gemology*, Vol. 14, p.135.
[17] K. Nassau (1984) *Gemstone Enhancement*, Butler and Tanner Ltd., Frome and London, pp. 140-41.
[18] J. Koivula (1982) 'Some Observations on the Treatment of Lavender Jadeite', *Gems and Gemology*, Vol. 18, No. 1, pp. 32-5.
[19] K. Nassau *Gemstone Enhancement*.
[20] *Ibid.*
[21] 'The Art of Feeling Jade' (1961). *Gemmologist*, Vol. 31, No. 372, pp. 131-3. Reprinted from *Gems and Minerals*, No. 286, July 1961, pp. 28, 29.
[22] R. Gump *Jade: Stone of Heaven*.
[23] W. F. Foshag (1957) *Mineralogical Studies on Guatemalan Jade*, Lord Baltimore Press, Baltimore, Maryland.
[24] B. W. Anderson (1980) *Gem Testing*, 9th edn., Butterworth & Co. (Publishers) Ltd, Southampton, England.
[25] R. T. Liddicoat, Jr. (1981); *Handbook of Gem Identification*, 10th edn. Gemological Institute of America, Santa Monica, California.
[26] B. W. Anderson *Gem Testing*.
[27] R. T. Liddicoat, Jr. (1975) Developments and Highlights at the Gem Trade Lab in Los Angeles, 'Dyed Nephrite Jade', *Gems and Gemology*, Vol. 11, pp. 363-4.
[28] C. S. Hurlbut, Jr. and G. S. Switzer (1979) *Gemology*, John Wiley & Sons Inc., New York NY.

A CHINESE CHRONOLOGY (pp. 42–47)

[1]. Ma Chengyuan, 'The Splendor of Ancient Chinese Bronzes', in Wen Fong, ed., *The Great Bronze Age of China*, The Metropolitan Museum of Art. New York, 1980, p. 3, and catalogue numbers 2 and 3. The 'Chronology of Bronze Age China', which informed the discussion above, appears on p. XV of this volume.

APPRAISAL OF CHINESE JADES (pp. 194–207)

[1] In a continuing series of reports published in issues of *The Bulletin of the Friends of Jade*, Roger Keverne scans the worldwide Chinese jade-carving auction sale scene.
[2] Daphne Lange Rosenzweig and Abraham Rosenzweig, 'Jadeite and Nephrite', *Journal of the International Chinese Snuff Bottle Society*, Summer 1986, pp.4-17.
[3] Zhang Zinglian and Zhao Shuhan, *A Glossary of Chinese Archeology* (Beijing: Foreign Languages Press, 1983), p. 24. The authors recently translated and defined *yu* as "gems, especially jade; gem-stones, precious or semi-precious, of all kinds, nephrite." See also Yang Hanchen et. al., *Xinjiang's Gems and Jades* (Xinjiang People's Publishing House, 1986).
[4] Rosenzweig and Rosenzweig, *ibid.*, footnote 40; and Daphne Lange Rosenzweig, *The Appraisal of Oriental Art* (Bloomington: Indiana University, 1987), pp. 91-100. See also Peter G. Embrey and John P. Fuller, editors, *A Manual of New Mineral Names, 1892-1978* (London: British Museum, and Oxford: Oxford University Press, 1980), p. 170; and Robert M. Shipley, *Dictionary of Gems and Gemology* (Santa Monica: Gemological Institute of America, 1974, sixth edition), pp. 100, 104. Brochures available at the autumn/fall 1990 Hong Kong gem exposition demonstrate the continued use of misleading terms, particularly by mainland workshops in their advertisements and by firms whose raw material source is in Australia and carving workshops in Hong Kong. My thanks to Daniel Sanchez for his help in assembling a packet of typical literature at this exposition.
[5] Daphne Lange Rosenzweig and Abraham Rosenzweig, 'Alternative Hardstones and Jade Substitutes', *Journal of the International Chinese Snuff Bottle Society*, Autumn 1987, pp.14-17.
[6] For a report on the nature of these fairs, see Edward J. and Judi Tripp, The Canton Trade Fair, *Lapidary Journal*, Feb. 1983, pp.184-57. The Tripps report that the hardstone carvings are brought to Canton from workshops in Shanghai, Nanjing, Beijing and Hunan (which specializes in soapstone).
[7] Stephen Markbreiter, 'Jade Carving in Two Cities' *Arts of Asia*, Jan.-Feb. 1985, pp.63-73. Several of his illustrations from Taiwan show workmen carving true Korean nephrite. See also in Rosenzweig and Rosenzweig, Jadeite and Nephrite, *ibid.*, figs. 8-15, views of a private Taiwan jade workshop, with evidence of the widespread use of Korean nephrite from rough to finished forms.
[8] Craig Clunas, 'Jade Carvers and Their Customers in Ming China', *The Bulletin of the Friends of Jade VI*, Spring 1989, pp.33-52.
[9] Abraham Rosenzweig, On the 'Rind' of Nephrite Jade, *The Bulletin of the Friends of Jade III*, Fall 1983, p.70.
[10] John Y. Ng and Edmond Root, *Jade for You: Value Guide to Fine Jewelry Jade*, Jade N Gem Corporation of America, Los Angeles, 1984. A reproduction of the colour chart, with specific names assigned to various shades, is found on page 104-105 of that volume.
[11] D. Healey and R. M. Yu, 'Quality Grading of Jadeite', *Lapidary Journal*, Jan. 1983, p.1671.
[12] Roger Keverne, *The Bulletin of the Friends of Jade VI*, Spring 1989, p.24.
[13] B. S. McElney, 'In Search of Song Jades in Ip Yee', *Chinese Jade Carving*, Hong Kong Museum of Art, Hong Kong, 1983, p.34.
[14] For a discussion of pre-modern and modern jade mountain carvings, see Barry Till and Paula Swart, Mountain Retreats in Jade, *Arts of Asia*, July-Aug. 1986, pp.42-53, and Stephen Markbreiter, Addendum to Jade Mountains: Modern Carvings of Jiangsu or Shanghai, *Arts of Asia*, July-Aug. 1986. pp.130-35.
[15] See Rosenzweig and Rosenzweig, 'Jadeite and Nephrite', *ibid.*, Ft. 9, for a listing of some sources that discuss the various methods of treating jades or creating synthetic jades. S. H. Hansford, *Chinese Carved Jades*, New York Graphic Society, Greenwich, Conn., 1968; Richard Gump, *Jade: Stone of Heaven*, Doubleday, New York, 1962, Ch. 10; and Arthur and Grace Chu, *The Collector's Book of Jade*, Crown, New York, 1978, especially the chapter titled 'An Investigation into Dyed Jade', are among many other sources that discuss methods by which jade can be and has been stained, heated, dyed and otherwise enhanced or transformed.
[16] Keverne, *ibid.*, p.27, referring to a carving, #229, sold at Sotheby's New York on 19-20 October 1988.
[17] Brian Morgan, *Dr Newton's Zoo: A Study of Post-Archaic Small Jade Carvings*, Bluett and Sons Ltd., London, 1981, p.4.
[18] Ip Yee, *ibid.*, p. 12. An interesting possibility being developed for testing the age of jades was presented by K. V. Ettinger and Robert L. Frey, 'Nitrogen Profiling – a proposed dating technique for difficult artefacts', in *Proceedings of the Sixteenth International Symposium on Archaeometry and Archeological Prospection* (Edinburgh, 1976), pp. 293-311.
Joan M. Hartman makes a blanket statement that "Science offers no help in dating jades" in her catalogue *Ancient Chinese Jades from the Buffalo Museum of Science* (New York: The China Institute in America, 1975), p. 9, but later describes various x-ray diffraction and spectographic analyses which were used to help in her assessment of the dates of several jades under discussion. While it is probably true that, as she suggests, one must "rely on stylistic analysis, interpretation of subject matter, symbolism, cutting methods . . . and that which the archeologist's spade has uncovered from excavation" (p. 7) for a completely rounded analysis, there is no doubt that today science has come strongly to the aid of jade-carving experts; indeed, given the sophisticated new methods of dying and otherwise treating material, scientific tests are indispensable. As Desmond Gure suggests, " in specific instances these applications may be necessary to supplement stylistic analysis of form and decoration" ('Selected Examples from the Jade Exhibition at Stockholm, 1963: A comparative study', *Bulletin of the Museum of Far Eastern Antiquities 36* (1964), p. 121.)
[19] Major archaeological discoveries of jade carvings during the 1970s and 1980s have been summarized by, among others: Ip Yee, *ibid.*, 'Introduction', pp.18-21; Yeung Kin-fong, *Jade Carving in Chinese Archeology, Volume One*, The Chinese University Press for the Centre for Chinese Archeology and Art, Institute of Chinese Studies, Hong Kong, 1987; and Huang Xuanpei, Chinese Neolithic Jade Ware, in Elizabeth Childs-Johnson, *Ritual and Power: Jades of Ancient China*, The China Institute in America, New York, 1988, pp.7-15.

JADE OF THE PACIFIC RIM (pp. 208–219)

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JAPAN

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JADE IN THE SOUTH PACIFIC (pp. 220–257)

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[13] J. H. Beattie, *ibid.*
[14] C. Heaphy, *ibid.*
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JADE IN EUROPE

(pp. 258–265)

[1] Sir Charles Hardinge, *Jade Fact and Fable*, London, 1961,p. 13.
[2] Dallas Museum of Art, *The Treasury of San Marco Venice*, Milan, 1984, pp. 73–95, 117–39, 156–69, 184–90, 207–27.
[3] *Ibid.*, pp. 75–6; Antonio Morassi, *Art Treasures of the Medici*, London, 1964, p. 8.
[4] Morassi, *op. cit.*, p. 24.
[5] R. J. W. Evans, *Rudolph II and His World*, Oxford, 1973, p. 247.
[6] Evans, *op. cit.*, pp. 216–7; Hardinge, *op. cit.*, p. 14.
[7] Evans, *loc. cit.*
[8] *Ibid.*, p. 215.
[9] *Ibid.*, p. 216; Hardinge, *op. cit.*, p. 10.
[10] *Prag um 1600 Kunst und Kultur am Hofe Kaiser Rudolfs II*, Kunsthistorisches Museum, Vienna, 1988, I, pp. 482–4. Nos. 361–3, pp. 486–8, 505, Nos. 367, 370, p. 570, No. 456a, II, pp. 233–4, No. 704; *Schatzkammer der Residenz München Katalog*, 3rd ed., Munich, 1970, pp. 214–16, Nos. 493–502.
[11] Two light green nephrite 8- and 12-lobed bowls in the Galerie d'Apollo are roughly oval in plan, and a third which is extremely thinly carved is circular with 12 lobes: for the 8-lobed bowl see Skelton, *op. cit.*, 1972, pl. 27c. For possible, though coarser, prototypes in sardonyx, see Dallas Museum of Art, *op. cit.*, 1984, pp. 292–7, figs. 43b–d. An 18th-century Mughal vessel of similar form inscribed for the Qianlong emperor is in Taipei (Mai Chih-ch'eng and Tang Shu-p'ing, *op. cit.*, 1983, pl. 2).

ISLAMIC AND MUGHAL JADES (pp. 272–295)

[1] Professor Michael Rogers has drawn attention to small quantities of worked jade excavated at Near Eastern sites of the earlier medieval period and to a fascinating reference to 'jade vessels of various types inlaid with gold' in a list of presents from a Yemeni embassy to a Mamuluk Sultan in 1303–4 (J. M. Rogers, *Islamic Art & Design 1500–1700*, British Museum, London, 1983, p.149).
[2] For a brief general account of Islamic hardstone carving see R. Pinder-Wilson, 'Rock Crystal and Jade' in *The Arts of Islam* (Arts Council of Great Britain), London, 1976, pp. 119–24.
[3] Ludvik Kalus, *Catalogue des cachets, bulls et talismans islamiques*, Bibiothèque Nationale, Paris, 1981: *idem*, *Catalogue of Islamic Seals and Talismans*, Ashmolean Museum, Oxford, 1986.
[4] Thomas W. Lentz and Glenn D. Lowry, *Timur and the Princely Vision*, Los Angeles County Museum of Art, 1987, pp. 224, 354, No. 124.
[5] J. M. Rogers, 'V. V. Bartold's Article *O Pogrebenii Timura* ("The Burial of Timur")', *Iran*, vol. II (London, 1974), p. 87.
[6] Lentz and Lowry, *op. cit.* pp. 143, 339, No. 50.
[7] This was first published in the catalogue of *Oriental Islamic Art*, of the Calouste Gulbenian Collection, Museum Nacional de Arte Antiga, Lisbon, 1963, No. 28, where its identification by R. H. Pinder-Wilson first allowed him to recognize the existence of a Timurid jade-carving tradition, whose works had previously been attributed to Mughal India.
[8] *The Tuzuk-i-Jahangiri or Memoirs of Jahangir*, tr. A. Rogers, ed. H. Beveridge, vol. I, London, 1909, p. 146.
[9] Lentz and Lowry, *op. cit.*, pp. 272, 360, No. 150.
[10] *ibid.*, pp. 226, 355, No. 129.
[11] John Alexander Pope, *Chinese Porcelains from the Ardebil Shrine*, Washington, D.C., 1956, pl. 47, No. 29.321, etc.
[12] *The Topkapi Saray Museum The Treasury*, translated, expanded and edited by J. M. Rogers from the original Turkish by Cengiz Köseoglu, Boston, 1987, pp. 52, 196, pl. 48.
[13] R. Skelton, 'The Relations between the Chinese and Indian Jade Carving Traditions' in *The Western Influence of the Chinese Arts*, Percival David Foundation, London, 1972, p. 26c.
[14] *A Survey of Persian Art from Prehistoric Times to the Present*, ed. Arthur Upham Pope and Phyllis Ackerman, London, 1938–9, pl. 1458.
[15] Mr R. Pinder-Wilson has drawn the attention of the present writer and others to the relevant passage in al-Biruni's *Kitab al-jamahir fi ma'rifat al-jawahir;* see also Lentz and Lowry, *op. cit.* pp. 221, 235.
[16] E.g., A. S. Beveridge in *The Babur-nama in English*, London, 1922, pp. 27, 67, 860, 871. For various references to *yada* contesting its equation with jade (*yashm*), see Abdul Aziz, *The Imperial Treasury of the Indian Mughals*, Lahore, 1942, p. 491 ff.
[17] Rogers, *loc. cit. (The Treasury)*, p. 52.
[18] Rogers, *loc. cit. (The Treasury)*, pls. 49, 57 and *The Anatolian Collections III*, Council of Europe XVIIIth Art Exhibition, Istanbul, 1983, pp. 234–5, No. E.203.
[19] R. Skelton 'Characteristics of Later Turkish Jade Carving', *Fifth International Congress of Turkish Art*, ed. G. Feher, Budapest, 1978, fig. 9. The origin of this cup is uncertain but it may be an eastern Turkish copy of a Ming prototype. The Behbud inscription is discussed by Pope (*op. cit.*, pp. 53–4), who tends to connect it with a slave of Shah ʿAbbas I mentioned in the Memoirs of Jahangir (*Tuzuk*, trans. I, p. 294). However, Babur – a contemporary witness – notes that Sultan Husayn did Behbud the satisfaction of putting his name on the stamp and coin (A. S. Beveridge, *op. cit.*, p. 277 and appendix H.d).
[20] Abu'l Fazl ʿAllami, *A'in-i Akbari*, tr. H. S. Jarrett, Calcutta, 1948, p. 346.
[21] *The Akbar Nama of Abu-l-Fazl*, translated from the Persian by H. Beveridge, Calcutta, 1897–1921, vol. 2, pp. 300–303.
[22] W. Foster, *Early Travels in India*, Oxford, 1921, pp. 102 and 103.
[23] Grace Morley, 'On Applied Arts of India in Bharat Kala Bhavan', *Chhavi Golden Jubilee Volume*, Bharat Kala Bhavan, Banaras, 1971, p. 112, pl. 8.
[24] R. Skelton et. al., *The Indian Heritage Court Life and Arts under Mughal Rule*, Victoria & Albert Museum, London, 1982, No. 351.
[25] C/f. *ibid.*, p. 113, pl. 9 with P. W. Meister, 'Edelmetallarbeiten der Mongolen-Zeit', *Ostasiatische Zeitschrift* 24 (1938), pp. 209–13, pl. 25.
[26] R. Skelton, *op. cit.* (1978), p. 798, fig. 8.
[27] E.g., Pope, *op. cit.*, pl. 128, others in the Topkapi Saray.
[28] R. Skelton et al., (1982), p. 122, No. 372; Rhode Island School of Design, *Museum Notes 1985*, vol. 72, No. 2, October 1985, pp. 11–12.
[29] R. Skelton (1982), p. 117, No. 352; S. C. Welch, *India Art and Culture 1300–1900*, New York, 1985, p. 194, No. 122.
[30] Skelton et. al. (1982), p. 118, No. 354; S. Gorakshkar et. al. *Skönhetens spegel Konstkatter från Indien*, Museum of Far Eastern Antiquities, Stockholm, 1987, p. 175, No. 153. The suggestion that this is a *surma-dan* or container for collyrium/antimony for application to the eyes was communicated by Mr Mumin Latif. Others follow the late Rai Krishna Dasa, who said that it held cotton wool for drying the nibs of pens.
[31] This possibility is supported by the find of two pebbles of good-quality nephrite in the Teri Toi tributary of the Indus, Kohat district, N.W.F.P., reported by B. C. M. Butler, 'An Occurrence of Nephrite Jade in Pakistan', *Mineralogical Magazine*, vol. 33, 1963, pp. 385–93.
[32] For a discussion of these views see R. Skelton, *op. cit.* (1972).
[33] Apart from examples already mentioned there are two Ming jades in Tehran which passed through Timurid and Safavid hands (M. Bahrami, 'Chinese Porcelains from Ardebil in the Tehran Museum', *Transactions of the Oriental Ceramic Society*, 25, 1949–50, pp. 13–19), a Ming cup inscribed for the Mughal Emperor Jahangir at Mandu in 1617 (Morley, *op. cit.*, p. 115, pl. 11) and among pieces which reached Europe there is a Ming cup that entered the French royal collection (M. Pirazzoli-T'Servestevens, 'Un jade chinois des collections de Louis IV au Musée Guimet', *Arts Asiatiques*, XXV, 1972, pp. 199–201).
[34] R. Skelton, 'The Shah Jahan Cup', *Victoria and Albert Museum Bulletin*, vol. 2, No. 3, July 1966, p. 109, fig. 7.
[35] This was suggested as a possibility by the present writer (Skelton et al., 1982, p. 118, No. 355a and followed by Stephen Markel (P. Pal et al., *Romance of the Taj Mahal*, Los Angeles/London, 1989, p. 145).
[36] A. Maynard, 'Chinese and Indian Jade Carvings in the Collection of Sir Isaac and Lady Wolfson', *The Connoisseur*, June 1963, fig. 1; Spink & Son Ltd., *Islamic Art from India*, London, 1980, p. 25, No. 31. The other is in the Brundage Collection, San Francisco (Vishakha N. Desai et. al., *Life at Court: Art for India's Rulers, 16th – 19th Centuries*, Museum of Fine Arts, Boston, 1985, p. 132, No. 107).
[37] Welch, *op. cit.*, p. 195. No. 123.
[38] This is not to say that Indian *huqqas* of other shapes were restricted to a single opening.
[39] Neither type of spherical *huqqa* appears in miniatures before the middle of the century. The one possible exception to this is a painting showing the ambassador Khan ʿAlam with Shah ʿAbbas I but Beach argues that it is a version of *c.*1650 (M. C. Beach, *The Grand Mogul Imperial Painting in India 1600–1660*, Williamstown, 1978, p. 109). A number of spherical *qalyans* were produced by Persian potters during the later 17th century (Arthur Lane, *Later Islamic Pottery*, London, 1957, pls. 74, 87). Lane's dating of one of them to *c.*1600, shortly before the introduction of tobacco in Iran, cannot be sustained.
[40] *Tuzuk-i-Jahangiri*, 1, pp. 370–1.
[41] For the Rev. Terry's description of 1616 see H. Yule and A. C. Burnell, *Hobson Jobson*, London, 1903, pp. 428–9.
[42] For a Persian illustration of the type in the reign of Shah ʿAbbas II see Esin Atil, *The Brush of the Masters Drawings from Iran and India*, Washington, D.C., 1978, pl. 25. It is rare though not unknown in Indian miniatures of the period, T. V. Grek and L. T. Tyuzalyan, *Indiyskie Miniatyuri*, Moscow, 1971, pl. 14.
[43] R. Skelton, *op. cit.* (1966), pp. 104–11.
[44] The low pedestal as well as the lobed body and asymmetry of Shah Jahan's cup are prefigured in the nephrite and other hard stone carvings of Ottavio Miseroni working in Prague around the year 1600, see *Prag um 1600 Kunst und Kultur am Hofe Kaiser Rudolfs II*, Kunsthistorisches Museum, Vienna, 1988, I, figs. 363, 367 etc. The fact that hardstone vessels were considered suitable for sale or gift to Asian rulers is confirmed by a letter written by the painter Rubens in 1634 about an antique agate vase which he sent with other agates to the East Indies for a payment of 900 florins between 1626 and 1628. The vessel carrying it was captured by the Dutch, so it is not clear whether it reached India before finding its way back to Europe by the early 19th century. However, the base of the vase, treated as an open flower with petals in relief, provides us with an interesting precursor for the inverted lotus of Shah Jahan's cup. Later Mughal jades supported by floral rosettes provide even closer parallels with this antique model (Marvin Chauncey Ross, 'The Rubens Vase – Its History and Date', *The Journal of the Walters Art Gallery*, Baltimore, vol. VI, 1943, pp. 18, 37 & fig. 4.). However, although its treatment changes after Jahangir's reign, the lotus roundel is a very old motif in Indian architectural decoration and survives into the early Mughal period (R. Nath, *History of Mughal Architecture*, II, 1985, pls. CLXXXVI, CLXXXVII, CLXXXVIII, CXC, CXCI).
[45] *Pragum 1600*, II, fig. 737 – a late 16th-century Spanish rhinoceros horn cup with low relief acanthus leaves in the same position.
[46] *The Arts of India and Nepal The Nasli and Alice Heeramaneck Collection*, Museum of Fine Arts, Boston, 1967, Nos. 214 and 221. For a recent restatement of this view see P. Pal et al. *op. cit.*, pp. 145–7, No. 150.
[47] *Prag um 1600*, fig. 373 – a shape that was probably inspired by mounted nautilus shells, see Hugh Tait, *The Waddesdon Bequest*, British Museum, London, 1981, pl.XIIIB.
[48] R. Skelton, 'Jades moghols', *L'Oeil*, 96, December 1962, p. 44, fig. 3; *idem* et al., *ibid.*, 1982, p. 119, No, 357; Mai Chih-ch'eng and Teng Shu-p'ing, *Catalogue of a Special Exhibition of Hindustan Jade in the National Palace Museum*, Taipei, 1983, pls. 23, 24; others are not yet published.
[49] A. Volwahsen, *Living Architecture: Islamic Indian*, London, 1970, pp. 108, 125–128.
[50] Nath, *op. cit.*, fig. CLXXXVIII; S. A. A. Rizvi and V. J. A. Flynn, *Fathpur-Sikri*, Bombay, 1975, pls. 20, 21.
[51] cf. Joan Evans *Pattern A Study of Ornamentation in Western Europe, 1180–1900*, Oxford, 1931, vol. II, pls. 258, 272, 274, 279 etc. It has become fashionable for excessively zealous European scholars in observing such influences to become the subject of criticism but caution in this respect should not delude us into ignoring what is plainly evident.
[52] François Bernier, *Travels in the Mogul Empire AD1656–1668*, ed. by A. Constable, London, 1891, pp. 422–3.
[53] *Ibid.*, p. 425.
[54] *Ibid.*, p. 426.
[55] *Ibid.*, p. 426.
[56] Jadunath Sarkar, *History of Aurangzib*, Calcutta, 1928, vol. III, p. 76.
[57] For a selection see G. C. Stone, *A Glossary of the Construction, Decoration and Use of Arms and Armor*, Portland, Maine, 1934, p. 352, fig. 444.
[58] *India in the Seventeenth Century*, vol. II, *The Voyages of Thevenot and Careri*, ed. J. P. Guha, New Delhi, 1976, pp. 67–8.
[59] Col. Charles Seton Guthrie's collection, formed in the third quarter of the 19th century, is now in the Indian and Southeast Asian section of the Victoria & Albert Museum.
[60] Mai Chih-ch'eng and Teng Shu-p'ing, *op. cit.*, 1983, p. 84.
[61] *Chüan* 45 of the *Ch'in-ting Huang-yu Hsi-yü t'ü-chih*, a Ch'ing geographical work (An Illustrated Description of the Imperial Territories in the Western Regions), *loc. cit.*
[62] *Ibid.*, pp. 86–7, 110. The National Palace Museum catalogue gives the texts of the poems, and 19 jades inscribed with poems are well illustrated in colour. Unfortunately, none of these poems has so far been fully translated. Thirteen of these inscribed pieces are clearly of Indian origin (pls. 2, 3, 5, 6, 7, 8, 9, 10, 24, 29, 30, 31 and 38) but the origin of the remaining five

is less obvious (pls. 1, 28, 40 [white quartz], 41, 63 and 64).
[63] Skelton, *op. cit.*, 1978, pp. 797, 799, figs. 4 and 14.
[64] Skelton, *op. cit.*, 1978, pp. 797, fig. 4; Hansford, *op. cit.*, 1968, pp. 95–6, pl. 91, who remarks that the inscription 'leaves no doubt that the emperor regarded the jar as Indian' though this is not actually stated in the poem itself.
[65] Skelton, *op. cit.*, 1978, figs. 6 – 7.
[66] *Ibid.*, fig. 5.
[67] *Ibid.*, fig. 10. Similar decoration appears on the walls of a bowl in the National Palace Collection, Taipei. This has similarly angled walls but combined with plain saw-cut handles of the vertical variety that are incompatible with Mughal taste (Mai Chih-ch'eng and Teng Shu-p'ing, *op. cit.*, 1983, pl. 13).
[68] Skelton, *op. cit.*, 1978, p. 799, fig. 14.
[69] *Ibid.*, p. 798, figs. 11–13.
[70] A small jade plaque in the British Museum is inscribed in Persian to the effect that it is 'A gift from Yarkand' but it does not have sufficient decorative detail for it to be very useful as a specimen of local workmanship.
[71] Mai Chih-ch'eng and Teng Shu-p'ing, *op. cit.*, 1983, p. 90.
[72] Robert Shaw, *Visits to High Tartary, Yarkand, and Kashgar*, London, 1871, p. 474. The author seems to suppose that jade could be carved in India without having reached there first.
[73] H. W. Bellew, *Kashmir and Kashgar*, London, 1875, pp. 283–4.
[74] Ella Sykes and Percy Sykes, *Through Deserts and Oases of Central Asia*, London, 1920, p. 216.

JADE IN NORTH AMERICA

(pp. 296–315)

[1] Dan M. Burlison (1961) 'The Shungnak Jade Project', *Lapidary Journal*, April 1961.
[2] L. Ream (1977) *Gems and Minerals of Washington*, Jax Products, Renton, Washington.
[3] L. Ream, *ibid.*
[4] R. G. Coleman (1967) 'Low-temperature Reaction Zones and Alpine Ultramafic rocks of California, Oregon and Washington, *US Geological Survey Bulletin* 1247.
[5] James Terry (1890) 'Nephrite Boulder from Oregon', *Science*, vol. 5 (1980).
[6] D. A. Swanson (1969) 'Lawsonite Blueschist from North Central Oregon,' *US Geological Survey*, Professional paper ·
[7] R. G. Coleman (1961) 'Jadeite Deposits of the Clear Creek Area, New Idrea District, San Benito County, California', *Journal of Petrology*, vol. 2, pt. 2.
[8] R. A. Crippen (1950) 'Nephrite Jade and Associated Rocks of the Cape San Martin Region, Monterey County, California', California Division of Mines, *Geological Special Report* 10A.
[9] James Lewis Kraft (1947) *Adventures in Jade*, Henry Holt, New York, New York.
[10] John Sinkankas, *ibid.*
[11] R. Stevens (1985) personal communication.
[12] N. Blackman and C. Nagle (1985) 'Dorset Paleo-Eskimo Nephrite Jade', *The Bulletin of the Friends of Jade IV.*
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CHAPTER SEVEN: APPRAISAL OF CHINESE JADES
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