# DEVELOPMENT OF ARCHITECTURE AND ALLIED ARTS IN ASIA

by

ROSARIO PAUL FASOLINO

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# INTRODUCTION

The history of Architecture and Allied Arts of Asia and the Far East has not received the complete attention of the historians until just recently when we of the Western Lands have found the arts of the East to be practical, simple, and most useful. What we call modern today has been in existance for many centuries in the Far East. We have simply made our own existence much more comfortable and convenient with the use of direct reflections of the type of living that existed in Japan some fifteen centuries ago. Most of us are not fully aware of the Oriental influence existing in our every day living. We simply call it modern because it agrees with us and accept it as origional without a little survey into where our modern living might have come from. It has become very obvious to me, that our every day existence is directly influenced by the Orient.

The history of Architecture and Allied Arts in Asia cannot in themselves be complete unless an understanding is developed as to the land, climate, people, religion, and social and economic conditions that influenced each style. Therefore in looking at the ancient histories of Asia, I have included all the factors that contributed to their development.

Needless to say, a complete history of any one area or style would compose many reports within itself and would still be incomplete. I have therefore been as brief and to the point with each style, and yet as complete as I felt was necessary to understand the development of a particular style. I have also included

a brief survey into several of the ancient historical styles that were very influencial in the development of the arts of Asia and the Far East. The ancient historical styles have been limited to structural and decorative systems. A complete look into all of the arts of the historical styles would be quite a lengthy and would also detract from the Oriental emphasis of this report. The ancient historical styles included are those Empires which were powerful on the continents of Europe and Africa such as the Egyptian and Roman Empires.

The ancient art history of Japan is used as a reference to indicate the many influences a particular nation or location usually encounters in developing their own style (Plate I).

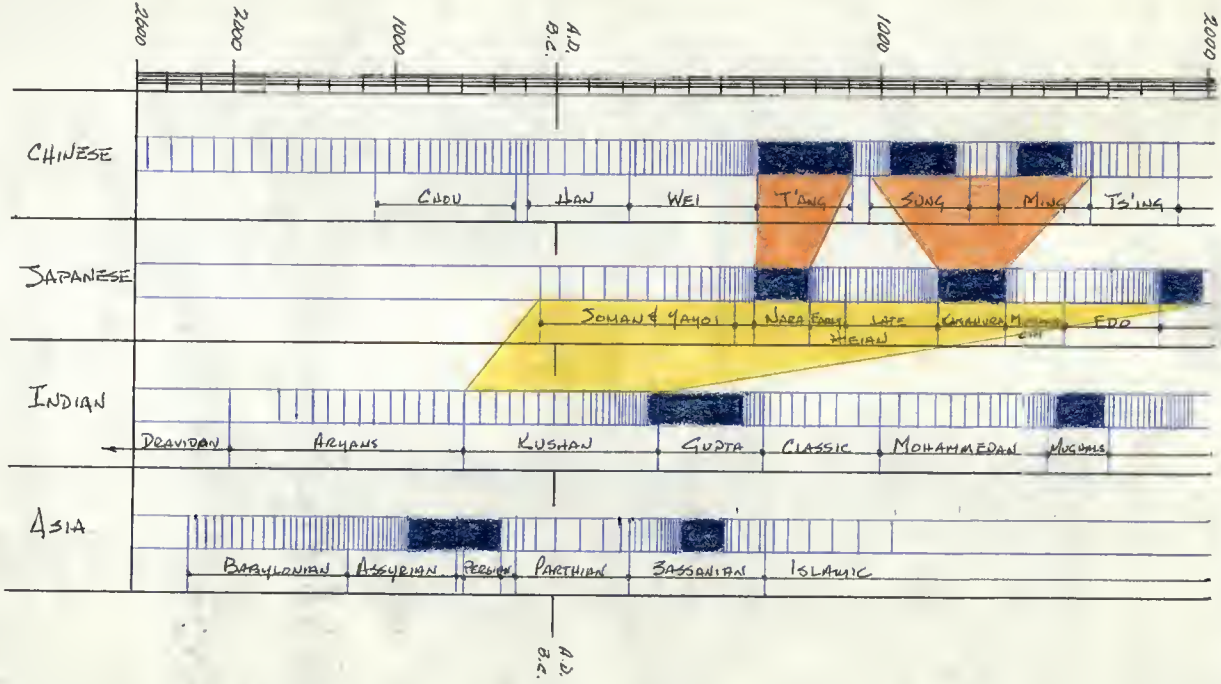
## ASSYRIAN-BABYLONIAN STYLE

### Land

Geography and Topography. The Tigris-Euphrates Valley was the seat of a very old civilization and the home of a number of different races. The "lower" valley, called Chaldaea or Babylonia, is low, flat, and marshy and infested with insects and other marsh life. This fact led early to the construction of great platforms for towns and palaces and of the great stepped pyramids for temples. The upper valley, called Assyria, is higher, more or less hilly and more temperate and healthful. Like the Nile Valley, the Tigris-Euphrates basin, especially the lower valley, was formed by alluvium washed by these rivers into what was at one time the head of the Persian Gulf. Richly fertile, it was destined to be

## EXPLANATION OF PLATE I

Graph showing the development of Architecture and Allied Arts, including the many influences in the development of Japanese Arts.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CHOU
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SOMAN & YAYOI
NARA
EARLY HEIAN
LATE HEIAN
KAMAKURA
EDO
INDIAN
DRAVIDAN
ARYANS
KUSHAN
GUPTA
CLASSIC
MOHAMMEDAN
MUGHUS
ASIA
BABYLONIAN
ASSYRIAN
PERSIAN
PARTHIAN
SASSANIAN
ISLAMIC
A.D. B.C.

one of the worlds great granaries and a favorite home of early man. This alluvial deposit has continued since ancient times and has been so rapid that Eridus, a port in B.C. 3000, is now about 125 miles inland. Situated as it is, the valley was designed to be the highroad between the Persian Gulf and the Mediterranean Sea. Thus open to invasion, the valley was from the earliest times a melting-pot of peoples.

Geographically speaking, Babylonia and Assyria were one country which ancient writers called Assyria. But in the thirteenth century the barbarous Tartar invasion finally wiped out this ancient civilization, with its architectural glories, its triumphs of irrigation and its agricultural prosperity, and reduced the country to a dismal tract of dreary desert alternating with miasmic marsh. Irrigation has been recently started again, and the Euphrates Dam is the great modern wonder of Babylon, designed to restore civilization to this sterile district. There is a great desire from the peoples of this region to develop and keep pace with the civilizations of the west.

On the east of Babylonia and Assyria was ancient Persia, which, under Cyrus and Darius, extended over the high plateau of Iran from the Tigris to the Indus.

Geology and Materials at Hand. Although the best soil of Assyria had been eroded from her hills and washed by the rivers into the lower valley, she was well endowed with limestone, alabaster, and clay for brick-making. Moreover, she was near enough to Lebanon that, with favorable political conditions, ceder wood could be obtained from that quarter. Since Chaldaea

was alluvial, there was no great tree growth, and wood had to be imported. Moreover, there was no stone in Chaldaea, and the people therefore were compelled to develop a ceramic architecture. Brick, burned and unburned, served as a structural material, and ceramic units were employed as ornament. Stone was used, however, in the south, especially during the Neo-Babylonian era, when it was imported from Assyria for paving the Processional Street to the temple of Marduk, for the erection of a bridge, and for use in the Hanging Gardens.[1]

The lower valley was supplied with a natural asphalt (derived from the petroleum beds), and this mixed with river sands was sometimes used as a mortar in brick walls, although lime-and-sand mortar was occasionally employed. The bricks were marked with the names of the reigning king, and the impressions of these inscriptions, preserved in the asphalt mortar, often served to identify a structure even after the mud bricks had disintegrated. Since the Assyrian building arts were derived from those of the Chaldaeans, the Assyrians did not use stone to the extent that their habitat might suggest. Their structures were largely of brick, stones being used for plinths, pavements, retaining walls, and decorative bas-relief dedoes upon the interiors. Decorative ceramics in Assyria received attention as in Chaldaea. Metals were sometimes used in buildings. Bronze door sills, gate sockets,

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1 Hanging Gardens of the Palace of Nebuchadnezzar in the city of Babylon, about B.C. 2000.

decorative hinges and straps, tools and nails having been recovered in the excavations. Transportation of building materials was accomplished by means of rafts upon the Tigris-Euphrates rivers. There is evidence that these materials were moved to the river upon wagons drawn by horses and slaves. By means of the rafts, stone and timber were imported by the Chaldaeans.

Climate. The average annual temperature for the Tigris-Euphrates is about 75 degrees, with great heat at times, especially in summer. The rainfall is irregular and frequent, ranging from 6 to 12 inches annually. Both rivers overflow in the spring, however, enriching and watering the soil. At other times, water was supplied to the fields by irrigation canals, a great network of which, now dry and silted up, still cover the country.

## People

History. The earliest people known to have inhabited this valley we call the Sumerians. Just who they were or whence they came is not quite clear. They seem to have been followed into the valley by a Semitic race from northern Arabia known as the Akkadians. These two tribes formed the basis of the subsequent Chaldaean people. The Sumerians were to have possessed a written language, an advanced primitive culture and some art. These, the Semitic branch appears to have accepted. These people lived in the cities. In fact, the political organization was that of a series of petty city-states, each with its own king. At the center of such a city was a Ziggurat, (holy mountain), with its shrine to the city deity (Plate II). Besides this stood the palace of

## EXPLANATION OF PLATE II

Reconstruction of the Ziggurat of Ur. It was here that the richest evidence of what is probably the oldest culture on earth, that of the Sumerians, was found.

PLATE II

the king-priest and around these the smaller houses of the town. The cities were fortified by thick, embattled walls around which lay a band of tillable lands, and beyond this the communal pastures for the livestock. Sargon of Akkad seems to have been the first great king of Chaldaea. Of Semitic blood, he was a great political organizer, patron of letters, founder of libraries, and builder of temples. He carried Chaldaean culture to the very hills of Armenia. Hammurabi, the "law-giver" and king of Babylon, was another early ruler of the south. He expelled the Elamites, who had gained a foothold in the valley, founded post-roads, and a postal system, built great canals, encouraged commerce, constructed temples and cities, and codified the laws of the people.

Prior to B.C. 1300, Babylon was the powerful and prosperous capital of Chaldaea. Meanwhile Assyrian power, centered at Nineveh in the north, was developing. In B.C. 1275, Assyria conquered Babylon and became the dominate power in the valley. Ruled by great kings, among them Sargon the Great, B.C. 722 to B.C. 705, who carried the ten lost tribes of Iseral into capivity, Sennacherib, his son, a great builder and warrior, and Aushurbanipal, a great warrior and patron of the arts, Assyria made great progress towards culture.

Assyria held the ruling hand in the valley until B.C. 606, when Babylon again became paramount and the Neo-Babylonian Empire was established. Nebuchadnezzar was an important ruler of this period. Ruling for some 43 years, he established his power from the Mediterranean Sea to the Zagros Mountains. The captives taken in his wars are said to have been more numerous than those

of the pharaohs of Egypt. Though a great warrior, he was also a great builder, repairing temples and cities and constructing for his queen the famous Hanging Gardens in the royal quarters of Babylon.

But the Babylonian Renaissance was short-lived. Persia overthrew the Neo-Babylonian Empire in B.C. 538, and remained dominate until conquered by Alexander. Upon the dissolution of Alexander's Empire the territory passed to Parthian rule, which in turn was supplanted in A.D. 226 by the Neo-Persian or Sassanian Empire. This fell to the Sarcens in A.D. 641.

Religion. The religion of the Chaldaeans and Assyrians was polytheistic with but one movement to make one god supreme, that of Hammurabi to elevate Marduk to that position. The heavenly bodies and the forces of nature were defied. Marduk, the sun-god, was the patron deity of Babylon. Ishtar, was mother of the gods, and goddess of love and war. Anu, was the god of heaven; and Ninib, the god of war. The gods of Assyria were identical in idea with those of the south but bore different names. In the north Ashur replaces Marduk. The north had local patron deities, as had the south, and the cults and rituals were similar. The priesthood exercised great power both religiously and economically, for the temples were commercial centers and seats of learning. Temples were richly endowed and therefore independent. They lent money and owned vast heards of cattle and sheep. To administer these activities a great number of laymen were required. The temple treasures consisted of vases of precious metals, inscribed tablets, gold, silver, and precious stones. A deep-seated superstition led

to the belief that the effigies of king-headed, winged bulls set up at the doorways of palaces and towns, would ward off evil spirits.

Social, Political, and Economic Conditions. The Tigris-Euphrates people possessed a marked amount of culture and a well-developed language. They made substantial progress in astronomy and arithmetic, foretold eclipses, made sun-dials, and developed a calender. The Assyrians who appropriated the culture of the Chaldaeans seemed to possess all the outward signs of culture; they had a certain taste for art and a marked capacity for military organization. Yet at heart the average Assyrian king was a ravening tiger. He delighted in the most awful forms of torture. Much of the "eye for an eye" philosophy of the Old Testament comes from the contact of the Hebrews with the Assyrians. Life was very cheap; almost every offense was punished by death, and kings and princes ruled with an iron hand. All the beauties of the land, all the achievements in literature and the arts were accomplished for the ruling classes; the common people were allowed few or none of the pleasures of life.

## Architecture

Structural System. The structural system used in the Tigris-Euphrates was a combination of the arch-and-pier (dynamic) and the post-and-lintel (static) systems. Excavations showed that the arch was well known and used much, especially over sewers and drains under the great platforms, and over openings in the walls. It appears also that vaults, and upon occasions, domical forms were

used. However many inscriptions telling of the construction of roofs with cedar beams brought from Lebanon and Amanus indicate that a lintel system was also much employed. The rooms were long and narrow, the beams, without intermediate columns, spanning from wall to wall. These, covered with earth, were in turn covered on top with burned tiles and provided with drains. No column or anything corresponding to an architectural order was ever developed, the nearest approach being a curious cap and base turned up in the excavations at Khorsabad. It must be mentioned also that simple brick columns were found at Nippur.

Plans were extensive, consisting of long narrow rooms grouped around large rectangular courts upon which they opened. There were few if any openings in the outside walls, which were crowned with embattlements and strenghtened by square towers at the corners and either side of the entrance. With the exception of the terraced Ziggurats, the buildings were neither pyramidal in mass nor monumental in form, but appeared as blocky rectangular piles with sheer, heavy, palisaded walls.

Walls were very thick and constructed of sun-dried bricks faced with burned bricks which were plane, modelled, or glazed, as in the south, or simply painted and glazed, as in the north. Carved alabaster decorations were used around the openings in Assyrian architecture, and interior walls were faced either with bas-reliefs of alabaster or colored glazed bricks. Upon some occasions, walls were simply covered with lime plaster and painted.

Decorative System. The Assyrian-Babylonian structure was decorated by two general means: (a) ceramic decoration in the way

of (1) colored and glazed bricks and tiles; (2) colored terra-cotta cones inserted into clay walls, as at Warka; (b) sculpture in the way of (1) bas-reliefs of alabaster used as wainscots in palace halls; (2) sculptured figures at the entrances, or occasionally within rooms. The subject matter of such decorations consisted of: (a) conventional ornament: discs, rosettes, chevrons, palmettes, pine-cones, pomegranate motifs, winged discs, and sun ornaments; (b) naturalistic: at the hunt, worshipping, banqueting, etc., with the king-headed, wing bull or lion statues at the doorways.

Color was occasionally introduced by ceramic enamels used either upon plane or modelled bricks and tiles, although some painting upon stucco walls have been found in the ruins. Yellow, blue, and white perdominated in ceramic decoration, although burnt sienna, apple green, and black were used. The background colors were usually blue, flat and not graded. Yellow and white lions, bulls, and dragons with touches of blue, green, burnt sienna, and black, and human figures with flesh of burnt sienna with beards and hair of black, were characteristic.

Classes of Buildings

I. Domestic.

A. Palaces (most important class) with apartments as follows:
1. King's chambers.
2. Throne and audience hall.
3. Harem.
4. Various stores and service rooms--servant quarter.
5. Courts.

B. Huts

II. Religious.

Temples.
Simple cells and priest's quarters, beside a three to seven terraced pyramid or ziggurat upon which was placed the shrine of the god. These were enclosed within embattled walls.

III. Civic.

City halls; fortifications; gates; bridges; processional streets.

General Characteristics of the Style. Assyrian-Babylonian Architecture was massive, military, non-columnar. Temples were pyramidal, and monumental; palaces were not, their chief affect being gained by sheer, embattled, palisaded walls, set atop hugh platforms and reached by ramps and stairs. Masses were simple but not balanced. The magnificence of the king rather than the glory of god finds an expression architecturally in the arts of this period.

Arches used for vaulted drains under the platforms, or for palace entrances, were important features. Columns were little used, for want of a suitable stone, and indeed neither Babylonians nor Assyrians used stone construction as did Egyptians, Persians, Greeks, and Romans. The imposing effect produced by towering masses of palace buildings and stepped ziggurats, planted on great platforms and approached by broad stairways and ramps from the plains below, must be left to the imagination.

There was a great deal of intercourse and intermingling between Asian and European nations, which in the earliest times was generally warlike in character, naturally had its effect in an intermingling of architectural features in the different lands.

## HITTITE ART

To the north of the Assyrian Empire flourished a group of peoples, whose civilization was established at a much earlier date than the Assyrian-Babylonian civilization. For want of a better name, since to this date much is yet to be learned of these people, the name Hattite was given. The exact location of this period of art history, as we know the area today, would be south central Turkey and northern Syria.

The word Hittite is not the expression given to the arts of a certain people or race, but rather those forms of art which arose in the vast cultural complex extending from North Syria to Central Anatolia. Because of the still wider cultural complex which extends to the Caucasus, Urartu (Armenia) and the Persian province of Luristan; true Hittite features in art are accordingly not easily determined. Therefore this portion on Hittite art will not be treated as a style but rather as an expression of the arts in this particular region.

The Hittites were invaders, but we cannot say exactly where they came from and when they arrived in Anatolia; whether they reached it from the east, across the Dardanelles, or from the north, across the Caucasus. We first see the Hittites installed in Central Anatolia around B.C. 1900, when the Assyrian colonization took place. By that time Mesopotamia had already been in contact with Anatolia since at least as early as the days of Sargon of Agade (about B.C. 2300) and Naram-Sin the fourth king of the Dynasty of Agade, about B.C. 2200.

Periods of Hittite Civilization

| | |
|---|---|
| Pre-Hittite | B.C. 2300 to 1740 |
| Old Kingdom | B.C. 1740 to 1460 |
| New Empire | B.C. 1460 to 1190 |
| Neo-Hittite | B.C. 1190 to 750 |

Pre-Hittite Period. The Pre-Hittite finds at Alaca Hoyuk are dated between B.C. 2300 to 2100, and are identified with the Hattian period and not true Hittite art. The Indo-European invasion occurred somewhat later in history but a background is needed to understand true Hittite art.

The tombs at Alaca Hoyuk nearly all face east-west and consist of deeply-sunken chambers with walls and floors usually made of stone and the roof of wooden beams. The burials were accomplished and accompanied with a large number of sacrificial animals and an astonishingly rich collection of objects. Gold, silver, and copper are the principle metals used in these objects, with iron together with various precious and semi-precious stones used. Some of the vessels and weapons are direct reflections of items found in Persia, Troy, and India, which indicates a relationship with the outside world. The most interesting finds at Alaca Hoyuk consists of a large collection of metal statuettes of stags and bulls. The stags and bulls are probably symbols of divities which are well known during the later Hittite period. The pottery of this period is a hand-made polychrome ware usually decorated with geometrical designs in white, red or black. This pre-Hittite ware was to remain in current use all through the

Old Hittite Kingdom. It was gradually displaced, but never completely replaced, by a new type of pottery, a wheel-made, unpainted, polished, red-washed ware which is definitely associated with the New Kingdom period. Consequently it would appear that whereas the Old Kingdom continued along the lines of the pre-Hittite civilization, there is a certain departure from the older forms with the emergence of the New Kingdom which is naturally to be accounted for by an influx of foreign elements with different techniques and a different civilization. The introduction of a new type of pottery is furthermore certainly to be connected with a still more important change, that from interment to cremation in the royal Hittite family. It is known that while the kings of the Old Kingdom were normally buried, those of the New Kingdom were cremated.

Old Kingdom. This period is usually called the dark-centuries simply because very little remains have been uncovered which are tracerable to the Old Kingdom. A recent discovery at Boghaz-Koy of a limestone relief believed dated about the seventeenth century B.C., representing a battle of Gods, which re-appears later in the Neo-Hittite reliefs is about the only example available of this period. Therefore it is hard to study or relate this period with so little information.

New Kingdom. The discoveries found at Boghaz-Koy, Yazilikaya, and Alaca Hoyuk is the backbone to which the history of the New Kingdom is traced. The remains at Boghaz-Koy consists of plans of buildings, fortifications made of worked blocks with interlocking features, and Temple I, in the lower northern part of the

city. The temple does not appear to have any architectural affinity, with those of any civilization. This indicated possibly a pure Anatolian type.

> Excavators working at Kultepe discovered in an archaeological context dated in the late Hittite Imperial period a building which has all the appearances of a 'megaron', a type of building usually associated with the Greek and Aegean world of Troy II. This discovery is bound to lead to a reassessment of the origin of this and also perhaps aspects of early Greek Architecture. (Vieyra, 30.) pp. 26-36.

A number of private dwellings at Boghaz-Koy from which there is not much to learn, except perhaps that the building methods in the Turkish countryside are not altogether different today from what they were 4000 years ago.

The use of sculptured lions as corner stones in the building of gates was adapted from the Assyrians. Two interesting gates of this period, which represent a true example of the New Kingdom, are the King's Gate and the Lion Gate (Plate III). The gates have the form of an arch and no two gates are decorated alike. The sculpture of the King's Gate is in high relief, so high that the head is seen in three-quarter view; while the Lion Gate, the bodies seem to emerge from the stone blocks, representing a step in the direction of sculpture in the round.

The sanctuary at Yazilikaya is a landmark in Hittite art in that it gives us a fair picture of artistic development in the New Kingdom during the later decades of its power. It is an art which appears to be in possession of all its means of expression, very different from but no less effective than the art of the best Egyptian or Assyrian periods. The composition of the whole

EXPLANATION OF PLATE III

A. The Lions Gate

B. The King's Gate

Both from the New Kingdom, Hittite Art

PLATE III

picture, the vastness of the subject which is more amenable to fresco techniques than to stone carving, is something which has never been and was never again to be attempted on such a scale. Such an example is the "Written", or "Sculptured Stone" rocks found at Yazilikaya and particually the figures of King Tuthalija in the embrace of the young god Sharrumma (Plate IV).

All over the area of Anatolia rock carvings are found. They belong to the same tradition which is responsible for the rock carvings at Yazilikaya, but none of the other examples are as elaborate nor impressive as those found in the open air sanctuary. Rock carvings is a characteristic of Hittite art which was to remain in favour during the Neo-Hittite period and which is at the origin of the Assyrian, Persian, and of course of later Anatolian rock carvings; but the Egyptians also used to carve figures on rocks, the origin and history of the development of this feature is still far from clear. Rock carvings are fairly common in Anatolia during Hellenistic and Roman times, and the mode spread to the Western World.

Neo-Hittite Period. During this period there is unmistakable evidence of the preservation of the tradition of the New Kingdom, whilst the influence of Mesopotamia is readily discernible. The remains at Carchemish is the principle source of information available for this period of Hittite art.

> The excavated part of the city of Carchemish is situated in the southern district, from the so called 'Water-Gate' on the river Euphrates to the citadel mound, the lower palace, and the King's Gate. The main series of sculptures are those connected with the so-called 'Long Wall of Sculpture', in the lower palace and King's Gate area. (Vieyra, 30.) p. 37.

EXPLANATION OF PLATE IV

KING TUTHALIJA in the embrace of the young God SHARRUMMA.

PLATE IV

A characteristic of the art of the late Hittite period is that it makes use of only a limited number of subjects. Those subjects fall easily into two classes of different motifs: the secular and the religious scenes. The first class comprises scenes of a military character; chariots and soldiers; the second, the apotheosis scenes, with which are often mixed scenes derived from every day life. Also, the arts were essentially the same, such as the building techniques, similar patterns in the sculptured slabs, similar traditional representations of chariots, hunts, and figures. Yet there was no cultural power, or overlordship, to impose its views during the Neo-Hittite period. The only probable answer is that a guild of artisans or itinerant builders going from place to place were responsible for this similar character. This hypothesis, at least, helps to explain the extraordinary conservation of the late Hittite art and why the same motifs re-appear throughout the area during the whole of the late Hittite period.

## PERSIAN STYLE

Palaces and tombs at Susa and Persepolis suggest that the Persians adopted certain features from the conquered Assyrians, such as raised platforms, sculptured monsters, slabs of bas-relief, besides the glazed and colored brickwork which it is their glory to have brought to perfection.

Persia also borrowed some of her architectural forms from Egypt and Asiatic Greece. Her arts were influenced by the Greeks and she adopted many of the decorative shapes from the Jews.

## Land

Geography and Topography. The Persian Empire developed in the mountainous plateau (Iran) southwest of Mesopotamia around the cities of Susa and Peresepolis, but the Persians gradually expanded their dominion until at its greatest extent (B.C. 500), it reached to the Indus river on the east and into Macedonia and Egypt on the west. The Zagros Mountains form a rather effective boundry between this land and the Tigris-Euphrates basin except south of Susa, near the mouths of the Tigris and Euphrates, where the land is quite open. Here contact is easy, and here the cultures mingled. The old Persian area was anciently divided into three regions. To the north was Media, home of the Medes, of which Ecbatana was the important city. In the center was Elam, the home of the Elamites, of which Susa was the ancient capital. At the south was Persia (Persis) proper around the city of Perespolis. Under the dominate power of the Achaemenian kings of Persia, these regions were early united and formed the nucleus of the later great Persian Empire.

Geology and Materials at Hand. Persia was well endowed with excellent building materials. From the northern hills came alabaster and gypsum; from the mountains of Persia proper came a fine crystalline limestone and beautiful marble (much used at Persepolis); and wood was abundant in the foothills. The excellent clay deposits afforded good materials for bricks and tiles, the art of which the Persians learned from the Mesopotamian peoples, but brought to a fine development themselves. Persia is

still known for her ceramic art. Some metal was used for tools but little for building purposes.

Climate. Being a high mountainous plateau, Persia is subject to the extremes of temperature often encountered in such situations. It is very hot in the summer with relatively mild winters in the south but cold ones upon the northern plains. It is a land of sunshine with hot days and cool nights. The average annual temperature is 68 degrees, the average annual precipitation, ten inches.

## People

History. The Medes and Persians were Kindred peoples. The former were the first dominate race in Iran, but their rule was short-lived (B.C. 650 to 538). In B.C. 538, Cyrus, king of the tributary Persians, revolted against Median rule and founded the Persian Empire.

Chronology of Important Events in Persian History.

| | |
|---|---|
| B.C. 538-529 | Cyrus founded empire and made it supreme in western Asia. |
| B.C. 529-522 | Cambyses conquered Egypt. |
| B.C. 521-486 | Darius I, built palaces at Susa and Persepolis; conquered Thrace, Macedonia, and Asia Minor and pushed the eastern boundries of the empire to the Indus. Invaded Greece; defeated at Marathon B.C. 490. |
| B.C. 486-465 | Xerxes (last great king) invaded Greece; victorious on land; burned Athens; was defeated in Greek naval victory at Salamis; retreated home. Built palaces at Persepolis. He was murdered in his palace. |
| B.C. 465-333 | Decadent period, characterized by weak kings. |

| | |
|---|---|
| B.C. 333 | Alexander invaded Persia; brought downfall of the Achaemenian Empire of Persia. |
| B.C. 333-225 | Alexandrian Period. |
| B.C. 225 to A.D. 226 | Parthian Period. |
| A.D. 226-641 | Sassanian Period (New Persian Empire). |
| A.D. 641 to date | Mohammedan Period. (Pope 21.) entire book as reference. |

Religion. The religion of the Tigris-Euphrates Basin was developed into a regular religious system by the Persians. These religious concepts were organized by Zoroaster (Zarathustra), who compiled a religious book, the Zend-Avesta. The world was conceived upon a dual plan. The notion of good and evil spirits was developed into a good god Ormazd (Ahura-Mazda), the god of light, goodness and truth; and an evil god, Ahriman, the god of darkness, storms, drought, pestilence, and evil in the hearts of man. Man's duty was to aid Ormazd banish evil from the heart, reclaim and make fruitful the barren earth, and kill snakes, lizards, and other evil animals of Ahriman. Agriculture thus became a sacred art and the elements, air, earth, and water, were also considered sacred. The sun (light) and its essence, fire, were worshipped as symbols of Ormazd at altars upon the hill-tops, and sacred fires were preserved for centuries in the temples.

The sacredness of earth, fire, air, and water offered a real difficulty to burial or the disposal of the dead, as none of these elements could be polluted. Therefore dead bodies were exposed in barren places where carrion birds would strip off the flesh. The bones, themselves of earth, would not offend the earth

and therefore were buried. In rare cases, the body, to avoid pollution of the earth, was encased in wax and buried. In view of these religious practices, sepulchral architecture was not important.

Social, Political, and Economic Conditions. The governmental organization of Persia was an absolute despotism. The country was divided into provinces (twenty in the time of Darius), ruled by "satraps". The satraps was supreme in his district, where, as head of the administration, he collected taxes, kept up the roads and other public improvements, and acted as supreme judge. Although the district and tribal officals were answerable to him, he took orders from the royal secretary of the king. The satrap held his position at the will of the king who appointed him. Governmental discipline was orderly, regular, and military. The king and princes enjoyed the best of the land, but the lot of the commoner and the slave was a hard one.

## Architecture.

Structural System. Although much of Persian culture and art reflects its reliance upon Mesopotamian precedents, the structural system, owing to (a) an abundant timber supply, and (b) good building stones, was columnar (post-and-lintel), and as a result a distinctive order of architecture was developed. This, with its "saddle-back" capital, ornamented either with bulls, horses, or griffons heads, was developed from the primitive wooden forked stick, a type of support which permitted girders and beams (running at right angles to girders) to be supported by

the same capital. The following distribution of available materials was made to the various parts of the building:

(a) Stone, used for window and door frames, wall faces in substructures like platforms, for stairways, ramps, etc.

(b) Marble, used for columns, sculpture, bas-reliefs.

(c) Brick, (burned, colored, and glazed), used for wall facings; cores generally of unburnt bricks.

(d) Wood, for beams, girders, roof coverings, and cornice.

Persian work was better built and more durable than that of the Mesopotamian peoples. Palace groups, as in Assyria, were raised upon great platforms.

Decorative System. The ceramic arts, based undoubtly upon the ceramic work of the Mesopotamian people, were carried to a high state of development. Many fine examples of ceramic frizes and other ornaments are still extant. As with the Mesopotamian people, the lion was a favorite motif, but processions of archers, the bodyguard of the king, were also popular. Though based upon Mesopotamian models, Persian decorative work developed a real national flavor.

Sculpture, both in the way of bas-reliefs and of statues, was used. Bas-reliefs were employed for palace decoration, but the most important Persian bas-reliefs were those of colossal scale cut into the natural rock cliffs, commemorating the King's exploits or the doings of the gods and monsters. At the entrances of palaces and towns, colossal featured king-headed, winged-bull genie, similar to those of Assyria, were set up.

Color was introduced into Persian architecture largely through the employment of colored and glazed ceramics, woven fabrics and gilding.

Classes of Buildings

I. Domestic.

A. Palaces (most important class), groups of detached structures upon great platforms, divided into:
1. Propylaea (formal entrance gateways).
2. Regal apartments (palace proper).
3. Audience halls (open hypostyle halls).
4. Harem.
5. Fire altar.

B. Homes of the common people.

II. Religious and Sepulchral.

A. Temples: open-air fire altars on hill-tops or other elevated places.

B. Tombs:
1. Structural: simple, rectangular, stone, temple-like cell upon stepped pyramid.
2. Rock-cut: tombs in rocky cliffs, facades in imitation of the palaces of the dead.
3. Towers of Silence for disposition of bodies of all but royality.

III. Civic.

Walls, retaining walls, platforms, steps.

General Characteristics. Persian structures were columnar and consisted largely of great hypostyle halls, set in groups upon high-standing platforms which in turn were part natural, part constructed. Their schemes were commanding, formal, and somewhat monumental as compared with Assyrian work. Every feature of the architecture revealed primitive beginnings in wood. The palace groups were the most magnificent and important of Persian works.

## SASSANIAN STYLE (NEW PERSIAN EMPIRE)

History. In A.D. 226, the Parthian Empire which had grown up east of the Zagros Mountains between the years of B.C. 225 and A.D. 226, was overthrown and the "New Persian" or Sassanian monarchy arose. This rule lasted until the seventh century, when it was overthrown by the Saracens.

Important Building Monarchs

| | |
|---|---|
| A.D. 226-242 | Ardashir, overthrew Parthians and founded empire. |
| A.D. 242-273 | Sapor I, took Roman Emperor Valerian captive (A.D. 260). |
| A.D. 308-380 | Sepor II, built a palace at Sebistan. |
| A.D. 458-482 | Peroses (Firouz) built palace at Firouzabad. |
| A.D. 531-579 | Khosru I, built palace at Ctesiphon. |
| A.D. 590-628 | Khosru II, built Mashita and Rubbath Ammon. |
| A.D. 632-641 | Yezdejrd III, defeated by Saracens. |

Reference (Braun 4, and Pope 21.)

Religion. Zoroastian fire worship was the prevalent cult, the kings ruling as earthly representatives of "Ormazd" (Mazda). The priests during this age were ranked with the nobility. The Zoroastians were the mortal enemies of the early Christians.

Social, Political, and Economic Conditions. The Sassanians considered their culture in all respects a revival of and successor of the old Achaemenian culture. Developing as a strong military power, they proved a formidable adversary for the Romans in the east. In fact, at the battle before Edessa in Mesopotamia the Roman Emperor Valerian was defeated and taken prisoner by

Sopar I. A hugh bas-relief setting forth this historic episode is still to be seen upon a hugh rock near Shiraz.

The king was all powerful; his will was guided by his god and his law unquestioned. The country was divided into a great number of small provinces each under a "marzaban" or boundary-lord. The king dealt directly with the marzaban. There were several ranks of nobility, the distinctions between which were extremely rigid. The empire was orderly in its organization; excellent legal administration obtained and taxation was generally just.

## Architecture

Sassanian Architecture was one of the important styles, it attained grandeur and magnificence, and it developed with ingenuity certain forms of vault and dome construction which have had a wide subsequent influence; is amply proven by the ruins of the stone palaces of Sarvistan,[1] Feruz-Abad,[2] and Ctesiphon.[3] But our materials are too meager and incoherent to enable us to construct a comprehensive picture of Sassanian Architecture in its entirety. Owing to this scarcity of examples it has been universally assumed that Sassanian Architecture was only stone and

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All of the above examples are the best expressions of Sassanian Architecture found to this date.

1. Palace at Sarvistan dated A.D. 350.
2. Palace at Feruz-Abad dated A.D. 450.
3. Palace at Ctesiphon dated A.D. 550.

brick buildings, consisting of arches, vaults, and domes. There has been no discussion in the literatures of other types; yet there must have existed structures of interest and beauty of the column and lintel style. Rock carvings made it quite clear that there were porticoes with slender columns as early as Median times. The style was continued through the Achaemenian period, reaching a magnificent fulfullment in the Palace of Xerxes at Persepolis,[1] and it is a feature in some of the earliest mosques of the Islamic period, notable examples being the mosques at Kufa and at Basra, built by Zayad in Abihi in 666 and 670, in both of which tall slender stone columns support a flat roof of teak. The stone columns, however, were apparently exceptional, for we know also of early mosques in which the columns were of wood, and the style is essentially a wood style. Since such columns and lintel building was thus prevalent both before and after the Sassanian period, we can be sure, even if there are no existing examples, that it was used also in Sassanian times.

> Fortunately, we are not confined to a speculative reconstruction of what the buildings of this type in Sassanian times were like, for we have a very clear contemporary drawing. In the Kaiser Friedrich Museum there is a large bronze salver, the entire surface is covered with a rich engraved pattern of radial compartments which center on a rondel framing a carefully drawn palace set in the midst of trees and shrubbery (Plate V). (Pope 20.) pp. 75-82.

There is good reason to believe that this drawing faithfully

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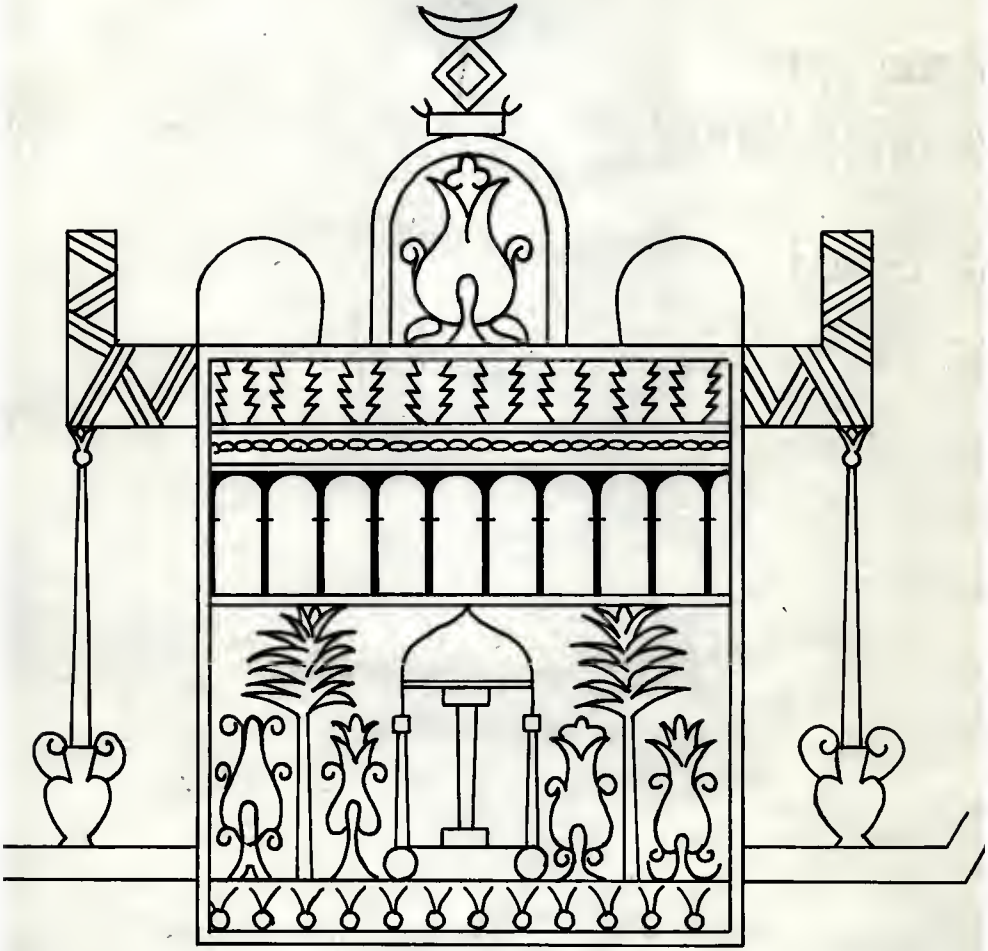
1. Palace of Xerxes at Persepolis dated B.C. 485.

EXPLANATION OF PLATE V

Elevation of the Garden Palace shown in the center of the Bronze Salver. Sassanian Architecture, VI or early VII century. Kaiser Friedrick Museum, Berlin.

PLATE V



represents an original structure which is in no sense a building "to the eye of fancy only". It is drawn with detail and precision, the main lines properly emphasized, and is structurally feasible and consistent throughout.

> The drawing indicates a building roofed with five domes, a large one in the center and a smaller one in each corner, for while only three are represented, the drawing shows only the frontal plane. It is of course conceivable that the building is oblong rather than square in plan and that the long side is shown. In that case there would be three domes along the main axis instead of one in the middle and one in each corner. But such an arrangement would make the building almost too narrow for use. Moreover, that the building is at least as wide on the sides as it is on the facade is clearly indicated by the drawing of the porches. In the first place, the floor of each porch is shown to be higher than the foundation of the facade. This is the old Oriental method of indicating receding planes by successive elevation. This would show that the side porches occupied only a part of the width of the side walls. In the second place, the parapet of the terrace is turned upwards and outwards on either side. According to Asiatic laws of perspective, this indicates that the porches have a certain width as well as the depth which is so precisly indicated. That only two instead of four corner domes are shown is just what should be expected, since, by the method of drawing used, only the frontal plane is represented, so that objects seen in the same line are not repeated. Thus, one column does for all the columns of each portico. Hence it would be inconsistent if there were any effort to represent the domes on the far corners. All three domes are shown slightly bulbous, the first appearence of a style that culminated in the onion-shaped domes of Mogrel Architecture in India and Russia. The columns, whether of stone or wood, run to the top story, where they are crowned with a parapet or vertical screen which seems partly to mask the dome, just as in the mosques of the Islamic period. It may be, however, that this upturn is meant, like that of the terrace below, to indicate the side view. The columns are particularly interesting as they throw light on the origin of the well-known style of tall, slender column with expanding capital, which was continued almost unchanged in the Persian mosques and in Turkestan. The columns are set in large urns or vases, the old Mesopotamian symbol for the water of life which nourishes the sacred tree. The expanding top

represents the foliage. At an early date symbolic representations of the tree condensed into a column are frequent in Western Asiatic Art.

The plain wall surface of the lower course of the building represented on the bronze salver was apparently decorated with a symmetrical design of urns and foliage flanking a palm tree, almost certainly in stucco, probably polychromed. That the designs on either side of the entrance really were wall decorations and not a projection of the garden is shown by the presence of the same pattern on the main dome.

Above the first course is a blind arcade of ten panals formed by semicircular stilted arches carried on engaged columns, a feature quite characteristic of Sassanian buildings. Over the arcade runs a frieze of rather ambiguous character, which as drawn is nothing more than a series of large, round links. This probably represents a row of circular plaques. This combination of a frieze of circular plaques over a colonnade of semicircular arches appears in the basilican church of Saint Peters in Rome. Whether the priority of this arrangement rests with the Orient or with Rome cannot be decided. (Pope, 20.) pp. 75-82.

The cornices carry a pattern of the reciprocal stepped battlement such as had been familiar in Western Asia for at least two thousand years.

An especially interesting feature of the facade is the entrance portal, which is distinctly drawn as a stilted pointed arch, an item of considerable interest for the history of architecture which throws valuable light on the origin of this important form. In India the pointed arch, or, more exactly the peaked arch, has been indigenous for centuries. It marked the entrance to the great cut-rock temples, city gates, monasteries, and shrines. From as early as B.C. 275, it was used as the Buddha halo in the Buddha shrines. With the spread of Buddhism this form and symbol was adapted and revered wherever Buddhism went, and as Afghanistan and the eastern Iranian province were early strongholds of Buddhism, the Persians had ample opportunity to

get acquainted with it.

Through the opening portal is shown a column with a wide cap and a wide base, so much like the columnar altar shown on many Sassanian coins that it is certain an altar was meant. The presence of the fire altar within the little garden palace indicates that the building had a more than secular significance, a fact which has an important bearing on the problem of the transmission of the pointed arch. Already this arch, which was but a fixed form of the halo, has, through its constant association with the image of Buddha, became conspicuous, sacred, and important. Moreover, it is a symbol of flame, all considerations tending to commend it to the eclectic, openminded. Sassanians, suggesting to them an association with their own holy fire. From framing the sacred Buddha to framing the sacred flame is not a far step, and one entirely possible.

The date of this salver is placed around the sixth or seventh century though the palace garden represented on it must be contemporary. This style of garden palace continued from Sassanian down to Safavid times. This is proven by a comparison of the structure with the palace of the Ali Kapu at Lsfahan built at the beginning of the seventeenth century, a thousand years later. The similarities and proportions are too numerous and precise to be accidental. There we have a prime example of how the history of a civilization is traced and how one civilization though foreign in space and time can influence another through religion, materials, style, and techniques.

Structural System. The Sassanians developed a system of construction markedly different from that of the old Achaemenian architecture. Whereas Achaemenian architecture was columnar, the Sassanian showed a predilection for different forms. Ancient Persian work was precise and of excellent workmanship; Sassanian work, often slovenly and shipshod. Both brick and stone-work were crude and usually concealed by a stucco covering. Crude jointing was offset by the excellent mortar. Walls were thick; rooms were either square and dome-covered, or rectangular and tunnel-vaulted. Arches, vaults, and domes were frequently elliptical in section, although semi-circular sections were the rule. Corbels, squinches, arches and hemi-domes were much used in corners to transform from a square to a polygonal base for the reception of domes. The true Byzantine pendentive, however, was not developed here, although these Sassanian expedients clearly anticipate it. Some existing vaults are perforated by cylindrical tiles of burned clay. The purpose of these is unknown, although they may have served as ventilators or for the suspention of lighting units.

Crude imitations of Roman orders were used both inside and outside their buildings. The walls were relieved by niches or recesses outside, and by exedrae, carried upon short columns, inside.

Decorative System. Contrary to one's expectations, no colored or enameled tiles, such as graced old Achaemenian buildings, were used in Sassanian work. Ordinarily, wall surfaces were covered with stucco. Sassanian bas-reliefs were based upon old Persian

models, much of which still exist, but plainly expressed Greek and Roman influences. The subject-matter of the bas-relief consisted of the kings and their exploits, floral ornament (as at Mashita), etc.

Classes of Buildings

I. Domestic.

A. Palaces (the all important class and the only class in any state of preservation at the present time).

B. Huts of the common people.

II. Sepulchral and Religious.

A. Temples and fire altars.

B. Tombs were unknown.

General Characteristic of the Style. Sassanian architecture was domical, heavy, rough in construction. The masses were simple, and the plans balanced, the general effect of the masses being rather box-like. There were no windows, but facades were pierced with great arches. Decoration was almost negligible.

HEBREW STYLE

The chief characteristic of Hebrew architecture seemed to have been derived from Babylon on the easr and Egypt on the west, through the seafaring and trading Phoenicians. The structural part of the style followed the Egyptian and Phoenician practice of cutting out tombs in the rock, and to this succeeded the use of hugh, quarried blocks of stone, such as those in the arch which was discovered in Jerusalem. The Temple of Solomon at Jerusalem was placed on a mighty natural platform partly built up on one

side, like that at Persepolis.

## Land

Geography and Topography. Palestine, the land of the Jews, is a narrow strip of coast land at the eastern end of the Mediterranean. With an area of only some 6040 square miles( equal to about one-tenth that of the state of Illinois), and much of that barren, the habitable area is small. The topography is varied. There is a maritime plain, a mountainous area, and a single river, the Jordan, emptying its waters into the salty Dead Sea some 1300 feet below sea level--the lowest sheet of water upon the earth's crust. Aside from the Jordan there are no perennial streams, although springs are found. Frequent heavy summer dews facilitate vegetation, and in place irrigation is practiced.

Geology and Materials at Hand. Excellent white limestone is found near Jerusalem where stones of remarkable size were quarried in Solomon's time. Bricks, both burned and unburned, were upon occasion employed but were not important. The native woods, acacia, olive and sycamore, were not important but were used for smaller structures. For important work, cedar, brought from Lebanon, was employed. The metals: bronze, brass, gold and silver, were used ornamentally, and, as in most ornimental oriental countries, fabrics and textiles served as architectural adjuncts. A good cement mortar was developed for lining aqueducts but was not employed as an adhesive between building stones, which were laid dry.

Climate. There are two seasons in Palestine, the wet winters

(November to April) and dry summers. The average annual temperature is about 70 degrees on the maritime plain, where oranges and other citrus fruits thrive, and about 62 degrees in the mountains. Certain districts experience wide ranges of temperature. The average annual precipitation in the Jordan Valley is five inches.

## People

History. The early history of the Hebrews was that of a nomadic race which until such time as it became sedentary produced no architecture. The building period of the race was a brief one and, so far as the production of a real architecture is concerned, was confined to the regions during the reigns of David and Solomon.

Religion. The Hebrew religion was a true monotheism. Yahveh (Jehovah), their god, was viewed as a spirit not expressible in statue or other representation. This race gave the world a great and valuable code of religious laws. They felt that their leaders were divinely appointed and walked and talked with Yahveh. Moses, for instance, is thought to have received the laws and directions for the design and construction of a tabernacle from the hand of God on Mt. Sinai. The Jew has always been predominantly religious and philosophic in turn rather than artistic; therefore, art did not play an important role in Jewish culture. Yet the annual religious feasts at Jerusalem naturally called for a great national temple at the capital. Burial was in tombs, generally of the rock-cut variety.

Social, Political, and Economic Conditions. Early government with the Jews was vested in divinely appointed prophets and judges. This interesting pastoral system, however, became an absolute monarchy under the kings. The priesthood was strong and important. Strong national and racial traits developed by a peculiar history and the vicissitudes through which the race has passed, presist even to this day. The Old Testament gives true pictures of the social, political, and ethical codes of this people.

## Architecture

Structural System. The native Hebrew system of construction was the post-and-lintel, although the arch-and-pier system was introduced by the Romans. This, however, was little used before the time of Herod. The temple, palaces and accompanying structures at Jerusalem were placed upon a great platform. This was in part rock-cut from Mt. Moriah, but at the lower end it was constructed of great blocks of stone set without mortar. Under this portion were constructed those chambers sometimes called Solomon's Stables. The temple and palace walls were of stone, whereas columns and roof beams were of cedar wood, carved, colored and gilded. These structures have been so successfully obliterated, however, that restoration, except through the aid of worded descriptions, would be impossible. Two decorative (non-supporting) columns of bronze are mentioned in the Bible.

Decorative System. The decorative system made great use of fabrics which, dyed red or purple, were fringed with gold. Ceil-

ings of carved cedar were often gilded with "beaten gold" (gold-leaf). Few fragments have come down to us, but these show unmistakable Egyptian and Assyrian influence. The arc of shittim wood, the altar, the shew-bread table, candle sticks and cherubims of gold, all figure in temple decoration.

Classes of Buildings

I. Religious and Sepulchral.

A. Temples.
1. Tabernacle used during nomadic period.
2. Temple; one national temple at Jerusalem.

B. Tombs.
1. Rock-cuts, probably the original Jewish type.
2. Structural, showing great dependence upon Greek and Roman models in Roman times.

II. Domestic.

A. Palaces.
1. One important palace on temple area of Jerusalem.
2. Houses of people, small box-like stone houses, exterior stairways to second story; flat paved or, in Roman times, domical roofs.

III. Civic.

A. The great temple platforms at Jerusalem.

B. Fortifications, moats, and gates at Jerusalem and other cities.

C. Aqueducts, pools, and irrigation works for Jerusalem and vicinity.

D. Bridges (not frequent but used in Jerusalem).

General Characteristics. Construction was very simple, and proportions, according to the Bible, were set and fixed so far as the tabenacle and temple were concerned. The general form probably showed Assyrian affinities during pure Hebrew times, with

a decided Roman flavor during the time of Harod. Simple but imposing masses were the rule, with lavish decoration in gold and fabrics. Color was also important.

## INDIAN STYLE

Throughout the history of India, there has been many outside influences in the development of the arts because of the invasions of a variety of imperalistic nations. Alexander's conquests in north-west India (B.C. 327) brought that country into touch with European and West Asiatic art; thus Greek, Assyrian, and Persian influences are apparent in the architectural detail of that region. The Greek Bactrian Kingdom (B.C. 323-130), which, along with India, fell to Seleukos Nikator, one of Alexander's generals and founder of the Syrian monarchy, exercised considerable Classical influence over Northern India. From the time of Alexander to the time of Vasco da Gama (A.D. 1498) Europe had little direct influence on the East. The Tartar of Scythic inroads from B.C. 126 to the fifth century of our era succeeded those of the Greeks. The Mahometan invasion, in the thirteenth century, led to the adoption of Saracenic features, thus producing an Indian version of that style. From A.D. 1746 British rule in India was being consolidated, until in A.D. 1858 the annexation to the British Crown was effected by Royal proclamation, a historic event which has still further promoted an intermingling of European and native art. The selection of Delhi as the capital of Indian rule has given an opportunity for English and native talent to produce

public buildings in accord with Oriental surroundings and suitable for their Imperial purpose.

## Land

Geography and Topography. India has a kind of impregnable geographic isolation. The penisula is bounded on the west by the Indian Ocean; on the east by the Bay of Bengal and along the northern frontier by the rocky curtain of the Himalayas. Except for a few passes through the Sulaiman Mountains, (north-western India), India has almost been isolated to outsidere because of the absence of good harbore along her coaets. In early times through the few passes in the north came all the migrating tribes from the overflow of the ancient races of Central Asia.

The cultural divisions of India proper have always been determined and dominated by the great river systems, the watersheds of the Indus and Granges, the Deccan plateau, and south India. In western India is the plain, watered by the Indus and its tributaries. Along the lower Indus is the province of Siud, a region, now mostly desert, and along the north east flowing over a thousand miles of India is the Granges river system. In central India, there rises the high and arid plateau of the Deccan, shut off from the Indian Ocean by the steep mountain wall of the western Ghats and flanked by a continuous range of plateau-like peaks on the Bay of Bengal. The Nilgiri Hills, seal off the southern tip of the Indian peninsula, so that from very early times this region has maintained a culture essentially its own.

Geology and Materials at Hand. Pink marble of Rajputana and granite of Deccan were important building materials of their

particular regions. An abundance of sandstone and volcanic potstone contributed to the development of the arts in various locations. Teak is found in the mountainous regions while ebony, bamboo and plum are the chief woods of the lowlands of the coast. The alluvial soil of the Bengal region produced brick and terracotta. Lime for building was obtained by burning limestone, shells, and kankar, a form of impure lime found in the river valleys.

Climate. Most of the country lies within the tropics thus producing extreme heat in the summer season. With the exception of the Himalaya Mountain region there are only two seasons, the dry and the wet. Water storage is necessary to sustain civilization during the dry season and this was reflected in the architecture of the early temples and palaces. The pierced screen or lattice window, which is so characteristic a feature of Indian art, was designed to exclude the light and heat caused by the constant sunshine.

## People

History. Broad Division of Indian Periods.

Indus Age. Age of the Dravidians B.C. 3000-2000.

Vedic Age. Age of the Aryans B.C. 2000-550.

Kushan Period Buddhism introduced B.C. 550-A.D. 320.

(Saisunaga-Nanda Period, B.C. 642-320)
(Maurya Period, B.C. 320-185)
(Ksatrapa Period, B.C. 200-A.D. 20)
(Kusana and Late Andhra Periods, A.D. 50-320)

Gupta Age. A.D. 320-650.

Classic Age. Small kingdoms split empire A.D. 650-1000.

Mughal Period. Mohammedan Introduction A.D. 1000-1707.

Present Period. Western Influence A.D. 1707-present.

(Coomaraswamy, 7, and Grousset, 12.) entire books.

India has no history, so called, before the Mohammedan invasion in the thirteen century A.D. As far as anyone knows, India has always been occupied by three or four different races of people, who have never become mixed so as to speak, and each of these races has been again subdivided into numerous tribes or small nationalities nearly, sometimes wholly, independent of each other, and to add to the confusion, not one of them ever kept a record or preserved a series of dates commencing from any well known era.

The absence of any historical record is all the more mysterious, because India possesses a written literature equal to, if not surpassing in variety and extent, that of any other nation before the use of printing. The Vades and their Upanishads and Brahmanas (priests), form a vast extent of Indian literature, some parts being as old, if not older, than any written words now known to exist.

What history of early India there is, has been pieced together from many documents which were not only confused but some purposely misleading, such as the works of the Puranas because of the rivalry of the Brahmanical religion, which was purposely confused to protect their prophetic character, and prevent the detection of the falsehood of their claims.

After the fifth century, India's history has been pieced together from inscriptions on documented momuments, copper plates, and coins. The Brahman priests have been helpful, but tend to

exagerate the ages of their temples, and are confusing as to periods of history, the key of which is held in their myths that have been passed on from generation to generation. The confusion is the result of the varied versions heard from the many tribes during their wide travel.

Aborigines. The first inhabitants of India lived in the late stone age from B.C. 12,000 to 3,000, and of the 8,000,000 people that follow the primative tribal religions some 3,000,000 speak dialects called Munda, which no other race in India can understand, but which is more like some of the languages in Burma, Easter Island, Madagascar, and parts of New Zealand.

Some of these primative tribes lived on the plateau and hills of Chota Nagpur in Bihar. These people were usually muscular, sinewy men of the darkest skin, with flat noses, low foreheads, sturdy and jolly, loving to hunt, and dance wild tribal dances.

Totemism was their main religious system; it is believed that the tabus of India today originated from their totem beliefs, such as the sacred cows, monkeys, and cobras.

Dravidians. No one knows where the Dravidians came from, but the dark-faced man with the broad flat nose, mournful eyes and long sleek hair are desendants of the Dravidians who ruled India before B.C. 2,000. They have been mixed with some aboriginal races and with others that have come to India but live in the purest blood and largest numbers in the southern half of India which the invadors seldom reached.

The Dravidians traded apes, ivory, and peacocks and bargained

with the Egyptians. They built rich towers, forts, castles, and townes, using iron, copper, silver, and gold. Mohenjo-Daro, one of the first cities built on earth existed between B.C. 3,500 to 2,700.. It is located two hundred miles from Karachi on the Indus river. Mohenjo-Daro was excavated in 1921 where it wae found buried under the layers of eix cities. It was built with a broad avenue due north and south and its housee were kept accurately in line. The better familiee had baths and wells, the bathrooms had sloping floors draining through a hole in the wall like the bathrooms of India today. The city had an elaborate drainage syetem which consisted of drains in the streets, covered with conduits of precise brick work, which led to large underground avenues where it drained into a pit. This system hae not been bettered by India and was not equalled in Europe until the nineteenth century. The Dravidians power came to an end around B.C. 2,000, by the invasion of the Aryane using the horse and chariot.

Aryans. The Aryans were fierce and stalwart men hardened on the tablelands of Central Asia. Their relations were turning westward into Europe, but the Aryans had chosen an eastward course into India, and though few in number they spread from the mountains of Afghanistan and Kashmir to the plains of Punjab.

The Aryans dielik ed the Dravidians, who they believed worshipped the wrong gods, the earth gods, (they themeelves worshipped the sky gods) and believed themselvee euperior because of their fair ekin. They used the word Varna, meaning color, to describe the four claseifications of man which they made into a

society. The three highest were the priests (Brahmans), the warriors (Kshatriyas), and the commoners (Vaisyas), which they reserved for themselves as the "twice-born" (being reborn in ceremonies of the Vedus), and below this they let the Dravidians be the lowest (the Sudra). The Hindus of today are still born into this caste system, in which each main division has become divided into more than two hundred and fifty classes. A Hindu may advance in the classes but until he becomes a deity it is next to impossible to advance to the higher divisions. Many have tried to break down this caste system in order that the people might work in harmony to advance their civilization, but have failed because of the high population, some 350,000,000 people, and their profound belief in their religion.

The Aryans held their power over the country from the time of their invasion, around B.C. 2,000, until around B.C. 550, but they began to weaken around B.C. 700, when they no longer existed as a separate nationality and their Brahmans shared their powers with the Kshatriyas, a race of far less purity of descent. The Vaisyas, became a power, and even the Sudras were acknowledged as part of the political body.

From B.C. 550 to 200, Magadha, now Bihar, was the principle state. In the immediately succeeding period many invaders entered from the northwest, some of which were Greeks and some were Iranians, but the most important were the Kushans who ruled over an empire consisting of both northwestern India and regions beyond it in Afghanistan and central Asia. This empire came to an end in the third century A.D., but the cause of its collapse is uncertain.

The native Hindu dynesty of the Guptas began to rule in B.C. 320. Its dominions included nearly all northern India but it was destroyed by the invasion of the Huns in the sixth century. The Huns were defeated and driven out of India in A.D. 526. The Hindu emperor Harsha (A.D. 606-647), reconstructed the Gupta Empire but his dominions split up after his death.

At about the time the Gupta Empire split another empire, which extended from Gujarat to Madras, was founded by Palakesin, a prince from the south. This region was by no means uncivilized because it played a large part in the history of India.

From A.D. 650 to 1,000 India was divided into numerous independent kingdoms which were conducted as feudal states ruled by the Kahatriyas and advised by the Brahmans. It was during this period that India's wealth, of today, was accumulated by the rulers of these kingdoms. There was no central power during this time but Bengal and Deccan were more prominent than any previous state.

After A.D. 1,000, the conquest of Mohammedan invaders became important and the Hindu states of northern and central India grew weak, but the Hindus held out in Rajputana, Orissa, and Vijayanager.

In A.D. 1526, came the invasion of the Mughals, who founded an empire which at its peak, A.D. 1556-1707, included all India except the extreme south. In its decline the Marathas and the Sikhs became powerful and the Europeans began to intervene.

Religion. India's religions stem from the early Veduc religion, which was practiced by the Brahmans. They worshipped many gods, each being represented by something. The Brahmans performed their

services for others for a price and taught their religion only to those of their class. A prayer was used for asking favors of the gods and consisted of performing certain gestures and reciting special phrases and poems to please the god. Any variation of inflection or error in movement would destroy the prayer's power. Some ceremonies were so complicated that it took as many as ten to fifteen Brahmans to perform and as long as two weeks.

Buddha. Sahyamuni founded the Buddha religion in the early sixth century B.C. He left his luxurious life, as a pampered son of a king, and wife and son in order to help the miserable people of India overcome their obstructions. He lived with the Brahmans for several years studying their philosophy, but being unsatisfied with their ideas he left to wander the country in meditation, and after a few more years, decided that man's life should be based on the theory that all men, of whatever nation or degree, has an equal chance of reaching happiness through what we call the "golden rule", and virture. He traveled far and wide teaching this doctrine. King Asoka adapted Buddhism as the state religion and the religion existed in India until nearly A.D. 1,000.

Jain. This religion seems to have been founded on Buddhism and rose to importance around A.D. 1,000. A statue of one of the twenty-four saints, with its distinctive sign, such as a bull, elephant, monkey, crocodile, rhinoceros, or lion, is placed in each temple, and it is believed that the particular saint to whom the temple was dedicated was honored in direct proportion to the number of his statues in that temple. The Jains also believed that temple-building was a virtue and developed a happy future, which

resulted in the endowment of temples by private individuals.

Hindu. Of the 350,000,000 Indians today, 240,000,000 are Hindus. A Hindu does not need to follow a prophet, savior, god, creed, or one philosophy. A man is considered a Hindu if he is born into a recognized caste and does not openly break its particular laws. The Hindu religion dates back to A.D. 750, and is a combined production of the Vedic cult, Buddhism, and Brahmanism, and is a social group based on the caste system.

## Architecture

The Buddhist style ran from B.C. 600 to A.D. 750, and most of their temples were constructed from wood and no longer exist, but there are some of the rock-cut temples which tend to indicate their style. The rock-cut temples have only one facade cut in the face of the rock, the main interest being internal where they show an imitation of timber forms. Ornamentation was lavished on internal columns and roofs, the former of which were short and overladen with decoration, while the latter were generally semi-circular and treated with ribs.

The monuments found in India are mainly religious and most of them belong to the age of Jain Architecture, from A.D. 1,000 to 1,300. Their temples have an entrance porch or hall, and columns with bracket capitals and angular struts which support domes often of various heights without the aid of buttresses. Next is the idol-cell which contains an idol, or saint, sitting cross-legged. The cell is a sikra, or an imposing pyramidal tower, with curvilinear sides in receding stages, with the only light coming

from a door, which shines on the idol. The whole structure is covered with sculptured decorations of grotesque and symbolic design leaving little wall surface. The larger temples are inclosed by a wall, along the inner side of which are numerous image-cells which open into the inner court. The Jain placed a high value on the settings of their temples and built them on mountain tops or in secluded valleys.

The Hindu style has been divided into three types:

1. Northern Hindu, in the north; A.D. 600 to today.
2. Chalukyan, central India; A.D. 1,000 to 1,330.
3. Dravidian, in the south; A.D. 1,350 to 1,750.

All these styles have the vimana, or shrine-cell and entrance porch, with the same excessive carving and sculpture, which is impressive as an offering of labor to the gods. The principle Brahman temples show successive additions of sanctuaries and enclosures grouped around or attached to the original temple. In other respects the styles differ. The northern Hindu differs from the Dravidian in that the pyramidal roof over the vimana is curved instead of stepped in outline and the entrance porch has no columns. The Chalukyan is affected by the northern and southern temples and takes features from both without losing its character. Its star shaped plan contrasts with the cruciform plan of the northern Hindu, while its curved pyramidal towers contrast with the stepped Dravidian towers. The Dravidian is covered by stepped pyramids highly decorated with ornaments.

ANCIENT INDIAN ARCHITECTURE AND ART

It has long been known that seals are an art form unique to India. They are found chiefly in a region called the Indus Valley. These seals were probably carved about the fourth century B.C. to the fifth century A.D. Quite recent excavations at Harappa and Mohenjo-Daro have revesled extensive city sites with remains of brick buildings which are by no means of primitive character. An abundance of seal plaques and coins indicate a period of change from stone to copper. Even though cities were erected in the very ancient past; these cities were not buried very deep in the earth. Still lower strata suggests that a high form of civilization existed farther back in history.

The antiquities found in the Indus valley other than the brick buildings, coins, seals, and plaques include limestone figures of bearded men and treea-cottes representing female figures and animals. The latter includes the rhinoceros which is now extinct in the Indus valley. A tablet with pictographic characters at the back was also found in the excavations at Harappa. On the front of the tablet are the representations of a cross-legged figure with kneeling worshippers on the right and left and the god Naga behind. This is a remarkable anticipation of familiar types in later Buddhist art of that historical period.

Seals, which are mentioned in the beginning, are of ivory, blue or white and square in form. They have a variety of designs, including bulls, elephants, tigers, and representations of a pippala tree with two horned monsters attached to the stem. These

seals also have a pictographic scrip which up to the present time has not been decipered.

The study of Indo-Sumerian antiquities is still in its infancy, and it is too early to draw any far reaching conclusions. However, it is at least probable that the civilization of which we have now obtained this first glimpse was developed in the Indus valley itself and was as distinctive of that region as the civilization of the Pharaods was distinctive of the Nile. If the Sumerians, as it is generally supposed, represent an intrusive element in Mesopotamia, then the possibility is, that India was the cradle of their civilization which in turn is the root of Babylonia, Assyrian, and Western Asiatic culture generally.

Before the second millennium B.C., the Dravidian race, had come to form the bulk of a population thinly scattered throughout India. In the fourth or third millennium B.C., a distinct civilization began to evolve. Evidence of this has been found at Mohenjo-Daro and Harappa in the Indus valley. A high level of skilled work in design, building, commercial progress, etc., was developed. It was then that a nomadic tribe known as the Aryans began to penetrate into the fertile valleys below the Himalayas. The dark skinned Dravidians were pushed further south into the desolate highlands. The Aryans then settled down on the fertile valleys and became an agricultural people.

The Dravidians are responsible, however, for the type of architecture used in India today. Their architecture was based on bamboo construction; their design of the Toda hut has been cited as a prototype or a near analogue of the early barrel-

vaulted caitya-hall and the horseshoe arch. The curved roof common in India is rare in the rest of the world. The stone slab construction of temples is likewise of Dravidian origin.

Even though the Dravidian race was conquered, their philosophy and architecture was taken over by the conquering Aryans just as was the case between the Romans and the Greeks.

The Aryans seemed to have formed with their brothers, the Iranians, a distinct group of the great Indo-European family, the Indo-Iranian or Aryan group. The language of the Indians and that of the Iranians is Vadic Sanskrit. Thus the Aryans acquired their name through their Sanskrit.

After the Aryans had taken over India, they formed an exclusive society because of the situation which prevailed. They were among a strange people in a strange land. In spite of inevitable mixtures of race, the chief preoccupation in the Vedic texts seems to have been anxiety for racial purity which is the instinctive defense of the conqueror against the slow process of retaliation on the part of the conquered masses.

The sacred books of the Brahmans or Vedas, which were handed down orally from generation to generation, were probably written at the time of the domination of the Achaemenid Persians in the Punjab. Never-the-less, in view of the archaic character of their language, it may be supposed that the Vedas, in the form of a mass of oral traditions, go back to the first half of the first millennium B.C.

The very early history of the Dravidians in Dekkhon and southern India is obscure. It is fairly evident that in these

areas, Dravidian culture had already attained a high level, prior to the Christian era. Already in the third century B.C., the great Andhra empire, stretched across the Dekkhon from east to west.

A brief reference must be made to the prehistoric Indian antiquities which cannot be exactly placed or dated. Eolithics have been found in India and Ceylon, and paleolithics are widely distributed. Remains of the neolithic cultures, some of incalculable age; others later than the beginning of the Christian era include the usual types of stone weapons, pottery, and dolmens. In northern India, a copper age succeeded and in part overlapped the neolithic. Findings of copper weapons have been made in many places, the most important being that at Gungeria where silver ornaments were also found. The weapons included plain and barbed spearheads, swords, and harpoons, often in handsome shapes and finely wrought; some are of great weight and may have been used for cult purposes.

There is no bronze age, nor does bronze begin to appear much before the first century A.D. Iron may have come into use in the earlier part of the first millennium B.C., or may have been known to the Aryans still earlier; the fact that there is no copper age in the south, that there is a continuity of stone and iron using cultures, that the techniques of workings required a thin iron saw, and that iron weapons (of uncertain ages) are characteristic of prehistoric sites in the south, that iron ore is abundant and readily worked, and that steel was known already in India and Ceylon in the second century B.C., all suggests that

iron and steel may have come into use at an early date and may have been discovered in India. On the contrary are the facts that iron is not mentioned in the early Vedic literature, and that the Hittites were using iron already about B.C. 1,550, in the north. The Vedic Aryans were proficient in carpentry, building houses and racing chariots of wood, and in metal work, making vessels of ayas, presumably copper, for domestic and ritual use, and using gold jewelry. They wove, knew sewing and tanning, and made pottery.

The Hindu artist considered himself a pious craftsman, a servant in the temple or the palace, and as a descendant of Visvakarma, lord of the arts, the heir of ideals about the idiosyncrasies of individual expression. Thus the Hindus produced some of the most profound art in the world. The artists visualization was derived from what the cannon prescribed, not from what he saw. The Mazdean art included landscapes showing the sun and clouds; the earth with its plants and herbs; river landscapes with formal trees; hunting scenes; and symbolic geometrical arrangements of birds, animals, and plants. The use of ornamented textiles and decorated hangings are characteristic of nomadic races. They were the forerunners of formal floral murials.

Later Vedic books show that a knowledge of metals was much advanced in the Saisunaga-Nanda period (B.C. 642-320). Tin, lead, and silver are mentioned as well as two varieties of ayas, usually regarded as copper and iron. Cotton, linen, silk, and woolen garments were worn; a linen robe used in Rajasuya ceremony was embroided with representations of ritual vessels. Buildings of several stories are mentioned also.

Until now, mention has been made as to how art at the early periods looked, but very little has been said as to why it appeared as such. The following is one of the most famous episodes in Hindu mythology and is often reproduced by sculptors of India and Ceylon.

> After a long warfare, the gods (Davas), and their enemies, the Asuras or Titans, came together one day on the advice of Vishnu in order to obtain the ambrosia (amrita) or drink conferring immortality. The drink was hidden in the sea of milk. The gods and Asuras therefore went off together and uprooted Mount Mandara which Vishnu riding upon the back of the bird Garuda, sank in the depts of the ocean to serve as the dasher of the churn. The serpent, Vasulsi, was passed around this giant dasher to serve as a cord, and the churning began, the gods hauling at the tail of the serpant, and the Asuras at the head in rhythmical succession, each team in turn. In order to support Mount Mandara, which threatened to sink into the abyss, Vishnu assumed the form of a giant tortoise and placing himself beneath the mountain, held it up with his massive form. At the same time, Vishnu stood in the center under another form between the two teams of gods and directed their mighty task. Suddenly, a poison, the haladala, spurted forth from the seething waves and would have caused the very gods to perish had not Siva swallowed it out of compassion for all creatures; and so virulent was the venom that the terrible god had a blue mask left forever on his throat from the burning. Next a series of wonderful creatures rose from the ocean, one after the other: the white cow of Agnihotra, the horse Achchaihsravas with his moon-colored coat; Airavata, the kind of white elephants who was to bear India on his back, the ruby, Kaustubha, which was afterwards to adorn the breast of Vishnu, the tree of plenty, paryata, the source of good things, the Indian nymphs or apsaras, and then, wonder of wonders, the Indian Aphrodite, Sri, or Lakshni, who became consort of Vishnu. (Grousset, 12.) pp. 169-172.

> Holding in her hand a wreath of lotus, round which hummed the bees, she turned her gracious face, lovely by the smile of modesty, and against whose cheeks sparkled beautiful earrings; her two breasts perfectly matched and close together, were covered with powered sandalwood and saffron; her belly was so slight that it was scarcely seen; her every step was accompanied by the tuneful jingle of the anklets which adorned her feet, and her whole body was like a golden liana. (Grousset, 12.) p. 172.

These segments of Hindu mythology show how their legends and folk lore have affected their art and sculpture. We find a striking resemblance in this description of the woman and almost all of their statues in relation to woman kind. We find that they have the characteristic huge breasts, small waists, and tremendous hips.

During the age of Hinduism in the Middle Ages, Vedas is represented with four arms, bearing respectively the shell, the club, the lotus, and the disk. He rides upon the giant bird, Garuda, and has as his consorts Lakshmi, the goddess of beauty, and Bhumi-Devi, the goddess of earth. None of the texts consulted on Hindu art explains the reasons for the multiarmed statues. The only plausible reason for these many arms is to accommodate the symbols of their religion: the shell, club, lotus, and disk. Also some mention should be made of the raised dot on the forehead of the statues depicting Buddha himself. This raised dot was to signify the inner or cosmic eye with which he was able to see into realms of the "other" world. It also made him all powerful, wise, just, etc. To this day women of the Buddha faith still wear a red dot in the center of their foreheads.

The buildings of the Maurya period (B.C. 320-185), were more pretentious and were built of wood with squared beams, sometimes of several heights supported by pillars with well provided balconies. City walls were of burnt or unburnt bricks. The arts of glass-making and cutting of hard stones had in previous centuries attained great perfection, unequalled at any later period. Stone begins to come into use both in architecture and for sculpture in

relief and in the round. The special characteristic of the Asokan work is the fine finish and polish of the surface, as wittnessed in the excavated monastic halls.

The history of India at the time of Sunga Andra and Indo-Parthian or Ksatrapa Period (B.C. 200- A.D. 20), was complicated because of the frequent invasions. First by the Greeks, and then the invading nomadic tribes originating from China. The Kingdom of Punjab was at its zenith during this era of history.

It was also during this time that the Brahmanical Hindus built the cave temples. This is an important point in Hindu architecture. The reason for these temples being carved out of the face of a solid rock cliff, is that India has more rain in one day than many other parts of the earth have in a year. This rainfall plus the terrific heat produces a climatic condition like that of a Finnish steam bath. Thus a cool cave was one way to beat the heat.

The architectural forms of the Kusana and later Andhra (A.D. 50-320), period was domed shaped temples. These were surrounded by a wall broken only by four gates. Although these gates were made of stone, they look as though they were made by master carpenters. These gates are a good example of the craftman's failure to realize the limitations of stone. Never-tho-less, they are beautiful and very ornate.

It is during the Gupta period that a small evolution took place. Statues took on a more religious entity. They become more massive with each line flowing unbroken into the next according to what the cannon prescribed.

It is in this era that we find a very startling similarity between Hindu architecture and that of the Greeks, namely the Hindu columnades. There is one dissimilarity, however, that being the Greeks made theirs of stone, the Hindus' of iron.

The art of India was primarily religious and symbolic stemming from their legends and national heroes which they idealized. Later, when the religious consolidation of India took place, art in general took on a deeper look into religious feeling. Artists of that time created not from what they saw, but from what they visualized in their minds, they created some of the most profound types of art in the world.

Eastern art presents many features to which Europeans are unaccustomed, and which therefore often strike them as unpleasing or bizarre; but it must be remembered that use is second nature, and, in considering the many forms which to us verge on the grotesque we must make allowance for that essential difference between East and West which is further accentuated in purely Eastern architecture by those religious observances and social customs of which, in accordance with our usual method, we shall take due cognisance. These Eastern styles can scarcely be as interesting from an architect's point of view as those of Europe, which have progressed by the successive solution of construction problems, resolutely met and overcome; for in the East decorative schemes seem generally to have outweighed all other considerations, and in this would appear to lie the main essential differences between European and Eastern architecture.

## EXPLANATION OF PLATE VI

A. Temple of Jumbukeswara

This is a picture of a sacred tank, in the center of which is a small mandapan, or altar, and the temple of Jumbukeswara with a high background housing a fort. The temple was dedicated to Siva and the main part of the temple was believed to have been built between the ninth and twelfth century while the outer enclosures were completed as late as the seventeenth century. In the background a hall of 250 pillars can be seen, the center of which leads to the eastern gate of the temple.

B. Temple at Mamallapuram

This Dravidian temple is known as "Shore Temple", at the Seven Pegodas, in the ninth century. The smaller temple was dedicated to Vishnu while the larger, in the background is a Saiva temple.

PLATE VI

"A"

"B"

## EXPLANATION OF PLATE VII

A. Temple of Kandarya Mahadeo

The Saiva temple was constructed at Khajuraho in A.D. 950, and is the most important of a group of temples that were constructed from A.D. 950 to 1,050. The impression is that of a pyramidal form, the high base and the wide platform. It has two chambers raised on a well proportioned stylobate and has 872 statues in and around the temple ranging from 2½ inches to 3 feet in height.

B. Base of the Temple of Kandarya Mahadeo

This close-up shows the considerable importance given to the base, which is adorned with many horizontal and vertical mouldings which catch the light.

PLATE VII

"A"

"B"

## EXPLANATION OF PLATE VIII

A. Pillars of Seshagiri-Rao

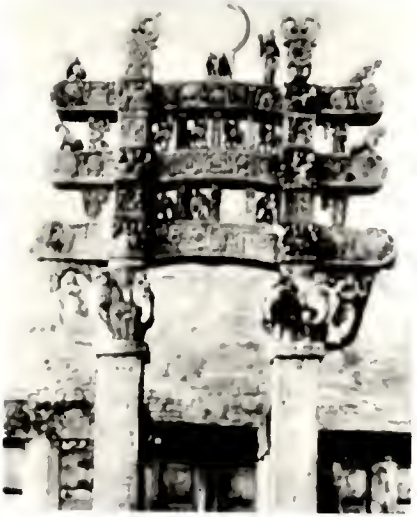
The Vaishnava temple of Siringam, near Trichnopoly and the temple of Jumbukeswara is the largest in southern India. It was dedicated to Sri Rangantha and although it was in existance before A.D. 1,254, it was not completed until the 18th century. The temple consist of four inner courts of which the inner fourth court is the most magnificent. The hall of Seshagiri-Rao is the most elaborately carved hall in the temple.

B. Northern Gate of Sanchi Stupa

The stupa is believed to have been constructed around B.C. 250, and the gates some time in the second century B.C. Each of the faces of the various parts of the gate is decorated with small bas-reliefs illustrating the Buddhist legend. Although Buddha is present in most of the scenes, he is never shown in human form. In the early stages of Buddhist art in India, the artist only suggests the Buddha by means of various symbols, probably from fear of committing sacrilege.

PLATE VIII

"A"



"B"

## EXPLANATION OF PLATE IX

A. Pillar of the Eastern Gate

The forest fairy swinging from the branches of a tree is a reminder of the time when vegetable life was worshipped. The arms twined in the branches, and the foot lovingly touching the trunk, made the Yakshini's body almost a part of the tree, and her full voluptious form is a symbol of fruitfulness.

B. Dance of Siva

Between the cosmic periods Siva dances the mystic Tandava which creates and destroys worlds. Often surrounded by a flaming aureole (the circle of the world) he tramples on the demon of evil. His many arms symbolize his power and suggest the wild forces of which he is the embodiment. The boldness of the pose is compensated by the perfect distribution of masses, so that the body remains astonishingly well-balanced. The manifestation of Siva as King of the Dance is one of the most widely worshipped in south India, where dancing has acquired considerable importance in religious ritual.

PLATE IX

"A"

"B"

## EXPLANATION OF PLATE X

A. Buhbaneswar

This close-up of the Lingaraj Temple shows the decorative elements typical of north Indian temple architecture: many narrow horizontal courses, with minature buildings of the same type superimposed. In the foreground are small shrines.

B. Lingaraj Temple

This temple was built at Bhavaneswar, in the ninth century and of the hundreds of temples built there, it is the most perfect example of north Indian Hindu architecture. It is a sort of curvilinear (nearly 200 feet). It is surmounted by a flatened knob, and surrounded at the base by many small shrines. Lingaraja is one of the names of Siva, who is often represented by a lingam, the symbol of fertility.

PLATE X

"A"

"B"

THE STUPA OF BORO BUDUR

The arts of Ceylon, Cambodia, Siam, Burma, and Java could compose a report all within each section. Yet, the arts of each of these regions have been directly influenced by Indian art, and they also have influenced Indian art. That is to say one is directly related to the others.

For the purpose of this report, I will by-pass the histories of these regions and instead enlarge on one particular point of interest.

Boro Budur or Barabudur could well be described as the most important Buddhist monument in greater India. Actually located upon the island of Java this massive group of structures appears to be the complete end to all ends of religious worship. Therefore I should like to conclude this region of the world with a look into this important structure rather than enlarge on the histories of these various regions.

The stupa of Boro Budur, located in a lush green valley in central Java, is one of the largest and most elaborate monuments ever dedicated to a great world religion. Built upon a low hill, surrounded by green tropical jungle, and skirted by four imposing volcanoes, Boro Budur's massive bulk defies comparison.

Boro Budur is a Buddhist shrine and at one time housed relics of some great personage, possibly even the Siddartha Gautama, known as Gautama Buddha, the founder of Buddhism.

A brief history of the development of Buddhism in Java is necessary to obtain a better picture of this old world monument.

Gautama Buddha is believed to have died early in the fifth century before Christ. Indian influence is apparent in Java as early as the first or second century A.D. This influence, however, is Hindu rather than Buddhist. It was not until the ninth century that the Buddhist religion in Java attained great enough proportions to enable it to construct such a vast monument as Boro Budur. During this time the Buddhist doctrines were undergoing great changes. The so-called northern school elaborated the simple rules of life taught by Gautama Buddha into a mystical doctrine of earthly and celestial Buddhas. This school was later degraded by the incorporation of the worship of Siva, the old Hindu god of destruction. Buddhism was, in a sense, a revolt against gods and priest-craft; but these eventually found their way into the religion. The smaller southern school preserved Buddha's original teachings in simple and pure form, but has never produced an architectural monument comparable to that of the northern school's Boro Budur.

This great shrine is mute evidence of the wide-spread appeal made by Buddhism throughout the Orient, and also of the close connection between religion and art. The art of Boro Budur comes directly from its native source in India, the birth-place of Buddhism.

The construction of Boro Budur was begun in approximately A.D. 850, and extended over an undetermined length of time. A close study of the structure revealed that the builders more than once modified their original plan. For, from the foot of the monument all that can be seen is a compact mass bristling with

hundreds of niches and pinnacles (Plate XI). It is neither conical, pyramidical, nor hemispherical. In broad outline the stupa is a stepped pyramid built around a low hill. The base measures five hundred and twenty feet on a side and covers over six acres. However, the base line is not straight, nor are the lines of the succeeding levels; they are recessed backwards at intervals from the center (Plate XII). This forms a succession of thirty-six right-angle cornices on each of the six levels.

Except for the foundation terrace, which is an open platform, the four lower terraces are bordered by an exterior wall and form a series of narrow galleries. Access to the galleries is by four staircases originating at the center of each side of the foundation terrace and passing under corbeling arches as each succeeding course is reached. The interior walls of the galleries--the upper portion is the outer wall of the gallery above--are covered with two types of ornamentation.

The upper portion is constructed on a large scale because it is visible from a distance. A series of deep niches were built into the walls and each one housed a colossal figure of a Celestial Buddha. Each figure was sitting with interlocked legs and wrapped in serene meditation. Each sculpture was a magnificent masterpiece, and yet there were originally over four hundred such statues. However, very few of them remain intact today because of plight, plunder, and vandalism.

The lower portion of the inner walls is divided into panels carved with bold reliefs. The scenes worked into these panels are of infinite variety; and many depict incidents in the life of

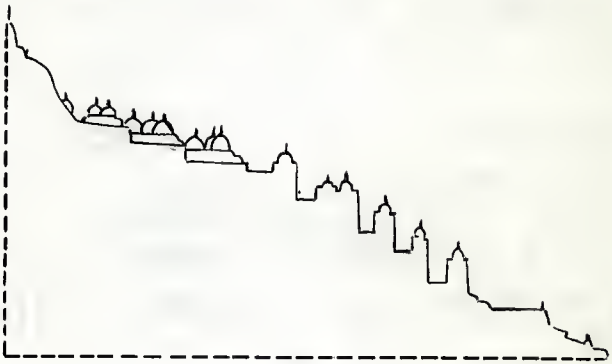
EXPLANATION OF PLATE XI

A. Silhouette of Boro Budur, Java.

B. Section of Boro Budur.

PLATE XI

"A"

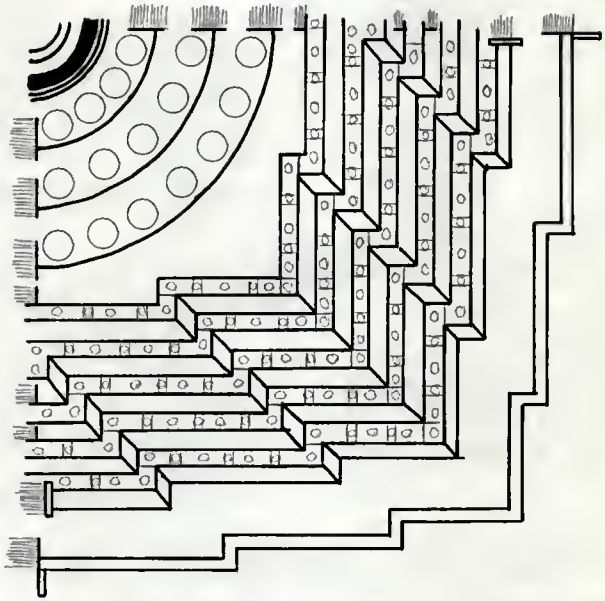


"B"

EXPLANATION OF PLATE XII

Plan of Boro Budur, Java.

PLATE XII



Gautama Buddha, either in his last or previous incarnation. In the fourth gallery the scenes portray the Celestial Buddhas and the paradises which they inhabit. Sixteen hundred of the original two thousand one hundred reliefs still remain. Placed end to end they would extend over two miles in length. What makes the beautiful craftsmanship ever more amazing is that it is carved from dark trachyte, a rough volcanic rock abundant in the area and used in the entire construction of Boro Budur.

The vertical indented walls of the first six terraces give the impression that the monument is going to mount straight towards the sky; but the three upper circular galleries frustrate this feeling, and the whole structure appears heavy and crushed.

The three circular terraces are not provided with an outer wall. Around the circumference of these circles are arranged seventy-two bell-shaped cupolas topped with square spires. Each cupola is built of a latticework of rock, and each houses a seated Buddha carved in stone. The copulas are over six feet in height, and the statues they enclose are visible only through the diamond-shaped perforations of the latticework.

From the center of the upper terrace rises an undecorated pinnacle, one hundred fifty feet above the base, pointing heavenward.

> Finally the summit, crowned with a plain dome, entirely without ornament, as if by this time the visitor had been elevated above all human art. (Hammerton, 14.) p. 168.

The interior of the topmost pinnicle of Boro Budur was originally divided into two chambers, an upper and a lower. However, today nothing remains within these chambers. One of the most

plausible explanations for the chambers is that the shrine was intended as the final resting place of the ashes of some great Buddhist saint, possibly even those of Gautama Buddha himself.

Ironically, the reason for the construction of one of the architectural wonders of the Orient will remain a mystery until someone can determine what relics were once enshrined in the chambers atop Boro Budur.

## JAPANESE STYLE

This portion on Japanese history and arts is treated somewhat differently from the other styles of art history simply because this is not considered an historical style. The actual art history of Japan begins in the sixth century A.D., and is not bothered by invading influences. There are no groups of people establishing footholds on the mainland nor is there any real change in religion or culture from the sixth century of the present. The civilization is established in historical times and simply carries on to the present day. Therefore I will incorporate the religion, arts, and people under one heading and simply point out the various periods of development.

> The Japanese love of nature made them disinclined to shut themselves up in a kind of big stone house even though the winds might blow. That sort of building they reserved for their possessions; and their residences were never more than structures stout enough to keep off the weather, particularly the sun and rain, and especially designed as shelters from which to view the garden or a distant landscape. (Sadler, 25.) p. 2.

Japanese architecture was largely derived from China, but has its own special character of minuteness in carving and

decoration which gives it a graceful lightness and delicacy of design, contrasting forcibly with that of Egypt and Rome, in which the great idea was vastness of size and grandeur of proportion. Japanese architecture is specially notable for sloping and curved roofs, forming a contrast with that of Egypt and India, where flat terrace roofs predominate. The projecting roofs, ornamented with dragons and other fabulous monsters, are supported on a succession of small brackets and are most striking features. Japanese temple architecture, though it started under Chinese influence, did not depend for impressiveness on the monotonous repetition of the same feature, but owes much of its character to the well-balanced symmetry of the various parts, and this is produced by restrained variety rather than by more formality of treatment; while interiors depend on their world-famous decorative art, which covered wall and roof with a lavish use of gold and brilliant colouring, well suited to the subdued light of Buddhist temples.

Geography. The islands of Japan are very similar to that of England in respect to influence and commerce. Nippon being the principle island bordered on the north and south by companion islands all having natural deep indented coast lines with good harbors. A unified empire well situated for commerce with the Pacific Ocean to its east and the sea of Japan on the west. Little is known about the ancestory of the Japanese people, but it is suspected that the first settlers came from Korea and Indo-China.

Materials. The presence of earthquakes and the vast timber

resources has favored timber construction, and other means of construction was seldom used with the exception of the present century. There is granite, porphyries, and volcanic rock, but practically no limestone or sandstone.

Climate. The island climate is made equable by ocean currents and by the prevalence of sea breezes. Houses, where possible, face the south, and deeply projecting eaves form a protection against the summer sun, and high courtyard walls against the winter winds. In summer, the removable casement windows and partitions, which form the house fronts and offer little resistance to the penetration of heat, are removed, and so leave the house entirly open to the breezes.

People, Religion, and Architecture

History and Religion. The first recorded civilization in Japan is noted as the Jomon Age. These people migrated from Korea, and Indo-China. They settled in northern Japan. Closely following the Jomon Age was the Yayoi Age, a dividing line might be established about the last century B.C., although no real indication of time remains. It is suspected that the Yayoi race migrated from the Philippines into southern Japan, and thus settled that region. The Jomon were pit dwellers while the Yayoi race used the surface construction, or pile house. Art and architecture received very little inspiration through religion in these periods since the sole expression of Jomon and old Yayoi was Shinto; the way of the gods. Shinto required no cultus-figure, its buildings were of the simplest construction and entirely devoid of ornament. The

Yayoi civilization and Shinto practice extended to A.D. 552, when the Indian creed and Buddhism was introduced into Japan. Profound as were the influences of the various topography of the land, the chief energizing power in Japanese culture came from Buddhism.

With the introduction of Buddhism in A.D. 552, a great period of development started under Prince Shatuku. Artists were imported from Korea and their work shows the influence of the Six Dynasties of Chins, with pillars with entasis, arms in the cloud-design of the brackets supporting the eaves and beams. This period extends until A.D. 607, and is generally known as the Suiko period.

From A.D. 607 to the late eight century, is known as the Nara period. The T'ang culture of China had a great influence on the arts during the Nara period. The structures were built of rectangular timbers laid horizontally one on top of another crossed at the corners like a log-cabin, making the interior surface smooth and the exterior corrugated (Plate XIII). The roofs were of glazed tile and very little decoration used on the buildings. Agsin Chinese influence is very strong and very little national creations are in evidence. A typicsl example of the srchitecture of this period is the Shosoin at Nara, A.D. 752.

During the ninth century the Early Heian period developed. With the introduction of two Buddhist sects, the Tendai and the Shingon sects the arts began to change somewhat. The temples are now built on mountain tops instead of in the cities on level ground. Thus the symmetrical arrangement of the buildings is no longer possible, and freedom of arrangement is allowed. Also there are noted changes in design snd material of the various

EXPLANATION OF PLATE XIII

Detail showing how rectangular timbers were cut into triangles, and used by the Japanese in the Nara Period.

PLATE XIII

buildings within a group. Some roofs are now of wood instead of tile, and in some cases the floor is raised several feet.

In the Late Heian period A.D. 898-1185, a great reaction against imported culture is under way. The Lords are no longer sending scholars to China to study. This is a period in which national art and architecture, to include literature, flourishes. There is development of national and native taste. The Nembutsu faith is introduced, which is easy going and not solumn and mystic like past sects. New developments start to bring out true Japanese arts. Grace and refinement, lacks force and strength, but it is full of dignity and elegance. Greater scale and elaborate decorations is obvious in the temples. The style of the present day housing is taken from the Shinden-Zukuri style of this period which consists of a number of rectangular buildings joined by corridors with a garden on the south side containing a pond. Dignity, refinement and grace reflects the high culture of the people and taste of the Japanese race.

In the second period of Chinese influence, known as the Kamakura period, A.D. 1186-1392, the power is shifted from the aristocratic to the Samurai or warrior class, with the establishment of Shogunate in A.D. 1186. The grace and refinement moves towards simplicity and vigour. This shows the rise of the middle class; thus the domestic character is introduced. Also the Zen sect of Buddhism is introduced and influences the style.

> The three styles of architecture which are in use during this period, are the Kara-yo or Chinese style, the Tenjiku-yo, style of India which was introduced much earlier, and the established Wa-yo or native style. (Harado, 15.) p. 18.

The Wa-yo showed great freedom in planning and arrangement; while the Kara-yo insisted on symmetrical arrangement, convention of materials, little decoration, and uniformity throughout. Both the Wa-yo and the Kara-yo were used during the Kamakura period, with a gradual interchange of styles. The Tenjiko-yo or Indian style made very little headway and was finally abandoned. During the latter portion of this period, the middle class adapted the Buke style which placed many rooms under one roof or group of rooms joined together; instead of the aristocratic style of Shinden, which had many separate buildings and rooms joined by long corridors.

After the Kamakura period the power of the country again shifted to the aristocratics, and the simple ways of the Samurai or middle class, being forgotten. This short period is known as the Muromachi period and again the arts developed and advanced with the building of magnificent temples and mansions. The Muromachi period was short lived because the Islands were thrown into wars and strife, and we have the beginning of the dark ages in Japan. The dark ages were followed by the Ashikaga clan which spread the Zen sect among the middle classes and made its influence felt in the arts. The Kara-yo and the mixed Wa-yo and Kara-yo styles thrived. Out of the Samurai developed the Shoin-Zukuri style. This style introduced into the dwellings the shelves on the walls, sliding paper screens, and wood panels decorated with landscapes. Coffered ceilings, narrow verandahs, and an entrance room were also introduced at this time. The Ashikaga clan lasted until about A.D. 1570, when the Momoyama period came into being.

The Momoyama period lasted from A.D. 1572 to 1602. During this period, the nation of Japan fell into disorder. It was essentially the common people opposed to the social class. It was the spirit of the age to be bold, daring and free. The development of the Cha-Seki or tea house architecture under Hideyoshi which advocated simplicity; played an important part in the architecture of the history of Japan. Also European influence and Christianity, is introduced during this period. The latter part of the Momoyama period shows the full development of the Shino-Zukuri. Also the practice of building for the Buddha is being diverted and the people are paying greater attention to man, life, and housing. All of the arts begin to reflect the simple way of life. Paintings from nature are made, and sculpture is not entirely religious; also architecture is not tied down to past styles.

The Edo period starts about A.D. 1603, and lasts until about A.D. 1867. Again Japan closes her doors to all foreign influences and the native arts flourish. This is the period of the common people. Religious art remains somewhat stagnant, and a pure Japanese style in sculpture and art is growing. Peace for three centuries has made the people grow conservative, weak, and concerned chiefly with non-essentials.

In 1867 the doors to Japan are again open and the Western style begins to take hold. At the turn of the century the Western influence is eagerly sought and takes a firm hold. The well to do are building houses of brick, stone, and steel, strickly from Western architecture. New factories and public buildings are erected in Western styles, and this influence continues until the

great earthquake and fire of 1923 when the Japanese found that the Western style was not suited in their world. There is then a gradular return to Shoin-Zuruki with the use of new materials. After the League of Nations refused Japan, the national spirit returned in full force.

## EARLY BUDDHIST ARCHITECTURE IN JAPAN

In order to properly appreciate and evaluate, or even to study Japanese Buddhist Architecture, one must first realize where and how it began, and what the life and economy of the people of Japan was at the beginning.

While the domestic or social history of Japan in early times is dim and mythical, her external history through all ages is vague and largely non-existent, owing to the frequent exclusion of foreign intercourse. The Japanese however, date back their unbroken dynasty of Mikados to the Emperor Jummu, who is said to have ascended the throne as early as B.C. 660. Written records only began with A.D. 712, but there is evidence of Chinese social influence in Japan as early as the seventh century, which seems to have created a distinction between civil and military classes. Oversea trade was always regarded in Japan as a government monopoly, and thus there was no incentive for individual enterprise in foreign commerce, which in other countries has always been an emissary of international civilization. Foreign intercourse, which was intermittent, was carried on with China and Korea as early as the eighth century of our era, but it was not until A.D. 1543, when the Portuguese discovered and began

trading with the islands, that Japan was brought into contact with the Europeans. In A,D. 1549 S. Francis Xavier introduced Christianity, and started a Christian propaganda which led to many conflicts. In A.D. 1582 the first Japanese envoys sailed for Europe and came in contact with the art and customs of the West, and in A.D. 1592 the Japanese invaded the religion of the West.

The history on the preceding pages gives a small background of Japanese history of art. But, in order to fully appreciate Japanese architecture, we must begin with Buddhist architecture in China.

When Buddhism first came to China, the Chinese, having very little stone to work with, could not duplicate or copy closely the splendid shrines of the origional Indian Buddhists. For centuries before this, the Chinese had been developing a set pattern of monumental, public, and state buildings. Since their working material was mostly wood, the Chinese were held to smaller sizes in buildings than could be obtained from the stone of the Western world. They had developed a symmetrical plan in which all buildings in a given area were placed very precisely around a north-south axis, the more important buildings progressing to the north. Chinese placed walls around the palaces, and other important buildings of the state. This became so common that even whole cities were encircled by such walls. The main gate into such a walled area was always on the axis on the south side, and the buildings became more important as they progressed towards the north. If two buildings were of equal importance, they were placed side by side, and exactly opposite from the north axis.

When the need for Buddhist worshipping places appeared, the Chinese simply took over government buildings and palaces for this purpose.

The only piece of architecture that followed Buddhism to the Orient was the Pagoda. At first, they were built of stone as their predecessors had been, but since the Chinese were not used to working with this material, the Pagodas became small and were very clumsy things. Finally they were abandoned almost entirely for the wooden Pagoda type that we know today. During succeeding centuries, many shrines and temples were erected, but they always retained the same symmetrical pattern of the earlier development. Since at first, the government buildings and old palaces were used as monasteries, the only difference between church and state buildings was the interior decoration.

When the Buddhist religion advanced into Korea, many centuries before it was introduced into Japan, it was absorbed completely by the Koreans, even to the exact duplication of the architecture, as the Koreans did very little modernization on any of the Chinese Buddhist designs.

In the sixth century A.D., the Koreans were very strong allies of the Japanese. In A.D. 552, the Emperor of Korea, to show his friendship, sent a Buddhist worker and a small Buddha idol, with instructions for methods of worship to the Emperor of Japan. When the religion took a small hold in Japan, the first worshipping place was a reconverted building in one of the palaces of a court prince. It was burned a few years later, and the only statue of Buddha in Japan at this time was cast into the ocean.

In A.D. 577, the religion got another start when a royal prince, returning from an envoy mission to Korea, brought with him a number of people, including an architect, skilled in the building of temples. The country was searched for monks to preside in the new temple that was being built. Only one was found a Korean who had returned to a normal life. He was persuaded to turn again to religion, and became the first Buddhist monk in Japan.

This second start of the new religion was halted abruptly when the Emperor was persuaded that an epidemic of a disease running through Japan at that time, was punishment from the old gods for letting the new religion gain hold on the country. Again, the new temple was burned and the Buddha statues and religious knick-knacks were destroyed.

Shortly after this the Emperor and many close friends were shaken with a new disease. The Buddha faction in the Emperor's court then persuaded him that his illness was punishment for what he had done to the Buddhist temple. The Emperor then returned the right of free worship to the people. The Emperor died of his affliction, but Buddhism lived on..

In A.D. 588, the last great opposition to Buddhism resulted in open warfare between rival princes. The Buddhist side was victorious, and the victors, believing that their religion had turned the tide of battle for them, set out on a building spree that saw the first two complete temples built. These were finished in A.D. 593, with the help of more Korean architects. There were a few more temples built from this time up to the middle of

the seventh century, all of which were designed and built by Korean imports. The earliest Buddhist temple that is in existence is Horyuji, in Nara, Japan (Plate XIV). This is considered to be the real beginning of Japanese Architecture. The statistics and facts about Horyuji may be gained mainly from an inventory taken in A.D. 747. The inventory list includes five gateways, two of which were provided with "Kongo-Rikshi" protectors.

> These were animal-like statues with more or less human bodies that were built to scare away any evil coming into the monastery area. There was one Pagoda, five stories high. Two halls were listed, one a "Hondo", or the worship temple, the other a refectory, which at the time was used as a lecture hall. The inventory also included two lanterns, two two-story pavilions, one of which housed the bell; four dormitories for the priests, a bath house, kitchens, administrative and storage areas. Of the original structures at Horyuji, the only two remaining are the Pagoda and the Hondo, or, the latter as it was called, The Golden Hall.(Paine, 19.) p. 176.

These have been changed only to the extent of the addition of a few reinforcing beams through the lower roof area, and the reinforcement of the top stories of the Pagoda. All the other buildings have received damage by fire, or have deteriorated through the years, and have been repaired or replaced at one time or another in the architectural style of the later period. Since these later buildings were refined versions of the origional, the same foundations, definite sizes, and patterns of the original buildings were employed.

From the sketch shown, (Plate XV), the definite symmetric design can be easily seen. At this time the Pagoda was very new to the Japanese, and it was considered to be of equal importance to the worship hall. In later designs the Pagoda was usually placed to the south of the Hondo, on the north-south axis.

EXPLANATION OF PLATE XIV

Horyuji Monastery, Japan.

Beginning of the seventh century.

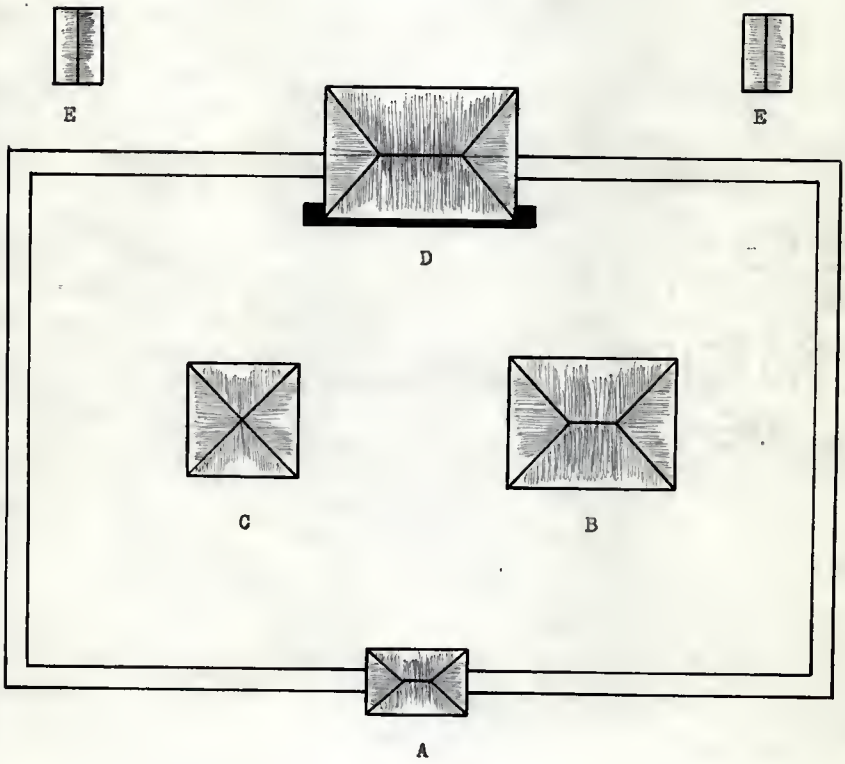
PLATE XIV

EXPLANATION OF PLATE XV

Horuiji

A. South Gate
B. Hondo
C. Pagoda
D. Lecture Hall
E. Storage

PLATE XV



The religion grew steadily from this point on. By the year A.D. 750, it had become a national project. Up until this time the majority of temples had been built and maintained by private citizens for their own worship. The great Emperors of this time, believing that the health and well-being of the nation was dependent upon Buddhism, merged the state and the church together and began utilizing state funds to build and maintain the temples and shrines. This became such an extensive program that sometimes as high as eighty percent of the tax money collected by the ruler or ruling dynasty was put into use building new shrines and furnishing money to each individual province, each of which was directed to build smaller shrines throughout Japan. Again, during this period, wealthy families, feeling the need for privacy in their worship, decided to begin building their own shrines. Some of these were so large and splendid that they began to overshadow what the state was doing in its building program. The Emperor and his officials decided to put an end to this, and restrictions were put on the building of private shrines. Before anyone could build a temple, he was required to have the plans, ideas, dimensions, and budget inspected and passed.

From about A.D. 800 to 900, Buddhist architecture was refined to a very high degree, but basically changed very little. The religion so completely dominated the country and the people that when the Emperor or a member of the royal family fell ill, a shrine was erected to appease Buddha. The religious rites during this time differed from the advancement of architecture, in that they became very complicated, and each Emperor tried to better

any ceremonies that had ever before been performed. This grew until there were mourning periods of up to a year in length, even for members of the Emperor's family. There would be new shrines built throughout Japan for the wake. Many holy books of Buddhism, called "Sutra" were produced, usually etched in gold, and were sent to the various monasteries to be read and studied on stipulated days of the year. Amid all the splendor and grandeur of the religious rites, architecture developed into a real thing of beauty. The natural design and proportion of the working material was never lost as in so many Western civilizations.

The most spectacular achievements of the early Buddhist architecture were obtained during the eight century. The capitol of Japan at that time was Nara. Many great temples and monastaries were built in and around this ancient city. Of these, the most outstanding is Todaiji (Plate XVI). The same symmetry in design as in old Chinese tradition can be seen. The building to the east of the main area is an additional temple believed to have been used for the writing of the Sutra. By this time, Pagodas had grown to such a size that they were placed in a courtyard of their own. In the small diagrams the increase in scale from the seventh to the eight century is indicated (Plate XVI).

The development of the bracketing and roof support is a most interesting one. Probably starting as a simple post-and-lintel type in early China, it progressed to a complex maze of boat-shaped brackets and capitols seen in the Nara period (Plate XVI). To this bracketing system was also given the job of additional support needed for the large overhang of the heavy tiled roofs.

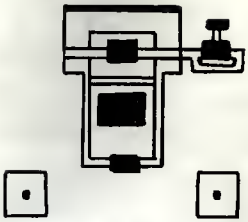
EXPLANATION OF PLATE XVI

A. Comparison of size and development of Temples and Palaces from the seventh to the eight century A.D. of Japanese Architecture.

B. Simple post-and-lintel supports of early periods of Japanese structure, and a progression to the more complex system of structure.

C. The boat-shaped brackets of the Nara period.

PLATE XVI

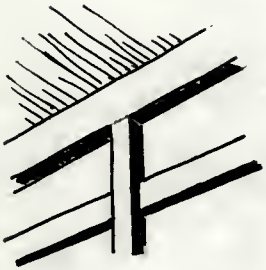


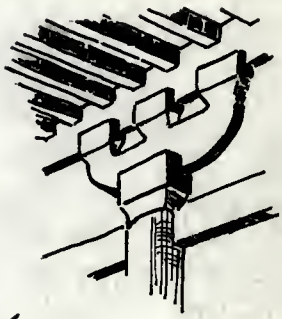
Todaiji
Middle Eight Century

Horyuji
Middle Seventh Century

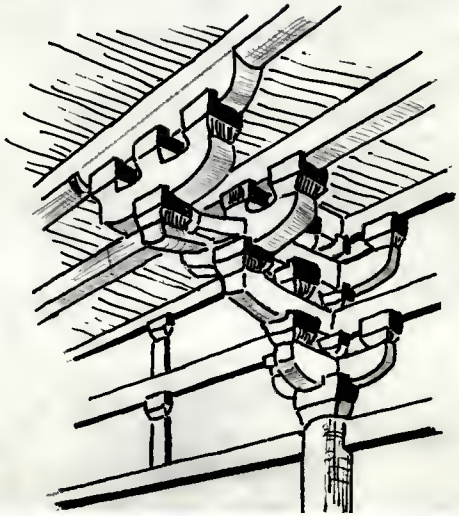
Yakushiji
Early Eight Century

"A"





"B"



"C"

This necessitates a complex system of brackets in two directions. These were left open and were worked into the overall decorative design to become an integral part in a system of real beauty.

Houses. Houses are built of timbers, and the consequent fear of fire has influenced the detached-pavilion treatment of the larger houses. A typical middle-class dwelling is planned as a simple rectangle, usually one story high, with entrance, ante-room, living-rooms, kitchen, store-rooms, verandah, and garden. The size and shape of the rooms depend on the number of the floor mats, varying from four to fifteen per room. Walls are constructed of slight, vertical posts and horizontal beams covered with weather-boarding. Internal partitions are formed of paper slides, six feet high, with plastered or wooden frieze above them, and the screen can be slid aside so as to make the interior into one room, while the partitions on to the verandah are formed of sliding shutters. Two main reception-rooms form a suite, the further one of which, a step higher than the other, has two recesses--a feature peculiar to Japanese houses--one for a picture and a vase of flowers, the other for the display of a selection of the art treasures, kept in a "go-down" with clay walls, which acts as a fireproof store.

Even though Japan originally copied its architectural designs from China and Korea, the Japanese still deserve credit for their development of the style. Never in the world of that time had there been any type of wooden construction to compare with it in beauty or in engineering.

JAPANESE SCULPTURE

Before the introduction of Buddhist culture, Japanese sculpture was very primitive in comparison to the Buddhist images made soon after the introduction of the Continent's Art. But the simple and straight-foward expressions, showing no trace of foreign technical influence, reflects the Japanese low of a pure heart and guileless expression.

Suiko Period. During this period Buddhism was introduced in Japan, and its outstanding characteristic was idealistic expression. Because of this tendency, cast and wooden images produced in this period remain to this day. These images have facial features that are generic rather than individual, with the different parts of the body symmetrically constructed and their garments more like designs or patterns than actual articles of clothing. These characteristics produce the surprising effect of an intensified impression of solemnity by giving the image something spiritual in its expression. This is due to the fact that the Japanese people, in adapting Buddhist religion, exercised full aesthetic discrimination and accepted only what they considered best in the exotic art.

Nara Period. This was the golden age of Buddhist sculpture in Japan. Buddhism enjoyed greater state protection than the preceding period, for a new continental culture, that of the T'ang Dynasty, entered the country. The artists were allowed to show their genius and skill to the best possible advantage because the state paid for the great expenses needed to develop this art. Through the intimite intercourse with Korea, China, India, and

other countries of the Near East, their institutions brought to Buddhist development an exotic appeal and fresh stimulus. In no other period of Japanese art-history was a rich variety of materials used, for new technical processes were introduced for the making of images of wood, metal, stone, clay, and lacquer. The idealistic expression tendency of the preceding period was modified in the Nara period by the realistic manner introduced by the Western lands, which was ingeniously harmonized with the spiritual expression of the Far East to produce many masterpieces.

Heian Period, First Half. Early Heian sculpture reverted from realistic to idealistic modes of expression, which it soon began to exaggerate considerably. One very important cause of this new idealism in art was the rise and spread in this period of Mikkyo, school of Buddhism with highly mystical doctrines. Rather than seek grace and beauty of form in their images, the sculptors tried to import to them mystic shadows and strong spiritual expressions. With this end in view, they strove to give them an imposing appearance and to mark them with sharp traces of their edged tools.

Heian Period, Second Half. This was the representative age of aristocratic culture. The leaders of aristocracy spared neither money, time nor effort upon religious sculpture. Their religion had come to be a means of giving color and variety to their epicurean life. The second half of the Heian period, sought in its images a dreamy and elegant type of expression. The aristocrats had developed a highly refined taste and a very delicate sensitiveness for things of beauty, so that Buddhist images carv-

ed or cast for them were of necessity superior and exquisite works of art. The sculptures of this period were, therefore, lacking in strength, but this delicacy was compensated for by their embodiment of the cultural refinement of the Japanese race. A sculptor by the name of Zyotyo under whose influence signal progress was achieved in sculpture--a new process which consisted of joining little pieces of wood together to form an image. Guilds were also formed during this period by Buddhist sculptors. The second half of the Heian period was an age almost exclusively of wooden images because of the new process of wood joining.

Kamakura Period. This period is chiefly a period of revival, because during the early part of the twelfth century there was a civil war with most of the religious temples and art works being burned down. Thus, the sculptors at the time were used to revive all of that which had been destroyed. Their style was pre-eminently realistic and vigorous in expression, besides having as a new element of much the manner of the Sung Dynesty of China. This school carried all before it, but unfortunately its realism sometimes tended to make its products too close to the common-place realities of life and to degrade them to the level of vulgarity.

Muromati Period. In this period sculpture began to dissociate itself from Buddhist images. Now, Japanese Buddhism, which started as a state institution of faith, had eventually become the religion of aristocracy, and had meanwhile left to posterity many Buddhist arts. Thus arose a movement which aimed at making Buddhism more accessible to the masses. When Buddhism became a religion for the masses, Buddhist sculpture became excessively con-

cerned with trivialities of technique and impoverished in artistic value, while non-Buddhist sculpture began to produce interesting works of art. Portrait sculpture came into limelight.

Momoyama Period. In this period all tradition was boldly set at nought and non-Buddhist in all branches made phenomical strides, so that the first gleams of modern culture appeared in this period. These sweeping changes are attributed to the achievements and personality of Hideyosi, whose heroic courage and musculine tastes not only broke through the fetters of convention, but built up a new martial culture of his own. He and his statesmen and warriors that surrounded him desired their castles and residences as magnificient and imposing as possible, availed themselves of all elements of Buddhist art, but on a magnificent scale. Architectural sculpture, which had been in little evidence in temples, came into great prominence in the buildings of large dimensions.

Edo Period. Isolationism by Japan's government fostered a native national culture, which was on a smaller scale than that of the previous period, and which became highly specialized into an intricate system of departments. Architectural sculpture was in full swing and became more and more formal and stereotyped with the passage of time, needlessly more complicated and less worthy of admiration as an art. As if to atone for this deterioration of architectural sculpture, what may be called minified sculpture was greatly developed. This was concerned with the carving of "netuke," dainty little ornaments for the waist, which represented a wide and unconventional variety of objects and thus

liberated Japanese sculpture from its old relations with Buddhism into a freer atmosphere of artistic creation.

Present Period. The most characteristic fact about this period's culture has been the thoroughgoing adapting of Western culture institutions and this same tendency has been seen in sculpture. The first man to introduce the Occidental method of sculpture into Japan was the Italian, Vinccenzo Ragusa (1841-1928). In course of time Japanese artists visiting Italy, Germany, France, and other countries for the study of sculpture increased in number, and today all the latest tendencies in Western sculpture find immediate echoes in Japanese art.

Fortunately for Japanese sculpture of the traditional school, not only has it remained unhurt by the rapid spread of Western sculpture, but it has reached out and received wholesome stimulus from the newcomer and made progress along fresh lines. The Japanese began to look at their long-forgotten masterpieces from a new angle of appreciation, and started repairing damaged parts and protecting the works against further injury or loss. The tradition of wood-carving has taken on a new and vigorous lease of life and produced a group of master hands who have contributed much towards the revival of the old art.

Contemporary Japanese sculpture has two chief schools: (1) that which follows the methods from the Occident; (2) and that which in the main adhers to the traditional native technique. But there is also another school which represents varing degrees of compromise between East and West, so that in richness of variety Japanese art is perhaps unequalled anywhere in the world.

The leading characteristics of the Japanese sculpture naturally, differs markedly from those of the West in its leading characteristics. The Japanese sculptor's attitude in regard to expression is highly characteristic; but this attitude may be regarded as a feature common to all forms of Oriental art. He does not seek the merely mechanical and facsimile reproduction of what he sees with his eye, but rather the expression of his emotional perception through his mind's eye. The leading tendency has been towards idealism rather than realism, and the art has developed best along idealistic lines. Japanese sculpture may seem to have an undue proportion of the unnatural in it. This is not, however, necessarily due to primitive technique or immature powers of expression, but rather to the presence of something spiritual which is at once so deep and so strong within him that the artist feels impelled to give it concrete expression even at the sacrifice of natural form. All of this expression has been shown in the variety of materials the Japanese have used. They are wood, metal, clay, lacquer, stone, ivory, and horn.

Modern sculpture is practiced to produce good works of art for their own sake. Japanese sculpture is advancing steadily towards the conditions of pure art. It forms, pure sculpture, the dominant school of Western art today, and its trends and techniques are very much alike in the East and West at the present time. In its choice of subjects, it not unnaturally prefers men and incidents familiar to Japanese history, religion, mythology, and literature. As for materials, it uses wood more than anything else, and takes extra-special pains in making the chisel traces as beautiful as possible.

ORIENTAL DRAGON

Of the lesser arts, each subject is a report within itself so here I have chosen a particular form in Oriental subject matter related to the minor arts and have used it as a model to show the adapted expressions and influences that such a form has had on the minor arts of Japan.

The subject chosen was the determination of the origin and significance of the fabled dragon that appears consistently in Oriental art work. To our Western civilization, this dragon has become a caricature of Oriental art work, especially so to the average person that judges the arts of a civilization through such modern media as the press and motion picture, where the dragon is invariably illustrated as an integral part of the Orient. Research of the subject indicates that such emphasis is partially to an extreme but is also quite warranted, as the dragon, in varying forms, was one of the most important motifs of Chinese art, and subsequently of Japanese and the other Oriental civilizations. It should be realized that the dragon was only one of several symbolic figures employed in Oriental art work, the phoenix was very popular as was the lion and the winged-lion. The recurrent use of the dragon form, passed from generation to generation, through centuries indicating some basic type of symbolism felt and appreciated by the Oriental people.

Although the dragon appears in nearly all of the various Oriental cultures, it definitely is of Chinese origin. The general history of art expression in the Orient indicates almost certainly that the different symbols and conventional forms used in the

various Oriental cultures were copied from China. The Chinese, although infamously a warring people, were primarily agriculturist. Thus, their interest centered around such powers as the sky, sun, stars, wind, and rain. Such interests naturally effected their religion, which before such figures as Buddha, Mohammed, or Confucius, was entirely a nature worship. There is no definite point of origin timewise of the dragon although it does appear in very primitive remains. The genaral concensus is that it probably had its origin in the great alligators that infested the numerous rivers of China, and very early became objects of worship, symbolizing the coming of spring and rain. Native conservatism has preserved traditions for literally thousands of years, which explains the passing down through centuries of such primitive ideas and symbols.

The significance of the Chinese dragon in Oriental art is very closely related to its origin which is explained above. There is quite definitely no connection between the dragon and any of the major Oriental religions such as Buddhism, or Confusciusism. Although there is an indication of more frequent employment of the dragon form during the Buddha era, no significance is apparent and the reason probably stems from the increased cultural expression characteristic of this period. Buddhistic ideology was more toward the use of gods, human figures rather than animal; Mohammedanism used the lion figure almost exclusively. Thus the dragon is a product of primitive nature worship and folklore. Several myths of the origin and meaning of the dragon exist. The most popular being, as stated above, symbolism of the alligators.

Another, again Chinese folklore, is that the dragon is a transformed fish that would ride the crest of a storm, half hidden in the rolling clouds, and afford protection to persons encountering the storm. This myth is undoubtedly the reason prompting the use of the dragon on the Oriental fishing boats.

The term dragon as found in the Orient, and as discussed here, is not the same as "lizzard" of Western tradition. The Oriental dragon is generally accepted as a form of sea creature, has a head unlike a fish, with curved snout, opened nostrils, sometimes with a tusk, and a curving tail unlike a fish, ususally found in connection with forms that are fish like. This definition is understandable when considered that water is quite an important element to the Orientals. The dragon is often shown in opposition to the tiger which was accepted as king of the land animals. That the Chinese and Japanese used the dragon forms often is quite apparent. It appears in all the methods of visual expression to varying degrees, in architecture, sculpture, pottery making, metal work, and painting. It's architectural use was solely decorative, found usually at the tops of the ridgepoles, along the eaves of the curved roofs, and on projecting rafters, as if to break the long lines of the roofs. As timber was the prime building material, examples of such architectural decoration are quite limited because of the decay of wood. Stone sculpture gives us some representation of the dragon but the most numerous is found in jade carving, bronze work,and in the famous lacquers of the Orient. Very frequent use was made of the dragon form in pottery making. It appears both as decoration on the surface of the object

and often times the long and slender proportions of the dragon was employed as a method of forming handles for vases, bowls, and cups. There is a noticeable lack of the dragon form in Oriental painting where the bird and flower forms are predominate.

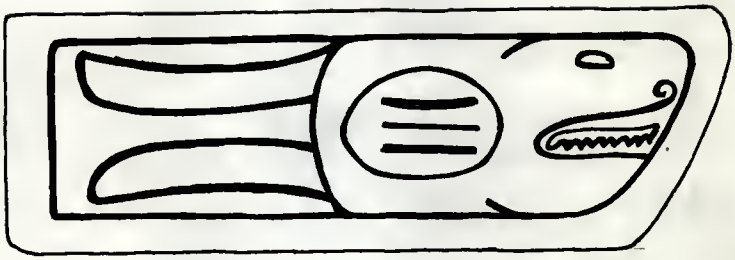
An interesting note is that despite the fact that the dragon is characteristic of all Oriental cultures, varying forms of the dragon have been found in far off areas of the world. It appears in New Zealand and Micronesian art on utensils and bottles, again in the pattern work of the Alaskan people, and even in works of the Aztec civilization. The origin is undoubtedly Chinese but the very fact that communication with such areas was so improbable creates a wonderment. It has been surmised that it's appearance in the Americas resulted from land migration.

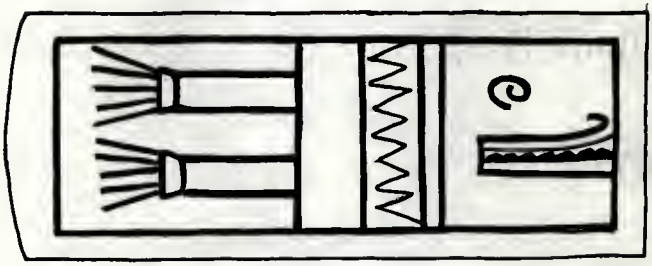
Conclusion. The dragon, appearing in various forms, is undoubtedly one of the most important motifs of Oriental art. It originated in primitive Chinese nature worship, referenced the great alligators that infested the rivers, and symbolized the coming of spring and rain. There is no significance of the dragon in any of the major Oriental religions, it is born of Chinese folklore, and carried through centuries as tradition. It appears in all forms of art expression to varying degrees, the remains or examples existing today are primarily in smaller objects of stone or metal and in vassel decoration. Forms of the dragon have appeared in various parts of the world but it's Oriental origin and significance is undenied, a product of Chinese folklore and tradition.

EXPLANATION OF PLATE XVII

Primitive forms of the marine monster, ancestor of the dragon.

PLATE XVII





EXPLANATION OF PLATE XVIII

A. Primitive stone ornaments.

B. Bas-relief from temple in Shantung.

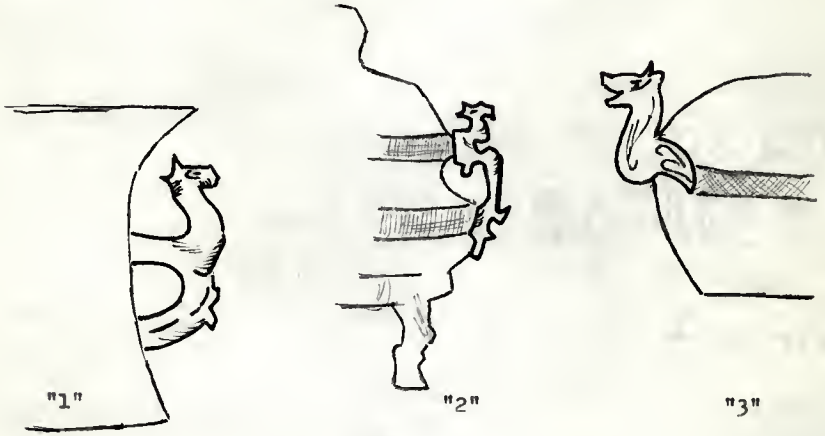
C. Dragon forms used as handles.

1. Wine mug.
2. Incense burner.
3. Bronze bowl.

PLATE XVIII

"A"

"B"



"1" "2" "3"

"6"

EXPLANATION OF PLATE XIX

Arrangement of dragons on rectangular friezes.

PLATE XIX

# HISTORICAL STYLES

## Egyptian Structural and Decorative System

Structural System. The Egyptians developed the post-and-lintel or static system of construction. Arches both rudimentary and developed are encountered, but they never influence architectural form. The span, or inter-columnation, determined by the size of the stones available, was never great. Stone beams were carried upon the piers or columns, and upon these the roof slabs were directly set. A coping around the exterior walls retained the earth or sand placed upon the roof slabs. The walls were dressed stone laid without mortar but in certain periods held together by bronze clamps. The exterior walls were slightly battered, for what reason it is not quite plain, although many theories are advanced. The interior faces were, of course, vertical.

The piers were of various types: (a) plain unadorned, (b) paneled, (c) osiris, (d) polygonal, or fluted (eight to sixteen sides), the so-called proto-Doric. By a gradual evolution the column seems to have developed from the pier which it never entirely superseded. The columns show varied treatments as to fluting but are generally classified by their capitals: (a) bud-type with lotus palm, or papyrus decorations, (b) campaniform with lotus, palm, or papyrus embellishments, (c) Hathoric (goddess-headed type). Houldings, owing to refractory materials and climatic influences, were simple and bold, and confined to the "cavetto" and "torus". A characteristic cornice was used over doorways as well as for a coping for walls. Windows were not used, as temples were lighted and ventilated by clerestories instead.

Decorative System. Egyptian buildings were decorated by several means, (a) statues, usually of granite and highly polished, were fine liknesses of the subject portrayed. Statues placed in front of piers are thought to have given rise to the osirid pier, mentioned above, which in idea was the forerunner of the atlantes and caryatids of classic architecture; (b) bas-reliefs were of several types of techniques: (1) low relief with figures raised above the background which had itself been recessed into the surface of the building, (2) incized relief, (3) low relief. Bas-reliefs vary greatly in scale. Some, particularly upon the exteriors, have figures heroic in size, whereas others, as in some of the tombs at Sakkara, have almost cameo-like figures. Every available inch of the wall was covered in billboard fashion with little regard for architectural features. Such wall decorations were the books of the people, presenting great religious and historical themes.

Painted ornament was highly conventional and deeply symbolical. The sources were generally natural and geometrical with little attempt at realism. Animal as well as human figures received a characteristic and uniform handling. The decorative elements consist of natural form such as : (a) vegetable motifs like the lotus, papyrus, palm, thistles, daisy, vines, grapes, convolvulus, etc.; and (b) animal types, including the vulture, scarab, uraeus (cobra) wings, etc., used symbolically, and the hippo, goats, lions, ducks, birds, and other forms used pictorially; geometrical forms such as frets, spirals, chevrons, lines and rulings, solar discs, etc.

Illumination of the bas-reliefs in full color was necessitated by atmospheric conditions, brilliant sunshine and reflected light, which in a measure defeated the effect of bas-relief. Therefore the buildings were literally covered with color. The pigments used were red, yellow, blue, green, black, white, with tints and shades of these upon occasion. However, exterior color was usually handled in a bold, simple fashion, the subtler color gradations being of little value in such brilliant light. The sources of the pigments were generally mineral or vegetable animal glue and other types of sizing being used to fix the simple water colors. Color, like other forms of Egyptian decorations, eventually became highly conventional, certain color triads and color tetrads frequently recurring.

Classes of Buildings

I. Sepulchral and Religious.

1. Ancient Empire.

A. Tombs.
1. Mastabas.
2. Pyramids.
a. Stepped.
b. Broken Sloped.
c. Full pyramidal type.

B. Temples.
Small chapels attached to sepulchral structures.

2. Middle Empire.

A. Tombs; Rock-cut.

B. Temples; Non-sepulchral.

3. New Empire.

A. Tombs.
1. Rock-cut with sepulchral chapels attached.

2. Free-standing structural, chapels attached.

B. Temples.
Non-sepulchral, both rock-cut and structural.

II.. Domestic, (all periods).

A. Palaces of royality.

B. Huts of the common people.

III. Commemorative.

Obelisks, Sphinxes, etc.

General Characteristics of the Style. Egyptian Architecture may be described as massive, eternal, mysterious, static, and reposeful. Masses were simple and balanced. The style, though columnar, restricted the use of columns to the interiors and courts. The simple, massive battered walls, unrelieved by windows, were crowned by a simple conventional cornice and covered with color-illumined, all-over bas-relief decorations.

Pre-Hellenic or Aegean Structural and Decorative Systems

Structural System. The post-and-lintel system was generally used, although so-called "domed" and "vaulted" buildings have been found at Mycenae, Tiryns, Orchomenos, etc. In these domed and vaulted structures, however, the masonry will be found to be "corbelled out", resulting only in vertical thrusts. Thus, although arched in form these are not truly arcuated forms and may be described as static types.

Well-defined columnar forms were found at Knossos, Mycenae, and elsewhere, indicating an early dependence upon wood as a structural material. These columns, small at the bottom, larger at the top, and carrying a bulging torus surmounted by a heavy

plinth-like abacus, may have been the prototype of the Doric order of Hellenic Greece. In Crete, square stone piers, both monolithic and built-up, have been discovered.

Great variety in the use of materials is displayed in the different centers. At Troy, six cities, on as many levels, disclose perfectly the evolution of masonry craftsmanship. In the Aegean area, masonry may be roughly classified as follows: (a) great irregular stones piled upon each other with clay "mortar" and small spalls between them; (b) rectangular blocks arranged in courses, the joints not always vertical but carefully hewn; (c) polygonal blocks, accurately cut and fitted together.

Walls were generally thick, sometimes 25 to 50 feet, in the centers of which were narrow storage galleries, corridors or stairways, often roofed by "vaults" of corbelled stones. Ordinarily, however, roofs were of wooden beams topped with earth and flat. Openings were rectangular with stone door posts. The lintel was often relieved by corbelled stones, an arrangement resulting in a triangular space filled with decorative carving (as at the Gate of the Lions at Mycenae and elsewhere). In Crete, the walls were of rubble laid in clay and sometimes faced with gypsum slabs; the floors were usually paved with stone. The mainland tombs were generally of the corbelled-dome subterranean type.

Plans of palaces throughout the Aegean area were very irregular, with small, often narrow, rooms disposed around courts or "light wells". Palaces were always placed upon natural elevations and approached by narrow steps or ramps which ran up between walls. Such plans look like a conglomerate of many small houses

rather than a well-planned palace. The mainland palaces were usually low; the Cretan palaces of two or three stories. In Crete, broad and well arranged staircases were an important feature, as were the ingenious sanitary arrangements in the way of baths, latrines, and sewers. Excellent faucet-jointed, salt-glazed, burned clay sewer pipes, staggeringly modern in design, have been discovered at Knossos, where sewer inspection and cleaning was made possible by man-holes not unlike the modern ones. Kitchen arrangements were very complete.

The houses of the common people were constructed of sun-dried brick on stone foundations. The floors were of rammed clay or flag-stone, the roofs of rammed clay laid over reeds upon poles. Ancient plaques show houses of several stories with four-paned windows.

Decorative System. Architectural decoration was accomplished by: (a) decoration of the structural members such as columns, roof beams, etc., by applied color, gilt, or carving; (b) painted decoration on walls. These last were of two forms: (1) geometrical ornament in bands or panels, and (2) pictorial murals. The principal pigments used in such decoration were blue (light), orange, brown, black, and white. The ornamental motifs were: (1) geometrical: spirals, frets, chevrons, circles, rosettes, the "Vitruvian scroll", etc., and (2) naturalistic, evidently derived from sea life, such as sea weed, cuttle-fish, squids, flying-fish, the wave motifs, etc. The pictorial murals set forth charioteers, processions of priestesses, cup-bearers, hunting scenes, and another popular motif was the animal motifs.

Among the sculptural decorations were bas-reliefs, both pictorical and architectural. Excellent colored modelled stucco in geometrical designs has come to light at Knossos, whereas the mainland cities, like Mycenea and Orchomenos, have given us excellent bas-reliefs, both geometrical and naturalistic. Bronze rosettes and similar ornaments are thought to have graced such structures as the tomb of Agamemnon at Mycenae.

Classes of Buildings

I. Domestic.

A. Palaces.

B. Houses of the common people.

II. Sepulchral and Religious.

A. Tombs.
1. Rock-cut.
a. Shaft type.
b. Pit.
2. Structural but subterranean.
a. Chamber tombs.
b. Rectangular with "dromus".
c. Tholos-type with "dromus" (Greek mainland).
3. Cist-graves (very early).

B. Temples (not important).
Usually a simple cave-cell or small apartment in palace. Small houses hold shrines, also used.

III. Civic.

Fortifications, moats, city walls, gateways, etc.

General Characteristics of the Style. Aegean architecture was, so far as we can judge, massive, picturesque, fortified (except in Crete), unsymmetrical and irregular in plan. It made its main appeal by massive fortified walls which were piled up in picturesque fashion on the hills chosen as sites. The mainland palaces were castle-like, presenting an appearance not unlike the Tibetan

palaces and monasteries of today.

## Hellenic Structural and Decorative System

Structural System. The Hellenic system of construction was the post-and-lintel, arched forms not gaining a foothold in Greece before the Roman time. The Greeks developed trabeated architecture to perfection, and theirs was the last great style that adhered strictly to a static system. Intercolumnation (the spaning of the columns) was determined by available sizes of stone lintels and the strength of stone in flexure. Greek structural forms were perfectly adapted to and indicative of the possibilities and limitations of their materials.

Materials varied considerably throughout the Greek world, and local stone was used almost exclusively. Attica, was well endowed with marble, but it was not generally used, even at Athens, until the fifth century B.C. Even then all Greek buildings were not of marble; coarse stones, covered with a fine white stucco, rubbed smooth, were much used. Since stones were set without mortar (lime mortar not being in general use before Roman times), fine rubbed joints were required. Columns were rarely monolithic, the stones for columns being quarried in rough, cylindrical drums. Beds were cut on these and they were set up to form the shaft. The flutes were cut and finished after setting.

The distribution of materials in building during the best period is given below:

> The foundation of a Greek building was usually set directly upon bedrock. It consisted of a stereobate, or stepped footing, the three upper steps of which were above grade. The top step upon which the columns of the

peristyle were directly supported is known as the stylobate.

Columns and walls, were generally of marble or stone set directly upon the stylobate. Walls were constructed of rectangular ashlars with smooth faces exposed inside and out.

The ceiling of the peripteros was usually of stone or marble beams upon which were supported coffered slabs, that of the cella and interiors generally being of wooden beams and planks.

Rafters were of wood, set close together to serve as supports for terra-cotta or marble tiles. These tiles were flat, 18 by 24 inches, with lips curving up at top and sides, and the bottom lip of one tile fitted snugly over the top lip of its neighbor below. Cover tiles were used at the ridge, with gutters and decorative gargoyles at the eaves.

Windows were framed with mouldings and often filled with marble or bronze grilles. Temple lighting is now thought to have been largely by open skylights. This theory is, however, still in dispute. Doors were usually nicely moulded, the door leaf itself being of bronze, with perhaps a grilled transom.

Plans. The temple, the most important class of Greek structures, developed a conventional plan. There were two general classes of plans: (a) rectangular and (b) circular. The Erechtheion and the Propylaea at Athens are the only important Greek buildings of irregular or unsymmetrical plan. Plans are generally designated by the number and position of the columns across the front and along the flanks.

Columns and Piers. The trabated system of construction came to flower in the three Greek orders of architecture; the Doric, the Ionic, and the Corinthian. An order consists of the column, its entablature and accompanying decorations. The Doric order is generally considered the oldest, simplest, sturdiest, and most nearly perfect. The Doric has no base, the stylobate being considered as a plinth. The shaft with a delicate entasis usually

has twenty flutes (the number varies) meeting in sharp arrises. The capital is distinguished by a beautiful "echinus", above which is a simple square abacus. The profile of the echinus (the real index to the evolution of the order) was in early times flat and round with little apparent strength. In the best period it became a beautiful eccentric curve, not too flat to look hard nor too projecting to appear weak, but having the appearance of being able to do gracefully the work required of it. It embodies the most complete idealization of structural truth that the world has witnessed. The Doric entablature (height equals one-fourth total height of order), with its frieze of "triglyphs" and "metopes", is a confirmation in stone of wooden origin of this feature. The triglyphs are reminiscent of ancient beam ends; the "guttae" of wooden pegs; the "mutules" of rafters. The proportions of the order were generally refined until perfection was reached during the Periclean Age (height equal to five and one-half diameters of the column at the base), those of the Parthenon at Athens usually being cited as the finest. The order experienced a slight decline during the Hellenistic period when its proportions were considerably attenuated.

The Ionic order is distinguished by its voluted capital and its more delicate proportions,betraying in capital and shaft, as well as in its entablature, a wooden derivation. The Ionic has a beautiful Attic base, consisting of two "Torii" separated by a "scotia", set upon a simple plinth. The shaft (height equal to about eight diameters) is fluted with twenty-four semi-circular flutes separated by fillets. Some of the earlier types show as

many as forty to forty-four flutes, meeting in arrises. The entablature varies in height, being generally about one-fifth that of the total order. It is characterized by its three membered "architrave", its broken frieze (usually adorned by bas-relief) and the dentils in its cornice. The Ionic doubtless developed as an "in antis" order, not intended to be viewed from the sides. Distinct differences arose when it was adapted to peripteral arrangements. This led to the invention of the "angle-Ionic", a graceful but unarchitectural form.

The Corinthian order, the most ornate of the Greek types, differs, from the Ionic principally in its capital, which recalls, in idea if not in appearance, the capitals of Egypt. The beginnings of the order have been much debated. It was probably of decorative rather than of structural origin and therefore contrasts with the Doric and Ionic. The column, including the capital and base, is about ten diameters in height, the height of the entablature being about one-fifth that of the total order. Various floral forms were used upon the capital, the most popular being the acanthus and the water leaf. The base was generally of the Attic type, but in the Tower of the Winds no base was used. The Romans adapted and brought to perfection the Corinthian order, of which they were very fond.

Piers and pilasters were not so popular as in later classic styles. However, well-defined piers occurred in such structures as the Sanctuary of the Bulls, Delos, the Stola at Athens, and elsewhere. Pilasters of excellent types, developed to accord with the three orders, were used in both Greek mainland and Asia Minor.

It is believed that the pilaster originated as a decorative development of the anta.

The use of the human figure as a support was well developed by the Greeks although it was not original with them. The Osirid pier and the Hathor-headed columns of Egypt may be looked upon as forerunners of this class of support. The "caryatids" of the south porch of the Erechtheion and the atlas figures of the temples of Zeus at Akragas (Sicily) are excellent examples of this interesting development.

Greek Refinements of Line. The Greeks seem to have been naturally sensitive to optical illusion. They made many fine adjustments in their forms--refinements of line to counteract the awkward effects that straight lines often produce. Their principal optical corrections, so far as architecture is concerned, were as follows:

(a) Curving of horizontals.
  (1) Stylobates were curved upward at the middle to counteract the sagging that the vertical lines of the columns seemed to produce.
  (2) Entablatures and ridges were curved upward in the same way to counteract a similar sagging effect.

(b) Curving of verticals.
Verticals such as columns were given a delicate refinement--the entasis--to counteract the hollowed appearance that long verticals often present.

(c) Inclining inward at the top, of columns and walls. This was to compensate the "tumbling-out" illusion often produced by tall verticals, especially when viewed close at hand. The inclination of the Parthenon columns amount to 2.6 inches in 34 feet.

Decorative system,helped to eliminate, to some extent this optical illusion.

Decorative System. The Greeks handled ornament with greater refinement and restraint than has any race since their time. Many of the decorative motifs still used were originated as adjuncts of the Greek orders. They developed a complete "grammer of ornament" based upon the native flora and fuana, and invented forms so beautiful that they have retained the regard of men down to our day. Greek ornament had an intimacy with structure equalled only by the works of the Gothic period. It was almost inveriably inherent and rarely applied.

Architectural decoration was of two general classes: (a) sculptural ornament comprised of (1) bas-reliefs on friezes, carved mouldings, etc., and (2) statues, set up between the columns of the peristyle and in the pediment; and (b) color treatment in the way of (1) mural paintings and (2) architecture polychromy--the color differentiation of the various elements of the orders. In the latter case, a subtle adjustment between form and color was necessary. This problem the Greeks solved with the same fine restraint that characterized their performance elsewhere.

The subject matter of Greek sculpture and bas-relief was generally religious (mythological) or literary, but sometimes historical. Conventional carved decorative motifs, most of which were evolved in connection with the decoration of the orders, included: the egg and dart, leaf and tongue, rinceau, scrolls, spirals, frets (Greek key), palmettes, rosettes, the guilloche, the acanthus leaf and vine, and other floral forms.

Architectural polychrome, especially as applied to the orders, became highly conventional. It was, however, usually confined to

those parts of the entablature that otherwise, by virtue of their distance from the eye, would be lost. Early realizing that color emphasis is antagonistic to the sense of structural strength, the Greek refused to color supporting members of a design. In fact, he seems to have analyzed his structure systematically and found it to contain the following parts: (1) weight-bearing features, (2) supported architectural motifs, and (3) purely decorative items. These he treated as follows: (a) weight-bearing parts received no applied color; (b) supported items (that is, the superstructure above the architrave) recieved some color; (c) decorative features recieved the most color. Thus it will be seen that color application was the inverse proportion to the structural intent of the various elements.

The pigments used were: red (two varieties), blue (two varieties), yellow, green, brown, purple (two varieties, one a rather pinkish lavender), black, and white. These were used in such combinations as always to produce a maximum contrast and avoid the harmony which one strives for in pictorial painting. This use of contrasting color in alternate positions, together with the employment of outlines of gold, black, or white, was characteristic of Greek polychromatic procedure.

On the Doric order, triglyphs were generally blue; the grounds of metopes and tympani, red; mutules, blue; guttae, gilded; and egg and dart, leaf and tongue, anthemion and fret motifs were of alternate red and blue, sometimes red and blue-green, with high-lights of gilt. Bronze chariot wheels, shields, spear-tips and rosettes were often attached to marble bas-reliefs,

giving zest to a frieze. Darker marbles were sometimes used as a ground upon which to plant the white marble figures of a bas-relief.

Interiors were often splendid with color designed to set off and erhance the statues of the gods.

## Classes of Buildings

I. Religious and Sepulchral.

A. Temples--the most important architectural monuments and the type that reflects the style at its best.
1. Rectangular--consisting of a pro-naos and a naos or cell. Often there was a rear cell or treasury. The temple usually had a portico, often a surrounding peristyle.
2. Circular with circular cell and a peristyle surrounding that (as the Tholos at Epidauros).

B. Tombs.
Dead were buried in graves; tombs were rare; a headstone, usually sculptured or inscribed, was set up at the grave. This was the origin of modern headstones. The Tomb of Mausolus was the only example of a great tomb in Greek work. It was one of the seven wonders of the world.

II. Domestic.

A. Palaces--no examples remaining. The palaces disappeared in early times with the change from a monarchial form of government. Democracy needed no palaces.

B. Residences of the people--one-story buildings grouped around open courts; probably of crude bricks; shops and stables along the street facades, living apartments and garden at rear. usually two courts, the front for men, the rear for women.

III. Civic.

A. Bouleuterion, city councilchamber.

B. Prytaneion--building to shelter the sacred heath for public fire. At Athens it was also used as a place to entertain state guests.

C. Stoa--a long portico open on one side with a wall at rear; stoae usually surrounded the agora but were also found near religious shrines. They were used as resting or lounging places. Philosophers and scholars met their classes here; at shrines, stoae were used by pilgrims who came to worship.

D. Agora (literally assembly) refers to the place of assembly in the Greek city and was used to designate any open space in the city like the market squares, etc. Corresponds to the forum of the Romans. Usually surrounded by double colonnades, shops, etc.

E. Propylaeum, a monumental gateway, the entrance to an agora, sacred area (temenos), or acropolis. A plural designation, propylaea, was employed when there was more than one gate in the composition.

IV. Recreation and Amusement.

A. Gymnasium, for the training of athletes, included the baths and corresponded to Roman therma.

B. Palaestra, a private athletic training school for boys. It differed from the gymnasium, which was public and for men.

C. Stadion, a race course 600 Greek feet long for foot races; the starting end was square, the opposite end round. Banks of seats at sides accommodated the spectators.

D. Hippodrome, an enlarged race course for horse and chariot racing. This was not used before the Roman period.

E. Theatre, an open air bank of stepped stone seats enclosing a circular area with an altar to Dionysus and space for orchestral dancing, back of which was the stage, flanked by dressing rooms and backed up by a wall; the stage was often sheltered by a roof. Often a natural valley was used as a site to avoid building a substructure for the seats.

F. Odeion, similar in plan to theatre, but smaller and generally roofed. It was used for musical performances.

General Architectural Character. Grecian architecture was columnar, symmetrical, static and calm, yet graceful. It always exhibited a perfect balance between construction on one hand and

aesthetics on the other. Today it is considered the most perfect trabeated style the world has seen.

## Etruscan Structural and Decorative System

Structural System. The structural system combined the post-and-lintel with the arch-and-pier. The former system was used for wooden buildings and the larger types of masonry structures; the latter system, including true vaults and domes, was employed for tombs, the smaller masonary structures, bridges, city gates, and sewers. The Etruscans did not use mortar to hold their stones together. This was a Roman innovation.

Walls were of stone or brick (burned or sun-dried); floors, of flag stone or tamped clay. Roofs were of wooden beams covered with tiles, or of stone slabs covered with earth. The stone vaults and domes, above mentioned, must be included under roofs.

Piers were generally square with foliated capitals. Columns of wood were probably used, although some were of stone. Etruscan forms, however, show abundant evidence of having been derived from wooden prototypes. Although all Etruscan temples have disappeared, it is quite plain that the structures of such buildings (that is, the portions above the columns) were never developed in stone, the wooden upper portions such as architraves, friezes, tympani, and cornices being veneered with painted architectural terra-cotta, held in place with bronze nails. Carved alabaster sarcophagi indicate, the Etruscans were familiar with the Doric, Ionic, and Corinthian orders, borrowed from the Greeks. To these they added a simple type of Doric called, after them, the Tuscan order.

Decorative System. Etruscan architectural decoration was accomplished by : (a) sculpture consisting of (1) free-standing groups and (2) bas-reliefs in stone or terra-cotta; and (b) painting consisting of (1) murals upon stone or stucco-covered walls, and (2) painted terra-cotta reliefs or stone carving. Being a commercial race, the Etruscans adopted many foreign motifs, these coming down to us in tomb paintings and upon sarcophagi. Among their grammer of ornament may be found the anthemion, chevrons, checkers, frets, leaf-and-tongue, various floral motifs, swags, egg-and-dart, etc. Terra-cottas exhibit the following pigments: red (burnt sienna), black, cream, blue, brown, yellow, and white. Pictorial grave paintings represent the whole range of social and religious pursuits. The Etruscans were excellent bronze founders and workers in sheet metal relief (spheirelation). Such work, better perhaps than their carved or painted ornament, reveals a developed taste.

Classes of Buildings

I. Religious and Sepulchral.

A. Temples.
1. Single-cell, rectangular, with portico, wooden superstructure; terra-cotta covered.
2. Tripled-celled, prostyle, tetra or hexa style; rear side flanked by wall; placed upon a high podium; approached only from front.

B. Tombs.
1. Rock-cut in hills, in representation of houses.
2. Tumulus with concealed tomb chamber.
3. Columbarium with cells.
4. Simple hut-urns or boxes in stone lined grave-pits.
5. Memorial stones or mounds at graves of chiefs.
6. Tombstones or steles.

II. Domestic.

None existing--only known from paintings, grave representations; sarcophagi and hut-urn representations. Built with small rooms around an atrium like Greek or Roman houses. Walls doubtless of sun-dried bricks, superstructure of wood with a tile roof.

III. Civic.

A. Fortification wall (many excellent examples).

B. City gates (several fine examples, arched).

C. Bridges.

D. Canals, aqueducts, sewers, drains, etc.

General Architectural Character. Masonary structures were heavy, massive, military, enduring. Wooden structures were light and attenuated, ill-proportioned, crude, and ephemeral.

## Roman Structural and Decorative System

The Romans, although not so artistic a race as the Greeks, were perhaps more versatile. A practical, inventive people, they were systematic organizers industrially as well as politically. They extended the practical arts of building tremendously, adapting their work to take advantage of any situation that might arise. Whatever Roman society called for, Roman construction genius was able to produce with apparent structural good sense, practical convenience, and fair artistic effect.

Structural System. The arch-and-pier system, with its derivatives, the vault and dome, was universally used, especially during the imperial period. An arcuated system was in a sense forced upon the Romans because of a lack of materials necessary for trabeated structures. Moreover, Roman ideas were not express-

ible in terms of an architectural vernacular that employed relatively small structures like those of the Greeks. Small structural units and grand ideas made necessary the development of vaults and domes. Now although the structural system was arcuated, the Romans retained largely as decoration, the trabeated forms of the Greeks, thus combining the two systems in arrangements rather unarchitectural, if considered from a purely structural point of view. The post-and-lintel system was used for temples, which followed Greek lines, and in the construction of houses.

The Roman habit of carrying through great projects rather hurriedly led to the adoption of easy and practical methods of construction, and no material facilitated this program to a greater degree than did Roman concrete. Concrete was not used in the ways that we employ it today but rather as an infilling after the structural parts had been fashioned in brick or stone. The aggregate which with us is small was large, in fact, that Roman concrete has been described as a "very crude rubble masonry laid in excellent cement".

The Romans believed that they had learned the art of arch construction from the Etruscans. This type of construction is today to be seen in the Cloaca Maxima and the Tullianum (Mamertine Prison), both of which are conceded to be of Etruscan origin. However, the limitations of materials available at Rome may be considered quite as important a determining factor. The Romans used two types of vaults: (a) tunnel or barrel vault (generally semi-circular in trsnsverse section), and (b) the cross or groined

vault which results from the intersection, at right angles, of two tunneled vaults, identical in section.

The method of vault construction consisted of: (1) raising walls to the springling and, (2) throwing across at intervals brick transverse arches, the forms for which rested upon a ledge left in the walls in the spring-line; (3) attaching wooden forms to the intrados of these transverse arches to hold the concrete; (4) depositing the concrete which, uniting with the brick arches form a solid mass. By this method, much in the way of wooden forms, labor and the more costly varieties of material were saved.

Domes were generally constructed by two methods: (upon a ribbed system, the radial ribs from the circular supporting walls converging upon a circular "oculus" (skylight) at the crown of the dome (as in Patheon, Rome), these ribs in turn being tied together horizontally by segmental transverse arches; or (b) by laying bricks (supported upon wooden forms) in "fan" patterns. There were no great domes of monlithic concrete, as has sometimes been stated in architectural books; even the trapezoidal spaces between the rib system often were filled with inverted brick arches.

Roman footings were generally of concrete with inverted brick arches below grade to connect the piers. This con - struction was used for bridges as well as for buildings. Floors were of concrete made of cement and broken bricks, faced with marble slabs, ceramic tiles, marble mosaic, or a colored pebble mosaic. Walls were of stone, brick, or concrete, faced as were

the floors. Ceilings were either of wooden beams and planks with sheet bronze plaques attached to their soffets, or of vaults and domes with decorative coffers in bas-relief. Roofs were formed of ceramic marble, or bronze tiles, carried upon wooden trusses or laid directly upon the masonry superstructure of vaults or domes. Openings were either rectangular or circular headed and enframed by a moulding architrave. Bronze doors were used, and windows were filled with either marble, bronze, or iron grilles.

Orders of Architecture. To support arches and arcuated forms the Romans used rectangular piers with bases and capitals to accord with the orders which were generally applied to the piers as pure decoration. They used five orders, developing, in addition to the column and its entablature, corresponding pedestals, piers, and pediments. Their orders were as follows:

A. Tuscan order. Formerly considered to be a simplification of the Greek Doric but now generally accepted as an indigenous Etruscan motif.

B. Doric order. A Roman version of the Greek model, much simplified and lacking in finesse when compared with Greek examples.

C. Ionic order. The Greek type, adopted and standardized by the Romans.

D. Corinthian order. Borrowed from the Greeks and elegantly developed by the Romans. Always a popular order with them, it became their finest order.

E. Composite order. A Roman invention made by combining elements taken from the Ionic and the Corinthian. Though popular, it lacks much as a decorative form.

The erection of high structures led the Romans to treat successive stories with super-imposed orders, as in the Theatre of Marcellus, the Colosseum, etc. Starting with the heavier Tuscan or Doric, the orders were superimposed in order of their

delicacy--Ionic, Corinthian, Composite. Occasionally, as in the Colosseum, a more delicate pilaster form was called into use at the top. The desire for relatively attenuated forms also led to the placing of a pedestal under the column. As time progressed and large projects had to be accomplished on short order, a ready and practical standardization of the orders took place. Rule-of-thumb methods led to the adoption of the canon of proportions set forth by Vitruvius, and the beautifully profiled mouldings of the Greeks were reduced to mechanical curves that could be readily laid out with the compasses. What such mouldings lacked in sheer loveliness of form, the Romans attempted to make good by elaborate carving. Thus much of the charm and refinement of the Greek orders was never present in the Roman work. During the later periods, the Romans ran to degraded and vulgar mutilations of the orders, such as broken entablatures, mutilated pediments, the use of the column as a support for a statue or as pure decoration with no purpose at all. As true supports in temple porticos, the orders were well used, but as architectural decoration "applied" to a new and significant system of construction, they are scarcely worth our acclaim.

Decorative System. With the Greeks, refined figure sculpture played a large part in architectural decoration; with the Romans the commemorative value of statuary, rather than its use as architectural decoration, seems to have been the desideratum. Bas-relief, however, had a significant place in Roman architecture and is perhaps their best type of decoration. One is always aware, however, that richness and magnificence, rather than quiet refine-

ment, were always preferred at Rome. At times sculptural decoration was decadent and vulgar.

The Roman structural materials were not thought worthy of external expression; thus the whole surface of a building was open to applied decoration. Roman mastery of the seas made possible the importation of fine marbles which were used as veneer to decorate the brick and concrete walls. Such marbles, selected for color and markings, were attached to walls in thin slabs held in place by metal clamps or cement. This type of decorative work was called Opus Alexandrinum. Stucco was also used to cover these crude walls, and in time an interesting art of modelled plaster (stucco relief) came into being. Mural paintings (beautifully exemplified at Pompeii) and mosaic complete the common means of decoration.

Mural painters resorted to all sorts of perspective effects to make a room seem larger. Doors, windows, fountains, balconies and garden scenes, as well as classical literary illusions and conventional ornament, made up the subject matter of their essays. The time-worn fruit, fish and game plaques had their prototypes in Pompeian dining room murals. The conventional motifs included the water-leaf, the acanthus, rinceau, anthemion, and other forms of Greek origin, rosettes, fruit, and flower swags, dolphins, ox-skulls, a number of indigenous floral forms, frets, swasticas, etc.

Stucco reliefs consisted of panels framed with classical mouldings filled with pictures of literary allusion and surrounded by rinceaux, scrolls, swags, etc.

In the friezes of the more elaborate orders much carving was

used to bring an otherwise plain motif up to the decorative key of the elaborately carved capitals and mouldings. Some interesting combinations of cupid-like human figures with acanthus leaf lower appendages, swags, candelabra, dolphins, and ox-skulls are found in the friezes.

Vaults and domes were generally decorated by cassions or coffers, square, octagonal, or trapezoidal, a form of relief synchronizing with and well calculated to express the structural scheme. Excellent examples of such coffers (often gilded and decorated at the center by bronze rosettes) were to be seen in the Pantheon, the Arch of Titus, the Temple of Venus, and elsewhere.

As compared with previously studied peoples, the Roman use of color was weak. They cared more for form and less for color, and their highly elaborate forms needed little or no color to enhance them. Materials were of course often selected for intrinsic color, especially marbles, but pigment was rarely, if ever, applied to the exteriors of buildings as in Greece. Exterior column shafts were often of colored granite or marble, the capitals white. Gilt high-lights were doubtless used upon the more delicate carvings, but, aside from this, color was almost completely confined to the interiors. It should be mentioned, however, that the Romans brought veneered architecture to a fine climax, and this fact doubtless accounts for its persistence down to our day.

## Classes of Buildings

I. Religious.

A. Temples. Rectangular or circular, usually placed upon a podium, distinctly prostyle.

B. Houses of the Vestals, Rome.

C. Nymphaea in various cities.

II. Sepulchral.

A. Tombs of various types.
   1. Cylindrical, crowned by cones of earth, planted with trees, or conical roofs.
   2. Pyramids.
   3. Imitations of temples.

B. Sepulchral temples.

C. Tombstones (steles, stabs, etc.).

D. Columbaria.

III. Civic.

A. Amusement and Recreation.
   1. Theatres. Similar to Greek except that the orchestra was semi-circular in plan.
   2. Amphitheatres. A Roman invention, made by placing theatres against each other.
   3. Circi. Roman adaption of the Greek stadia for horse and chariot racing. The Roman, was much larger than its Greek prototype.
   4. Stadia--in connection with thermae.
   5. Thermae. Baths of the Romans, successors to Greek gymnasia. These serve the same purpose except that the bathing element (which averaged one-third of the area of the plan) was magnified as compared to Greek.
   6. Balneae, small private baths much used.

B. Legal and Commercial.
   1. Curia (senate house).
   2. Basilicas. For courts, public business, commerce.
   3. Fora. Roman open place for assembly; some dedicated to political or public gatherings, others to commerce as the Forum Boarium (cattle market), Rome. The forum corresponds to the Greek agora.
   4. Rostra. Public speaking places in the fora.

C. Defense, Communication and Public Service.
   1. City walls and gates.
   2. Bridges.
   3. Aqueducts.

4. Military roads.
5. Fortifications.

IV. Domestic.

A. Palaces. City or country.

B. Villas. Farm houses of the better class.

C. Insula. Three or four stories high with shops below. Their height was limited to 70 feet during the time of Augustus.

D. Domus. Small city or town dwelling.

V. Commemorative and Decorative.

A. Triumphal arches.
1. Single arch.
2. Triple arch.
3. Cross plan.

B. Commemorative Columns.
1. Large, like the great ones of Trajan and Antoninus Pius, Rome.
2. Rostral columns, smaller commemorative columns erected in the fora to commemorate victories.
3. Egyptian obelisks. A number of these carried off to Rome were used as decorative motifs in city squares.

General Characteristics of the Style. Roman architecture was grand in conception, magnificent in scale, lavish in execution. It displayed great versatility of function and plan, splendid use of decorative materials, and wonderful engineering. Decoration was sometimes decadent, overdone, and vulgar. This style was the starting point for the arcuated forms brought to a fine perfection under the Gothic architects of a later day. The Roman contribution was the arch and its derivatives.

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# DEVELOPMENT OF ARCHITECTURE AND ALLIED ARTS IN ASIA

by

ROSARIO PAUL FASOLINO

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The history of Architecture and Allied Arts of Asia has not received the complete attention of the historians until just recently when we of the Western Lands have found the arts of the East to be practical, simple, and most useful. Without really knowing it we of the West have adopted many of the ancient styles from the East, and have modified them to fit our every day needs, and have called these styles modern. A brief look into the histories of the civilizations of the East is necessary to understand how the styles developed and why we of the West are finding some of these styles so convenient.

The Assyrian-Babylonian civilization was established along the Tigris-Euphrates Valley and changed ruling hands between Babylon and Assyria until about B.C. 538, when Persia overthrew the Neo-Babylonian Empire. The religion of these peoples was polytheistic, and the priesthood exercised great power both religiously and economically.

Assyrian-Babylonian Architecture was massive, military, non-columnar. Temples were pyramidal, and monumental; palaces were not, their chief affect being gained by sheer, embattled, palisaded walls, set atop hugh platforms and reached by ramps and stairs. Masses were simple but not balanced. The magnificence of the king rather than the glory of God finds an expression architecturally in the arts of this period.

The Hittite civilization was established in Turkey and Syria about the time of the Assyrian colonization. The arts of this civilization is relatively new to the history of art and architecture, and thus much is yet to be learned. Some of the outstanding

features usually associated with Greek art might have had their origin in the Hittite world.

The Persian Empire developed in the mountainous plateau southwest of Mesopotamia. Unlike most other civilizations, Persia was endowed with excellent building materials. In that nature worship was the basic religious concept practiced, very little religion was influential in the architecture. Persian structures were columnar and consisted largely of great hypostyle halls, set in groups upon high-standing platforms which in turn were part natural, part constructed. Their schemes were commanding, formal, and somewhat monumental as compared with Assyrian work. Every feature of the architecture revealed primitive beginnings in wood. The palace groups were the most magnificent and important of Persian works.

The Sassanian style or New Persian Empire was simply a continuation of the Persian civilization with its massive building style and Mesopotamian ceramic art influence. There is an indication, that possibly a slender wooden style was developed; but, the only remaining proof of this are the rock carvings and vase and salver drawings which present quite an accurate account of this type of art.

Sassanian architecture was domical, heavy, rough in construction. The masses were simple, and the plans balanced, the general effect of the masses being rather box-like. There were no windows, but facades were pierced with great arches. Decoration was almost negligible.

The art of India was primarily religious and symbolic stemming

from their legends and national heroes which they idealized. Later, when the religious consolidation of India took place, art in general took on a deeper look into religious feeling. Artists of that time created not from what they saw, but from what they visualized in their minds; they created some of the most profound types of art in the world.

The Dravidians are responsible for the type of art and architecture used in India today. Their architecture was based on bamboo construction; their designs of the Toda hut has been cited as a prototype or a near analogue of the early barrel-vaulted caitya-hall and the horseshoe arch. The curved roof common in India is rare in the rest of the world. The stone slab construction of temples is likewise of Dravidian origin.

Of the numerous minor independent nations of the Far East the most profound and imposing structures ever to be dedicated to a religion is the Stupa of Boro Budur located on the island of Java. Although the other minor nations have developed independent styles of art, most of these styles had a direct influence from India. Boro Budur on the other hand is unique in that it is the most massive group of structures ever erected by a minor nation. This great shrine is mute evidence of the wide spread appeal made by Buddhism throughout the Orient, and also of the close connection between religion and art. The art of Boro Budur comes directly from its source in India, the birth-place of Buddhism.

The History of Art and Architecture in Japan is of little importance until A.D. 552, when the Indian creed and Buddhism was introduced. Profound as were the influences of the various topo-

graphy of the land, the chief energizing power in Japanese culture came from Buddhism. Japan in its development of the arts imported artists and architects from Korea and China. At times, the nation completely shut itself off from the outside world and developed their own national style. The style of the present day housing in Japan is taken from the Shinden-Zukuri style of the Late Heian period which consists of a number of rectangular buildings joined by corridors with a garden on the south side containing a pond. Of all the different styles of architecture available to modern man today, none has been as impressive as the wooden style developed by the Japanese. Never in the world has there been any type of wooden construction to compare with the Japanese wooden construction in beauty or in engineering.

In sculpture the Japanese attitude in regard to expression is highly characteristic; but this attitude may be regarded as a feature common to all forms of Oriental art. Japanese sculpture may seem to have an undue proportion of the unnatural in it. This is not, however, necessarily due to primitive techniques or immature powers of expression, but rather to the presence of something spiritual which is at once so deep and so strong within him that the artist feels impelled to give it concrete expression even at the sacrifice of natural form. Japanese sculpture is advancing steadily towards the conditions of pure art.

## Historical Styles

Egyptian architecture may be described as massive, eternal, mysterious, static, and reposeful. Masses were simple and balanced. The style, though columnar, restricted the use of columns to the

interiors and courts. The simple, massive battered walls, unrelieved by windows, were crowned by a simple conventional cornice and covered with color-illumined, all-over bas-relief decorations.

Aegean architecture was, so far as can be judged, massive, picturesque, fortified (except in Crete), unsymmetrical and irregular in plan. It made its main appeal by massive fortified walls which were piled up in picturesque fashion on the hills chosen as sites. The mainland palaces were castle-like, presenting an appearance not unlike the Tibetan palaces and monasteries of today.

Grecian architecture was columnar, symmetrical, static and calm, yet graceful. It always exhibited a perfect balance between construction on one hand and aesthetics on the other. Today it is considered the most perfect trabeated style the world has seen.

Roman architecture was grand in conception, magnificent in scale, lavish in execution. It displayed great versatility of function and plan, splendid use of decorative materials, and wonderful engineering. Decoration was sometimes decadent, overdone, and vulgar. This style was the starting point for the arch forms brought to a fine perfection under the Gothic architects of a later day. The Roman contribution was the arch and its derivatives.