THE HISTORICAL DEVELOPMENT OF THE ISHTAR GATE

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Fort Collins, Colorado
Summer, 1976

PART 1

THE ADVENT OF CERAMIC FACADES

In their attempt to provide shelter against the forces of nature, the people of the Lower Tigris-Euphrates Valley, unlike other surrounding cultures of their time, were faced with building structures without the use of stone. The only natural materials they had in unlimited amounts were bitumen, reeds and clay. It was early in their development that these three substances were put to ingenious use. They found that a "stiff mixture of these ingredients could be shaped into blocks and if allowed to dry in the sun, would result in a hard, dense brick.[1] The interlacing fibers of the reeds would have added structural strength. The natural "stickiness" of the bitumen increased the cohesiveness of the brick mass.[2]

A brick recipe similar to this is still used today in Southwestern America and is referred to as adobe. When building with these unfired bricks, thick walls are needed both for stability and for protection against all the elements.

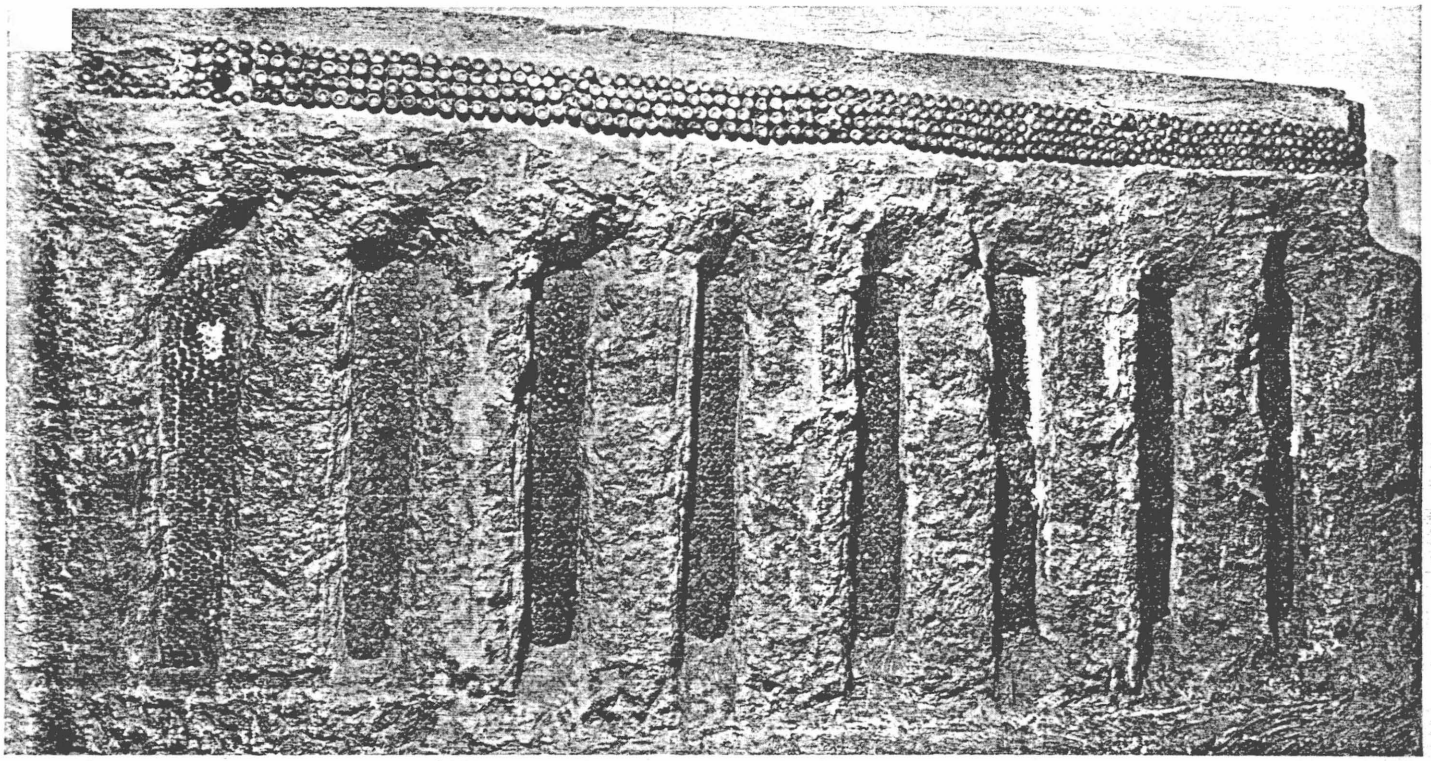
Sun-dried bricks themselves needed "protection against the elements", thus, techniques were tried and a variety of materials were used. It was from these early attempts that all subsequent exterior wall decoration evolved.

Bitumen was added to a clay slip to form a mortar which greatly increased the strength of the wall as well as the intensity of the

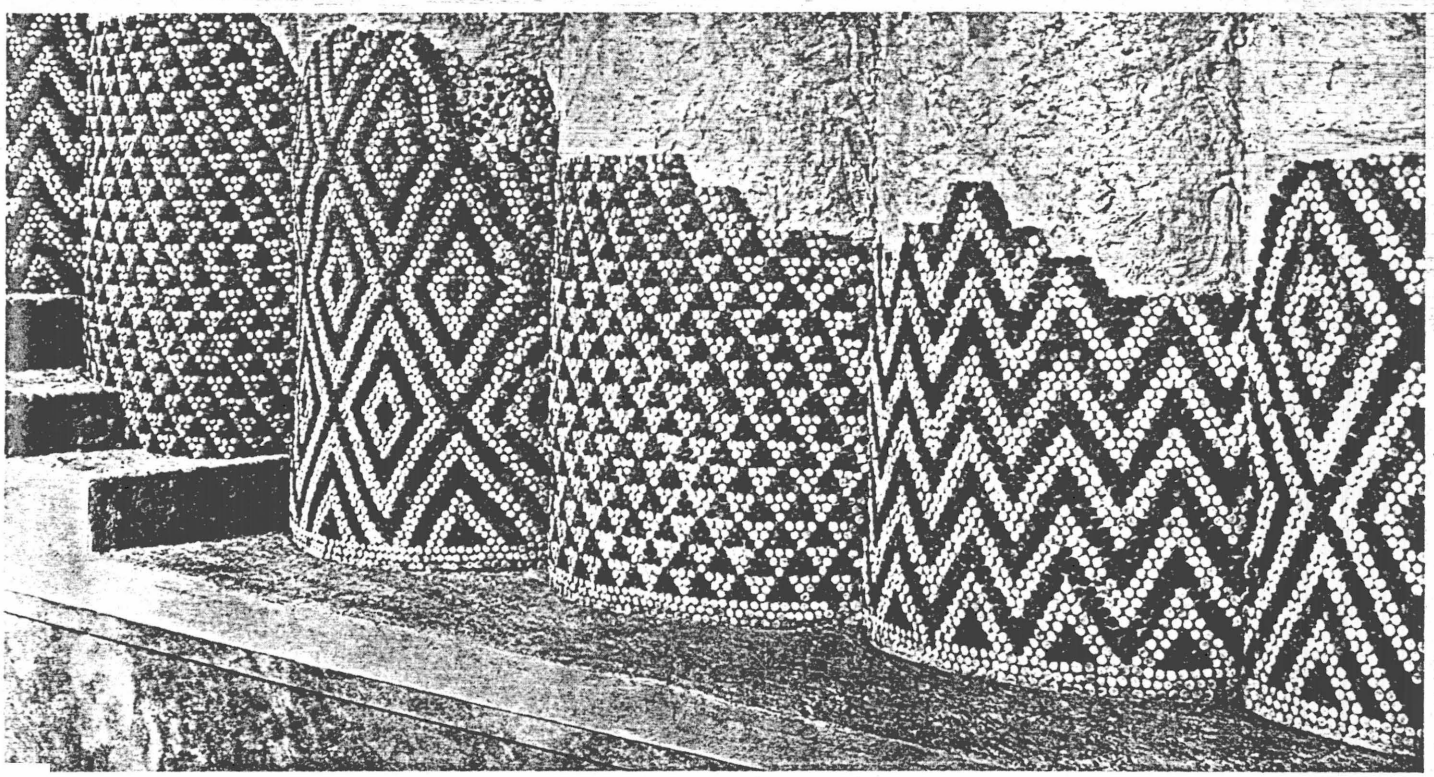
color between the horizontal and vertical brick joints.[3] Perhaps this resulted in the first exterior wall pattern and encouraged the growth of others. By 3600 B. C. the exterior appearance of even the early ziggurats began to change. No longer was the facade simply a repitition of horizontal and vertical brick work. Ceramic cylinders were inserted into the horizontal brick layers at spaced intervals to provide adequate drainage of the interior wall surface.[4,5] Thus, because of a functional necessity, negative spaces were first introduced and birth was given to a new decorative motif idea.

It seems natural that the next stage in development (3600-3500B.C.) grew from an experimental period where a variety of brick-laying patterns were tried. This led to the interesting design that is known today as the "herring-bone pattern". "Bricks were laid on edge leaning diagonally against each other in alternate directions so that a herring-bone pattern was created".[6] These diagonal patterns later led to the mosaic cone configurations found at the E-Anna Temple built at Warka (3500-3000 B. C.). Although there is no information available to substantiate this progression, it seems likely that a creative brick mason could have visually connected these diagonals into repetitive zig-zag patterns and then applied this decorative motif to the walls at Warka. (Fig. 1)

Whatever the decorative stimulus might have been, the building techniques used on the Temple at Warka were original. The wall exterior was no longer composed of sun-dried rectangular blocks, but cones



1. Niches decorated with cone mosaics from the pillar terrace at Warka. Baghdad, Iraq Museum (Fig.3)



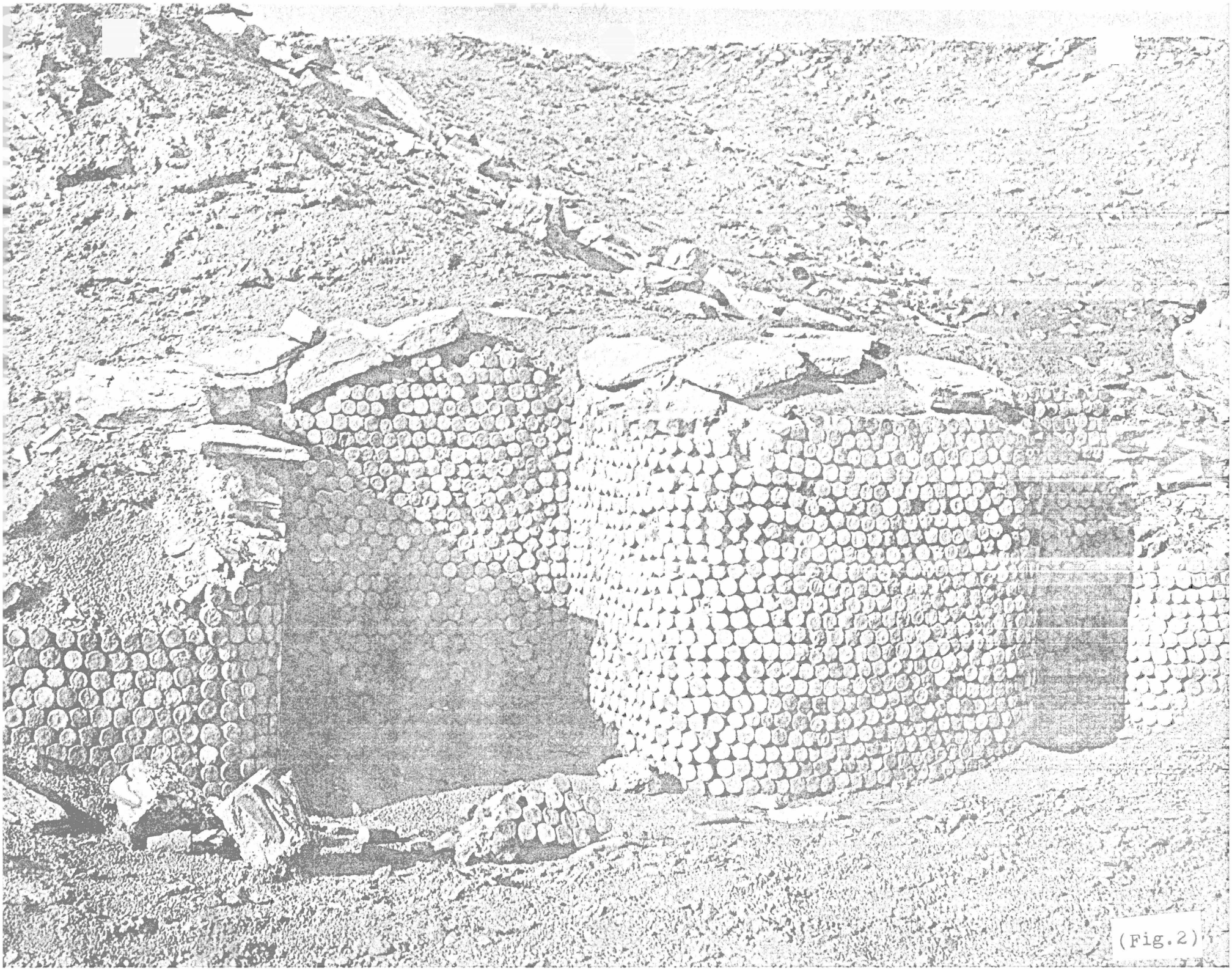
.. ..alf-columns decorated with cone mosaics in front of the pillar terrace at Warka. Berlin, Staatliche Museen (Fig.1)

(spike-like forms) of fired clay. These cones were inserted into a bed of mortar which had been applied to the exterior wall surface. (Fig. 2)

Another distinguishing feature at Warka was the first appearance of applied ceramic color. Although it has been suggested by Bodo Cichy that the coloring was achieved by hand-painting the butt ends of the cones with red, black and white paint,[7] this does not seem likely. The task of covering the walls with thousands of cones would have been time-consuming enough, and it is unlikely that these cones would have been individually hand-painted with a brush, or that "paint" was even used as a coloring agent.

It is more probable that the cones were either dipped into liquid oxide stains (iron oxide for red; a mixture of manganese, cobalt and iron for black; and, a kaolin bath for white), or that three separate clay bodies were used, each differing in the amount of iron present.[8] The lowest iron content would produce a buff to whitish color; a higher concentration would yield a red; and the highest iron concentrations would produce a black. Since clay deposits of different compositions occur naturally, all that would have been necessary was to located and use them accordingly.

Both of the above described techniques could have been used, but the latter seems more plausible for it would have entailed the least amount of effort in the shortest period of time. It should be noted,



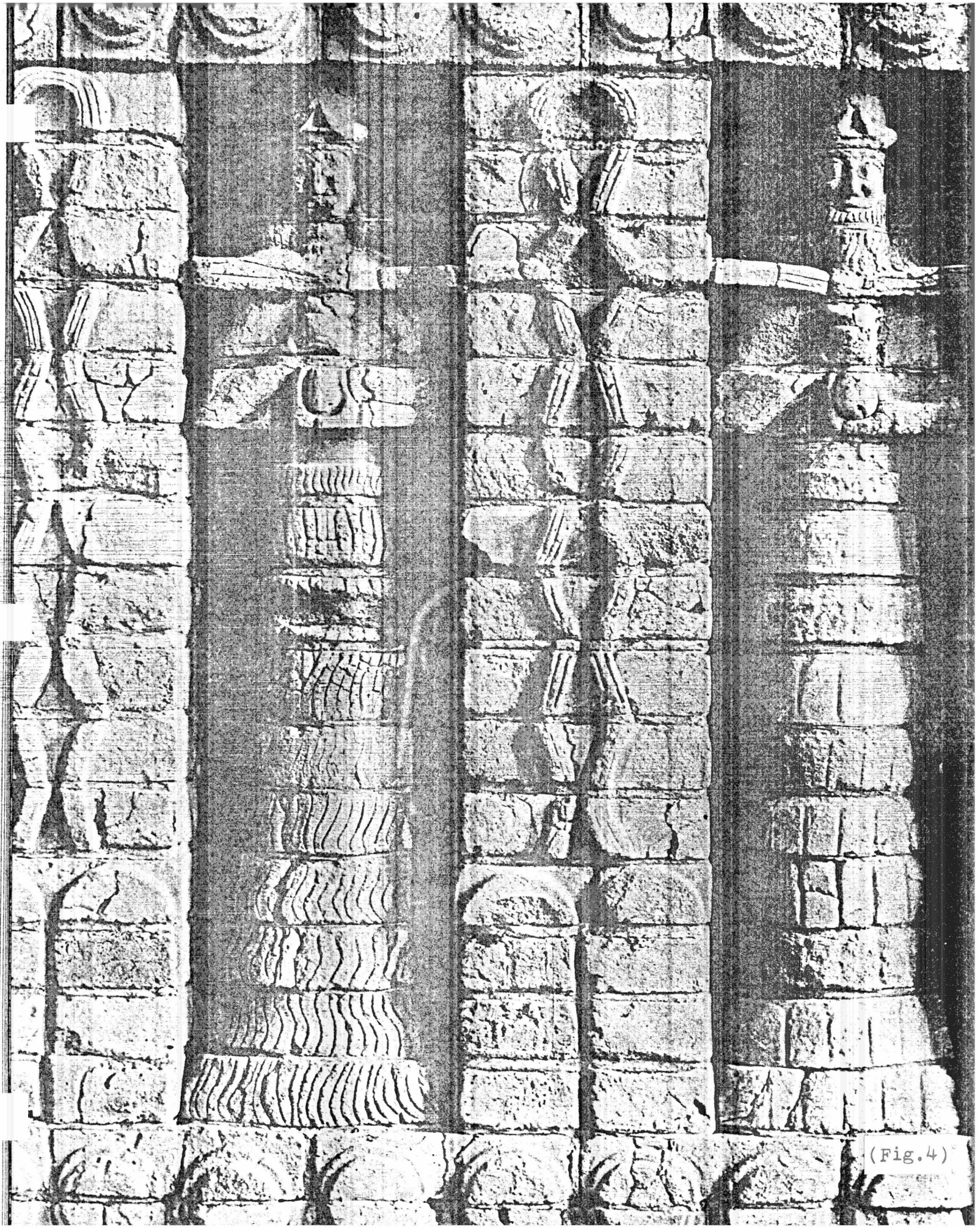
(Fig.2)

however, that these descriptions are only hypothetical. There is no proof nor even a suggestion that these techniques were employed.[9]

Because of the time involved in the application of these clay cones and what must have been a yearning for symbolic representation, an alternate technique was introduced between 3,400 and 3,200 B. C. Large clay slabs of both animal and human figures were attached to the mortared exterior walls and only the spaces between the slabs were filled with cones.[10] (Fig. 3) This was an extremely important occurrence. Not only was it a time-saving device, but it must have been the stimulus for the Innin Temple which introduced one of the most important architectural developments of Sumerian times - - the use of molded bricks to create the first architectural frieze.

The following is a description of the Innin Temple of Uruk built by the Sumerians during the middle dynasty, 200 years after the erection of Warka's Mosaic Temple. "Entirely new is a base made out of molded baked clay bricks pressed out of a mold. These reconstructed molded bricks form a frieze of two rows of deities which stand in wall niches facing out".[11] (Fig. 4)

The technique employed was probably very similar to what is still used today. A large thick clay slab is made and a relief is molded upon it either by hand or with a tool. It is cut into rectangular blocks and then each one is numbered on the reverse side. Next, they are fired and then reconstructed with mortar to form the original pattern.[12]



(Fig.4)

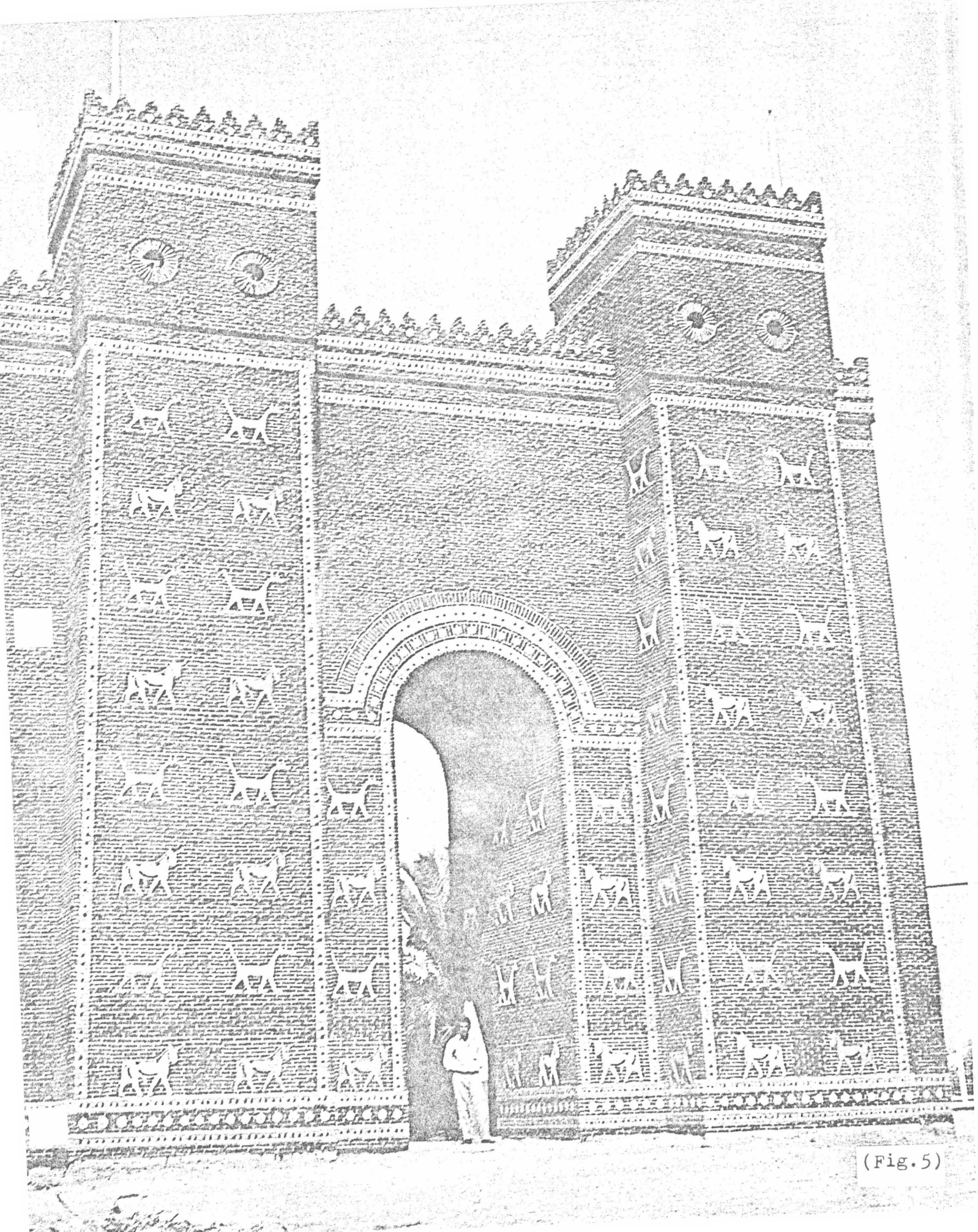
By using these molded bricks, it would have been possible to create extremely large, continuous narratives of any dimension, and at the same time allow for any three-dimensional possibilities. I believe that it was this technique and all previous developments which led to the greatest architectural example of Babylonian times: The glazed Gate of Ishtar in 575 B. C.

PART II

THE ISHTAR GATE

By 604 B. C., Babylon had been entirely destroyed by the Assyrians. At this time, Nebuchadnezzar II took rule of the City and set about to rebuild her. Because of constant invasions, a fortifying wall was erected around the entire city. Only through guarded gates could one enter into Babylon. However, these gates were not only for military reason, but they also functioned as a religious tribute to the gods. Believing that the use of sacred emblems would ensure protection, the gates were decorated with processions of animals; each being symbolic of a particular deity.[13] There is much information as to the origin and meaning of each of the symbols, but it is very contradictory and of limited importance to this study.

These animals were placed in pairs at alternating vertical and horizontal rows. Their motion seems to be held in check by a white border that creates a rectangular boundary. Upon visual analysis, I was impressed by the excellent proportions of the animals, and the "naturalness of movement" as they gracefully walk toward the corners of the building. Technically, they are as equally impressive for each is of identical size and detail. Surprisingly, these facts do not hold true when an entire history of the gate is revealed. From architectural findings and several attempted reconstructions an



(Fig.5)

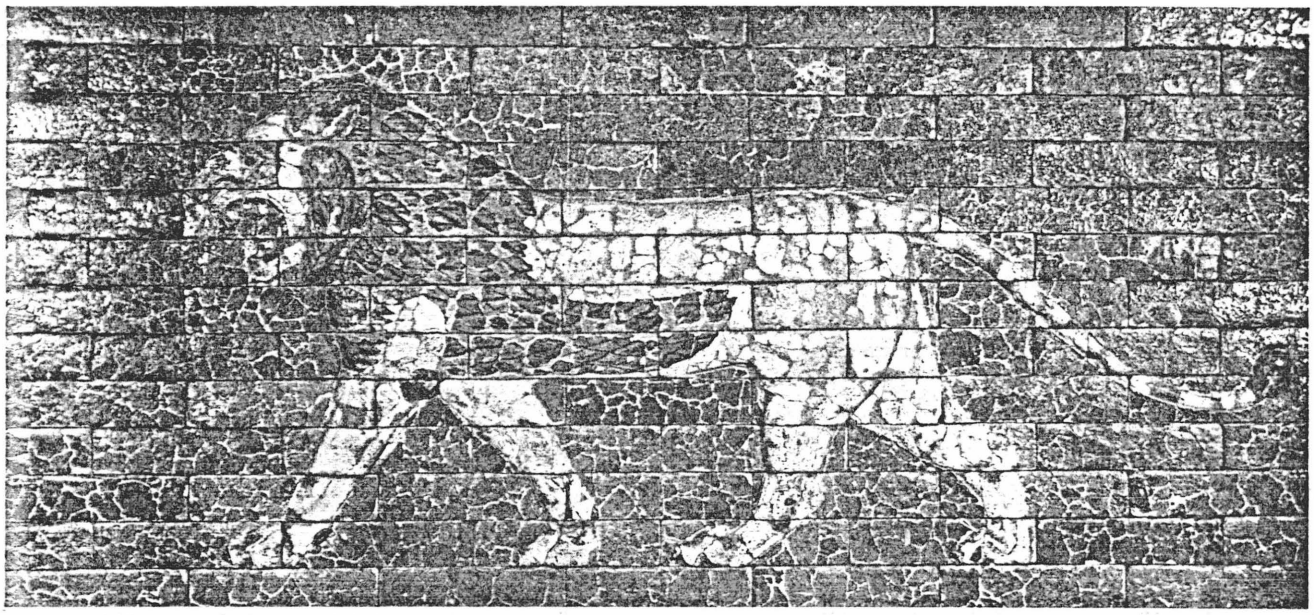
extremely interesting fact was discovered. The Ishtar Gate was built in three separate stages. (Fig. 5)

The first stage was constructed of sun-dried bricks and bitumen was used for mortar. Animal motifs, devoid of color, were simply molded in relief upon the brickwork.

A number of changes were introduced in the second layer. The animal motif was the same, but was created with the use of applied colored glazes instead of molded forms in relief.

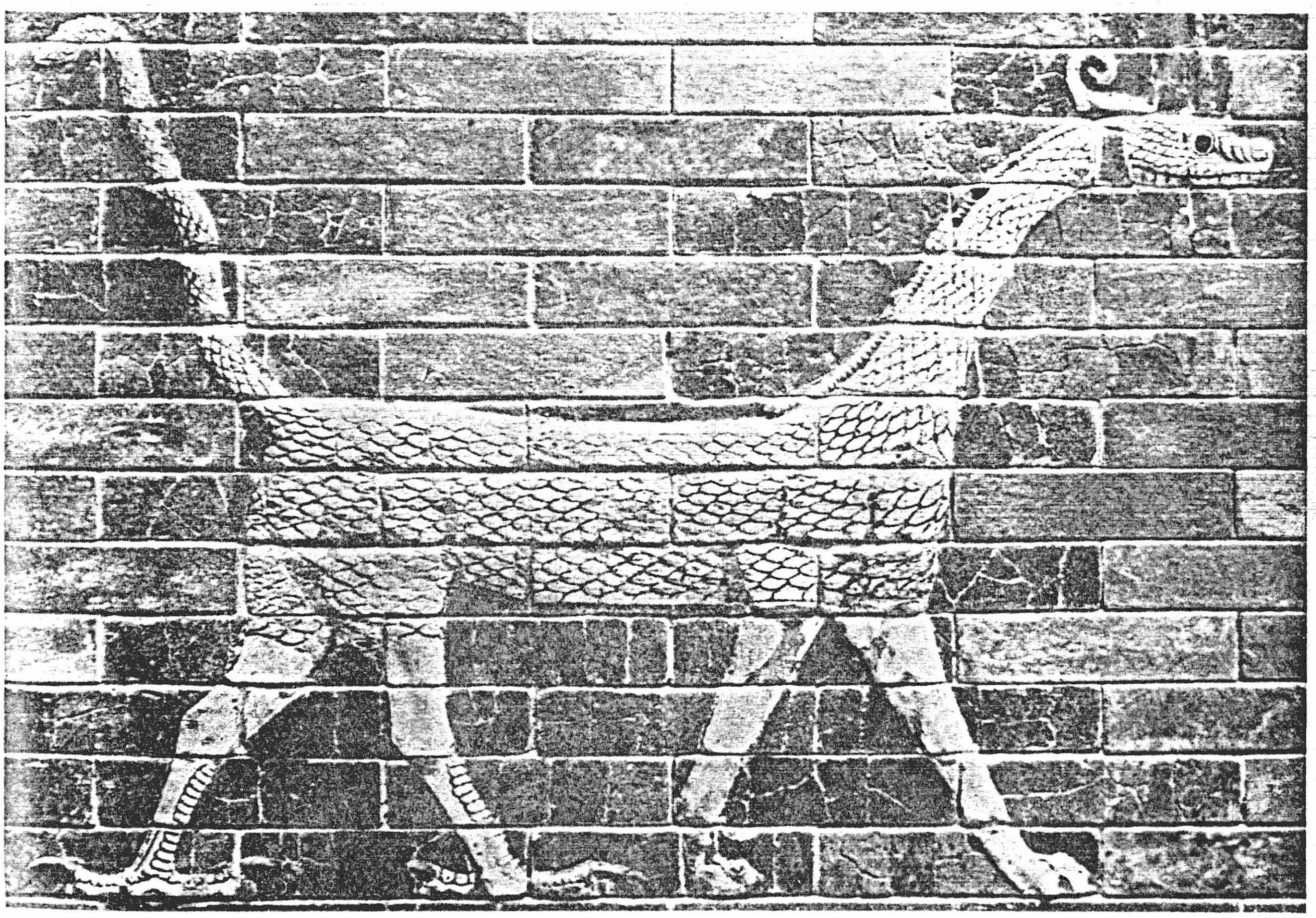
In the third stage both techniques were combined (color and relief) to form multicolored animals upon a solid blue background. (Fig. 6)

Of these three stages, all that remains are fragments of the foundation level. Today it is believed that the first level was simply erected as a foundation for the second, and was never meant to be seen. This theory is explained by Historian Leonard King: "It is apparent that the brickwork was very roughly finished, and that bitumen has been left where it has oozed out between the courses; for this horizontal level was always intended to be buried below the pavement level."[14] But this cannot be used as sufficient evidence, and I must disagree with King's supposition that both of these levels were built at the same time. It is more likely that the roughly finished brickwork of the base level was a result of earlier building techniques which had not yet reached the high level



290. Relief in moulded bricks from the "Processional Way" in Babylon, in glazed terra-cotta. Height 1.05 m. Berlin, Staatliche Museen

(rig.6)



291. Relief in moulded bricks from the Ishtar gate in Babylon, in glazed terra-cotta. Height *c.* 1.10 m. Berlin, Staatliche Museen

< 289. Ishtar gate of Nebuchadnezzar II (reconstruction) decorated with moulded glazed bricks, from Babylon. Height 14.30 m. Berlin, Staatliche Museen

of craftsmanship apparent in the second stage. The fact that the base was built of sun-dried bricks, while the second level was constructed with kiln-fired bricks further supports this idea. For if the two levels had been built in the same time period, kiln-fired bricks would have been used at each stage; both to increase the structural strength of the wall and to provide more protection from the elements. Because such totally different techniques were employed at each level, it is very likely that they were built at two different times for the second level was erected to raise the gate above the flood waters that were known to surround the city. "Babylon was built on a great terrace to lift it above the floods which covered the plains every year and was enclosed by brick walls 90 feet thick and 75 miles in extent."[15]

The third level was later built under the direction of Nebuchadnezzar II. By taking full advantage of all the ceramic developments that had transpired before his time, he combined them into this one endeavor and the result was magnificent. Glazed bricks created a facade of bright colors which formed a dramatic contrast against the dull red backdrop of the City.

What exactly prompted the use of glazed bricks is unknown. Perhaps it was a love for bright colors, coupled with the scarcity of precious stones which gave rise to the highly complex development.

It is known that lapidaries were responsible for making the greatest strides in glaze technology. During the fourth to the third

milleniums they were experimenting with such chemicals as lime soda and were producing glazes.[16] They also may have been the ones to develop the final glaze techniques used at Ishtar.

The Neo-Babylonians could have increased their knowledge of glazing from their neighbors. By 4,700 B. C. the Egyptians had developed liquid glazes and by 700 B. C. had experimented with and developed a highly complex technique. "Defective pieces and chippings of the coveted Lapis Lazuli were pounded, ground-up and compressed into beads, using some alkaline substance of low fusibility as a binder."[17]

This process is known today as Egyptian Faience and results in a variety of colors (yellows, greens and turquoise) which are very similar to the ones found at the Ishtar Gate. For this reason, many have assumed that the same process was used. However, I do not agree that this was the case. For in the late 1940's, small scales and chippings of the glazed bricks were examined in the laboratory of Sevresby M. Salvetat and M. Leonormant, and "they reported that the glaze did not contain either lead or tin and could not, therefore, be considered like faience, but were more like a vitreous cotaing or glaze composed of 'silicate-alcalind' alumine' coloured by metallic oxides, analogous to the glazes of the egyptians."[18]

Today it is impossible to know exactly what glazing techniques were used to decorate these bricks, but it can be assumed that a combination of techniques were employed.

The animals depicted in low relief (upon molded bricks) may have been hand-painted with liquid metallic oxide glazes which allowed for minute detail and subtle color graduations, while the solid blue background may have been created by hand-dipping the flat bricks into a soda or lime glaze.

Thus, the old Mesopotamian technique of molded bricks, combined with the new art of "liquid" glazing, worked together to create a facade of dazzling colors and intricate textures, never before created.

CONCLUSION

Being confronted by a lack of stone, Neo-Babylonian Man clothed his structures with beautiful coverings of clay and by doing so created an architecture which purely reflected his natural environment.

The development of ceramic techniques used on early temple facades, such as the cone mosaics at Warka, has been traced. Each technique played a part in the progression of events which led to the Ishtar Gate of Babylon. This three-staged structure in itself, resulted in the culmination of ceramic development, and provides us today with a chronological record of Mesopotamian ceramic history.

FOOTNOTES

[1]This is a description of what I feel was a natural occurrence resulting from people's awareness of their environment. Being farmers, they were familiar with the land and knew that a clay soil (one being high in alumin-silica) when dry breaks up into a pattern of small irregular blocks. Perhaps someone selected some of these blocks from a field to make a land marker or build a low structure of some sort. This clay soil would have contained reeds which grew upon the surface and probably contained some bitumen for tar pits are known to have been abundant in the area. Upon weathering the strength of this material would have become obvious and from this first occurrence all other architectural developments began.

[2]This information is based upon personal knowledge which was acquired during previous investigations into the subject of adobe and related building materials.

[3]Percy Handcock. Mesopotamian Archaeology. (Macmillan and Co., London, 1969), p. 280.

[4]Leonard Woolley. The Art of the Middle East. (Crown Pub., Inc., N. Y., 1961), p. 52.

[5]These were originally introduced as a means to provide adequate drainage to the massive wall surfaces. This information was acquired from art historian David Quick.

[6]Lloyd, Muller, Martin. Ancient Architecture. (Harry Abrams, Inc., N. Y., 1972), p. 19.

[7]Bodo Cichy. Architecture of the Ancient Civilization in Color. (Viking Press, N. Y., 1965), p. 26.

[8]This theory is based upon personal expertise only, for no references to the use of oxides (either for stains or clay bodies) were found during my research.

[9]Ibid.

[10]Leonard, Woolley, p. 52.

[11]Anton Moortgat. The Art of Ancient Mseopotamia. (Phaidon, London and N. Y.), p. 93.

[12]The description of this technique is based upon my knowledge of ceramics.

FOOTNOTES (cont.)

[13]Leopnard W. King. A History of Babylon. (AMS Press, N. Y., 1969), P. 55.

[14]Ibid.

[15]Joseoph Watterson. A History of Architecture. (W. W. Horton and Company, Inc., N. Y. 1968), p. 15.

[16]Samuel Kramer. Cradle of Civilization. (Time-Life Books, N. Y., 1967), p. 146.

[17]Leo Oppenheim. Ancient Mesopotamia. (The University Press, 1964), p. 323.

[18]William S. Furnival. Leadless Decorative Tiles Faience and Mosaic. (W. J. Furnival, Stone Stafforshire, England, 1944), p. 31.

BIBLIOGRAPHY

Badawy, Alexander. Architecture in Ancient Egypt and the Near East. M. I. T. Press, 1966.

Bannister, Fletcher. A History of Architecture. Charles Scribner's Sons, N. Y., 1961.

Cichy, Bodo. Architecture of the Ancient Civilizations in Color. Viking Press, N. Y., 1965.

Ellis, Richard. Foundation Deposits in Ancient Mesopotamia. Yale University, New Haven, 1968.

Encyclopedia of World Art-Vol. IX. McGraw-Hill, New York, 1964.

Fergusson, James. Ancient and Medieval Architecture-Vol. I. John Murray, London, 1893.

Furnival, William J. Leadless Decorative Tiles Faience and Mosaic. W. J. Furnival, Stafforshire, 1944.

Hamlin-History of Architecture. Longmans, Green and Co., New York.

Handcock, Percy. Mesopotamian Archaeology. Macmillan and Co. Ltd. London, 1969.

Kimball-History of Architecture. Harper and Brothers, New York, 1968.

King, Leonard W. A History of Babylon. AMS Press, New York, 1969.

Kirby, John Jr. From Castle to Teahouse. Charles E. Tutlle Comp. Tokyo, Japan, 1962.

Kramer, Samuel. Cradle of Civilization. Time-Life Books, New York, 1967.

Lloyd, Muller, Martin. Ancient Architecture. Harry Abrams, Inc., New York, 1972.

Moortgat, Anton. The Art of Ancient Mesopotamia. Phaidon, London and New York, 1967.

Oppenheim, Leo. Ancient Mesopotamia. The University Press, 1964.

BIBLIOGRAPHY (cont.)

Parrot, Andre. Discovering Buried Worlds. SCM Press, Ltd., London, 1955.

Praeger Encyclopedia of Art. Praeger Pub., New York, 1971.

Prehistoric and Ancient Art. Prometheus Press., New York, 1957.

Scranton, Robert. Ancient Art. University of Chicago Press, 1964.

Simpsons History of Architecture.

Watterson, Joseoph. A History of Architecture. W. W. Horton and Comp., Inc., New York, 1968.

Woolley, Leonard. The Art of the Middle East. Crown Pub., Inc., New York, 1961.