ARCHAEOLOGY

Oldest Theater

Ruins From Glamorous Crete Reveal Stone Stage and Seats Used 1000 Years Before the "Old" Greek Theater Evolved

By EMILY C. DAVIS

THE WORLD'S first theater—did you ever wonder where it was, and whether it had plush seats, and whether the curtain stuck temperamentally when frantic stage hands tried to hide the business of shifting scenes?

Historians have pointed to the Theater of Dionysus in Athens when they were asked how the theater began. The curved auditorium with its stage in front, they neatly explain, grew out of the old Greek custom of sitting on a grassy hillside and watching the exciting dances to the god of wine and fruitfulness, performed in an open space at the foot of the hill. And that is where we got our theater, so the accepted explanation ran.

But that was not the beginning of theaters, archaeologists now realize. That "old" Greek theater evolved only six or seven centuries before Christ. Civilizations had been working out their destinies for thousands of years before the Greeks.

An Italian archaeologist, Prof. Luigi Pernier, pushes theater history away back to 2000 B.C.

He carries you from Greece southward to Crete in the blue Mediterranean. There he points to the ruins of the Palace of Phaestos, on a hilltop overlooking the sea. And in one corner of the palace is a stone construction which makes true ancient history for the theater. It is an unmistakable theater, planned and built for a prince who lived a thousand years and more before the Greeks converted hillsides into galleries.

About 2000 B.C., the Island of Crete was a small kingdom in the sea where civilization and elegance and beauty had begun to flower extravagantly. Knossos was the royal capital. But princes ruled over local districts, and Phaestos was the capital of such a province.

The Italian Archaeological Mission in Crete, under the leadership of Prof. Pernier, has for some years been digging out the ruins of Phaestos. Buried in the earth are the floors of the palace, the stairways, and stumps of walls. The digging reveals some of the vases and art objects that adorned the stone palace. The earth also has preserved attractive drinking cups and pitchers and basins used by the palace household.

The prince's palace cannot compare in splendor with the Palace of Minos which Sir Arthur Evans unearthed at Knossos some years ago. That Palace of Minos first showed an astonished modern world that Crete, long before Greece or Rome, was one of the glamorous places of the earth. Earthquakes and time had buried the remains of Crete so effectively that it almost lost its rightful place in the history of civilization. Now, these ruins are being examined and the part that Crete played, its influence on Greece and other countries, is more fully understood.

"Plan is Easily Seen"

The theater, found at Phaestos, is one of these long-lost fragments of history.

Prof. Pernier, deeply impressed by the meaning of the ruins, writes:

"One cannot doubt the theatrical as well as the monumental meaning of the construction. I have seen here the oldest theater in the world, which archaeological excavations have returned to light."

It is simple, yet complete, that first theater. Even wrecked by time, the plan is easily seen.

There is a large oblong space paved with limestone flags. That is the stage. On two sides of this stage rise broad steps. One flight is a stairway leading to palace rooms. But the other flight is blocked at the top by a high wall, like the back wall of a gallery, showing plainly that these stairs were never meant for transportation. These are the theater seats. Up the middle of the tier is an aisle of slightly raised steps.

All the complicated mechanism and equipment of the Berlin Opera House or New York's newest theater are still based on the plan of the Cretan prince's theater of 4000 years ago. The unknown father of the theater—perhaps the prince himself—provided a stage, raised seating for the spectators, and an aisle. That was the basic patent, so to speak, of the theater form.

Diagonally across the stage of the ancient theater was installed a feature that did not become a part of the theater's basic patent. It was not really a very good idea. It was a slightly raised, paved walk, leading straight from the palace entrance right across the stage to the theater aisle. When the prince and his friends attended the theater, they came in with pomp and ceremony. The men wore elaborate curls and rather nondescript clothes. The women were more decorative, in flounced, tight-waisted dresses with puff sleeves and with tiaras on their curled and carefully arranged hair.

The diagonal walk offered a fine chance for a grand entrance, but it must have caused grief to any performer who stumbled over its raised stones.

ALL THAT REMAINS *Photo by Prof. Pernier.*

These ruins at Phaestos, in Crete, are pronounced the oldest theater in the world.

ROYAL ENTERTAINMENT

Daring bull acrobatics, most breath-taking stunts ever performed on a theatrical stage, were seen in the oldest theater.

Another raised line of flagstones served the useful purpose of keeping back rainwater, so that it would not flood the stage. The water was drained off toward a circular cistern nearby.

While not very interesting to look at, that flagstone line tells a good deal about scenes in this early theater. It would appear that events held there were important, and could not always wait for the sun to dry up the stage after a rain. The prince and the court could bring out cushions—as archaeologists believe that they did—when they took their places on the stone steps. But a wet and slippery paving for the stage would not do, and drainage was provided.

The Actors

Who were the actors on that ancient Cretan stage?

Not athletes, probably. Prof. Pernier believes that boxing and wrestling matches to amuse the prince and his household must have been held in another part of the palace. He has found a certain room with columns which seems more suitable for that sort of entertainment.

The theater, Prof. Pernier says, would have been reserved for unusual events.

The first productions in the ancient Cretan theater were doubtless religious. The actors were priests and others taking part in religious spectacles. That does not mean that the scenes were dull. Far from it. Drama was in the blood of the people of Crete.

Religious events in Crete called for music of flutes and lyres, and singing. At times, maidens and youths danced their emotions before the Cretan goddess. These dances were noteworthy enough for the Greeks to be still talking about them, centuries after.

Coiling, twisting snakes were symbols carried by the Cretan goddess, and perhaps also by her priestesses in calm dignity. In the holy processions the ruler himself took part, as priest-king.

Most spectacular of all were the dangerous bull-grappling contests. Daringly, boys and girls of Crete risked their necks doing acrobatics with the sacred bulls. But these bull acrobatics, Prof. Pernier believes, did not gain wide vogue in Crete until about the sixteenth century B. C.

By that time, the first palace of Phaestos had met with disaster and was burned to the ground. It was rebuilt, and the theater was now larger with a flat stage, clear of fancy raised sidewalks. With a new "opening," the historic theater of Phaestos—now three or four hundred years old—was ready for the great religious circus events of the day.

All that is really known of these sports between bull and man is what Cretan artists depicted on walls and art objects. The pictures reveal acrobats doing feats so difficult that some modern athletes have flatly said, "impossible."

Yet these vivid, lively figures cannot be mere dreams of ancient artists. Archaeologists, who have analyzed the pictures, point to the well drawn muscles of the toreadors, and the veins in their hands. Such careful drawing was made from life.

Describing one great scene shown on a fresco in the palace of Minos, Prof. Pernier says:

"While the bull charges with his head lowered, a girl leaping over his horns, succeeds in lifting herself over them with her arms; so that the bull raising his head tosses her over and propells her to a successful completion of the dangerous leap, ending on his back.

"A boy has preceded her in the hazardous deed, and we see him in the act of completing the feat on the bull's back. Another girl, standing at the back of the beast, is ready to catch him with her arms."

The fact that assistants were stationed to aid the performers in landing is thought significant. It seems to mean that the somersaults and leaps, with a huge bull as a springboard, were often done in a limited space, rather than in a broad arena. It is supposed that in the theater of Phaestos and in other gathering places, there were wooden palisades set up to protect the audience from too close contact with danger, and also to provide a resting place for the toreadors, who could dart back of the fence.

Not Duplicated

The theater of Phaestos, so far as is yet known, was not duplicated in Cretan cities. The king's palace, at Knossos, had a theatrical area, but Prof. Pernier objects to calling it a theater. It had no special construction of tiers of seats with an aisle and other planned theatrical provisions. The king's guests gathered on palace stairways and land-

ings around open courts when public spectacles were held. It remained for a less eminent person, a princeling of Crete, to make the dramatic gesture of building a place just for theatricals.

Crete, more than Egypt or Babylonia or other ancient lands, seems fitting soil for the sprouting of the theater germ.

In the other countries, religious spectacles were staged mainly in temples. The sacrifices and processions moved often in forests of columns. What the people could not see was just that much more mysterious and impressive.

Even Egypt's great passion play of the life of the god Osiris, which lasted for days, was a progressive affair moving about the city, now taking form as a procession, now a pageant scene, now a sham battle.

But religious and sporting events in Crete were so eye-filling and exciting that the Cretan public naturally wanted to see, and to see clearly. They would certainly have objected if admitted to a spectacle and then forced to see through pillars or over tall heads and shoulders. There had to be a theater.

Science News Letter, March 10, 1934

MEDICINE

Cancer Research Center Established At Wisconsin

UNIVERSITY of Wisconsin officials and medical workers at Madison are jubilant at the prospect that the University may soon have one of the foremost cancer research centers in the country. The University has just received a bequest of $300,000 from the late Miss Jean Bowman of Wisconsin Dells to found a cancer clinic and research center.

The state university has, at the present time, a cancer clinic centering about the Wisconsin General Hospital, which has been doing considerable clinical research work on cancer malignancies, but studies have been retarded due to lack of funds. Dr. E. A. Pohle, professor of radiology in the university medical school, is chairman of the Cancer Clinic and will probably head whatever clinical research work is decided upon for the new center.

Science News Letter, March 10, 1934

The American corn plant found its way to China some time before 1573, probably by the longest route—that is, carried to Europe by Spaniards, then to Mecca by Arabs, and thence through central Asia to China.

BIOPHYSICS

Growth of Common Fungus Speeded by "Heavy Water"

WATER containing a very small proportion of the "heavy water" with double-weight hydrogen atoms was again proved to act as a stimulant to plant growth, in experiments performed by Samuel L. Meyer of the Vanderbilt University biology department, and reported to *Science*.

Mr. Meyer used water in which one out of every 214 hydrogen atoms was of the double weight variety, or "deuterium." With this he prepared nutrient solutions in which he grew cultures of the common blue mold that sometimes spoils oranges. On other solutions, containing no heavy water, he grew "control" cultures. After drying out the growths he compared their weights.

He found that the cultures grown on the heavy water solution weighed about sixteen times as much as the "controls" grown without heavy water. They gave evidence, moreover, of having remained more strongly in the vegetative state, whereas the "controls" had matured and passed over into the fruiting state.

Mr. Meyer therefore concludes that his experiments confirm those of other research workers who experimented on other forms of plant life, indicating that while high concentrations of heavy water act as poisons, very dilute solutions have a tonic effect, stimulating vegetative growth.

Science News Letter, March 10, 1934

GENERAL SCIENCE

Honor Rewards Suggested For U. S. Scientists

"DOCTOR," asked a member of the House subcommittee on appropriations for the Department of Agriculture, "Do you have any compensation, either of distinction or of salary, with which to reward the men in the Department who make particularly valuable contributions to science or commerce?"

"No," replied Dr. Henry G. Knight, chief of the bureau of chemistry and soils.

Dr. Knight had just been discussing a new mineral oil process for the preservation of eggs worked out in the Department, also the use of a certain type of green paper for wrapping oily foods, such as potato chips and peanuts, so that they will not become rancid over long periods of time.

"The paper," he said, "is called 'Coe green' after the name of the man in the bureau who originated it and developed the process. We have a public service patent on this so that anybody may use it. It is dedicated to the public. The vacuum carbon dioxide oil process for the preservation of eggs is also covered by a public service patent, but it is not yet in commercial use. Anybody can use that process."

House members were interested. One of them suggested that there should be a distinguished service cross or some method of recognition for the research worker. Just naming a paper bag or a process after the scientist who does valuable and strikingly original work, the Congressmen felt, was not quite enough.

Dr. C. A. Browne, chief of chemical and technological research in the bureau, pointed out, however, that the scientist is always entitled to the foreign rights and patents.

Dr. R. W. Skinner, assistant chief, chemical and technological research, said that unless the bureau published a report of the scientist's work and the patent number that some outsider might be able to get the patent in this country. "It has been done," he stated.

Items of interesting food research that held the attention of committee members were:

Utilization of turnips to make a sauerkraut "practically as satisfactory as that made from the cabbage."

Use of "apple wax" as an ingredient for automobile and furniture lacquer so that this quick-drying paint may be applied with a brush instead of being sprayed on. This process opens up a market for apple culls.

Use of pineapple juice on apples cut for drying, so that they will not turn dark.

Methods for handling soft-textured grapefruit in Texas for canning or putting up grapefruit juice.

Apple sirup for hot cakes, which is of finer flavor than the present commercial concentrated cider, due to the addition to the sirup of the first distillate, which carries the bouquet of the apple.

Curtailment of regular agricultural departmental funds for 1935 for agricultural investigations by $40,301 will mean, Dr. Knight said, that there will be no studies on flavors and fermentations of sirups; such studies as the apple wax utilization will be cut about $5,000; and others in similar amounts.

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