

## THE ANCIENT CITY OF COPAN.

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In a fertile river valley, shut in by the high forest-covered mountains of northern Honduras, are the ruined pyramids, terraces, temples and other edifices of the ancient city of Copan. Until recently little was known regarding the extent of the ruins which lay beneath the accumulated mould of centuries. Monolithic monuments of sculptured stone were scattered here and there in the almost impenetrable forest of ceiba and cedar trees. These, together with a few of the more important pyramids, were known to the natives and were pointed out to occasional travelers. The extent and real nature of the ruins, however, remained unknown until 1855, when A. P. Maudslay, an English archaeologist, visited Copan, made some excavations and prepared a plan. In 1891, Prof. F. W. Putnam, of the Peabody Museum of Archaeology and Ethnology, of Harvard University, organized an expedition for the careful exploration of the ancient city. For four seasons the work of excavating has progressed successfully. The forests have been cleared away and the accumulation of earth and vegetable mould has been removed from the temples, terraces, pyramids and courts of the main structure and the ruins immediately surrounding it.

The Copan River flows by the side of the principal group of ruins, and the eastern slope of the main structure has been undermined and carried away by the river floods, exposing a section which forms a cliff of rubble interspersed with walls of faced stone. This cliff is over 600 feet in length and at one point attains a height of nearly 135 feet.

The main structure covers seven acres of ground and consists of a vast irregular pile of terraces, flights of steps and pyramids crowned with the remains of temples built of squared stone. Some of the stairways and portions of both the exterior and interior of the temples were elaborately sculptured, and the buildings were originally painted in brilliant colors.

This structure contains two great courts or amphitheaters, whose cement floors are sixty-five feet above the river. Tiers of steps or seats are upon three sides of the eastern court, and the Jaguar stairway, so called from the finely sculptured jaguars which guard the lower steps, leads from the western side of the court to the terrace above.

One ascends the main structure by a flight of well-

figures covered with elaborate breastplates and other ornaments.

The sides of the doorway and the cornice which had fallen were in like manner covered with well executed carvings in stone. Other portions of the building,



"SINGING GIRL," FROM ONE OF THE TEMPLES.

which was in an advanced stage of ruin, were elaborately ornamented with sculptures, and the wall surfaces showed traces of plaster which had been painted.

From this temple a broad flight of steps descends to an elevated court. Within this court are sculptured monuments and a broad platform with terraced sides.

Rising from the eastern side of this court is a pyramidal mound supporting a ruined temple. The sides of the pyramid are built of squared stone regularly laid in terraces. The temple is reached by a stairway divided for a part of its length by a raised structure in the form of steps, having in front rows of sculptured death's heads. The cornice of the temple was ornamented by small sculptured heads, both human and grotesque.

From the summit of the pyramid, which is 100 feet in height, one obtains a view of the extensive ruins to the south and west. Near the northern base of the pyramid is the eastern court, before referred to, nearly inclosed by ranges of steps. The northern range of steps

end of the step is a human figure sculptured in stone, seated upon an immense skull and holding in its hand the head of a dragon, whose body, together with other figures, forms the ornamentation of the cornice over the door. The upper part of the outer wall of this temple had been ornamented by artistically sculptured half length figures in full relief, representing girls in the act of clapping hands.

Two stone incense burners in the form of grotesque heads were found within the inner chamber of this temple.

Adjoining the mound upon which this temple stands is another pyramid with three sides sloping to the level of the plane upon which the main structure is built. Upon the western side of this pyramid is the hieroglyphic stairway, one of the grandest pieces of architecture of ancient America. This stairway is about 40 feet in width, and it leads to the temple upon the pyramid, a distance of more than 100 feet. At the foot of the stairway, and occupying a central position, is an elaborately carved pedestal. The face of each step of the stairway is covered with finely sculptured glyphs composed of grotesque faces, masks, scrolls, and numerals, records of the ancient builders. Scattered throughout the debris are fragments of life sized human figures, carved in full relief, which once formed portions of the structure.

From the summit of the mound of the hieroglyphic stairway one obtains an extensive view of the Great Plaza of Copan, with its surrounding steps, terraces and mounds. The Great Plaza and its extensions occupy over seven acres, and portions of it are paved with squared stones neatly fitted together.

Within the plaza are thirteen great sculptured monolithic monuments, and before each stands a carved block of stone called an altar. The average height of these monuments is about twelve feet and the largest of them are about three feet in width and a little less in thickness. One side of the monument is usually sculptured to represent a colossal human figure wearing an elaborate headdress composed of the upper portion of the head of a quadruped, from which rise great plumes of feather work. Massive ear ornaments adorn the ears of the figure, bead necklaces surround the neck and elaborate garments of textile fabric, with tasseled fringe, cover the shoulders, and sashes, garters, bracelets and a profusion of ornaments decorate the lower portion of the sculpture.



RUINED CITY OF COPAN, HONDURAS, CENTRAL AMERICA, SHOWING AMPHITHEATER AND TEMPLES IN THE BACKGROUND.

preserved stone steps two hundred and fifty feet in width. From the first landing rises a pyramid, upon whose summit are the remains of a temple one hundred feet in length. A step in front of an inner door of this temple is ornamented with seated human

of this court leads to a platform in front of three ruined temples, the largest of these being probably the most elaborate building of the ancient city.

In front of the principal inner doorway is a step carved upon its face with hieroglyphs and skulls, and at either

Elaborate symbolical decorations derived from the great plumed serpent form a conspicuous part of the ornamentation, and the sides and back of these monoliths are usually covered by glyphs, which, when deciphered, will probably tell us much regarding the

personages whose sculptured representations appear upon the stones.

The altars standing before the monuments are of various sizes, and are also elaborately sculptured—some in the form of a grotesque animal or head, others having a row of human figures encircling them. The tops of the altars are frequently covered with glyphs.

Excavations were made beneath several of the monuments, and cross shaped vaults were found containing numerous jars of earthenware, some of which were decorated with well executed drawings of human figures and glyphs. The jars contained bones of small quadrupeds, sacred shells, and pigments of different colors. A few of the shells inclosed sacred objects, such as black oxide of mercury, cinnabar, worked jadeite, and a few pearls.

During the excavations a number of underground tombs were encountered, built of squared stone. These tombs were miniature reproductions of the rooms of the temples, and within them lay the crumbling skeletons of priests, surrounded with jars, food bowls, and personal ornaments, together with the paraphernalia of their priestly office.

The upper front teeth of several skeletons were ornamented with circular disks of green jadeite, highly polished, and having convex surfaces. The disks were inserted in holes drilled in the front of the teeth, and were securely fastened by red cement. The cutting edges of the incisors and canines were either ground smooth or notched.

The burial place of the common people of the ancient city has not yet been discovered. It is probable that the remains found in the tombs are of priests or important personages, and that the elaborately decorated human figures upon the monuments, stairways and buildings are effigies of gods whom the priests and rulers personified.

In studying the photographs, drawings, sculptures and other objects gathered by the Copan expedition and exhibited in the Peabody Museum at Cambridge one becomes impressed with the grandeur of the ancient city.

As to the age of these ruins, there are not sufficient data upon which to base a reliable conclusion. They are unquestionably prehistoric, and the builders of this city belonged to the same civilization as the constructors of the temples and pyramids of Yucatan. Judging from the ruined condition of the edifices of Copan, this city must be older than most of the cities of Yucatan, and more magnificent also.

THE APPEARING LADY.

BY WILLIAM B. CAULK.

Of the many new illusions now being presented in Europe, an ingenious one is that of the appearing lady, the invention of that clever Hungarian magician Buatier de Kolta.

On the stage is seen a plain round top four leg table, which the magician has been using as a resting place for part of the apparatus used in his magic performance. Eventually, the performer removes all articles from the table and covers it with a cloth that does not reach the floor. Cut No. 1 represents the table in this condition. On command, the cloth gradually rises from the center of the table as though something were pushing it up. In a few moments it becomes very evident that some one, or something, is on the table covered by the cloth. The magician now removes the cloth and a lady is seen standing on the table, as in illustration No. 2.

The secret of this, as in all good illusions, is very simple, as the third illustration will show. In the stage there is a trap door, over which is placed a fancy rug that has a piece removed from it exactly the same size as the trap, to which the piece is fastened. When the trap is closed the rug appears to be an ordinary one. The table is placed directly over the trap. Below the stage is a box, open at the top, with cloth sides and wood bottom. To this box are attached four very fine wires, that lead up through the stage by means of small pulleys in frame of table and down through table legs, which are hollow, through the stage to a windlass. In the table top is a trap that divides in the center and opens outward. The top of the table is inlaid in such a manner as to conceal the edges of the trap. The lady takes her place in the box in a kneeling position, the assistant stands at the windlass, and all is ready. Fig. 1 shows the arrangement beneath the stage, and Fig. 2 the under side of the table top.

The magician takes a large table cover, and, standing at the rear of table, proceeds to cover it by throwing cloth over table, so that it reaches the floor in front of the table, then slowly draws

it up over the table top. The moment that the cloth touches the floor in front of the table, the trap is opened and the box containing the lady is drawn up under the table by means of the windlass, and the trap closed. This is done very quickly, during the moment's time in which the magician is

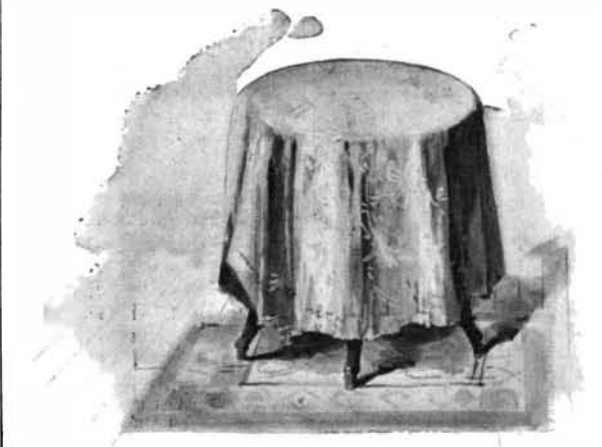


TABLE READY FOR THE APPEARANCE.

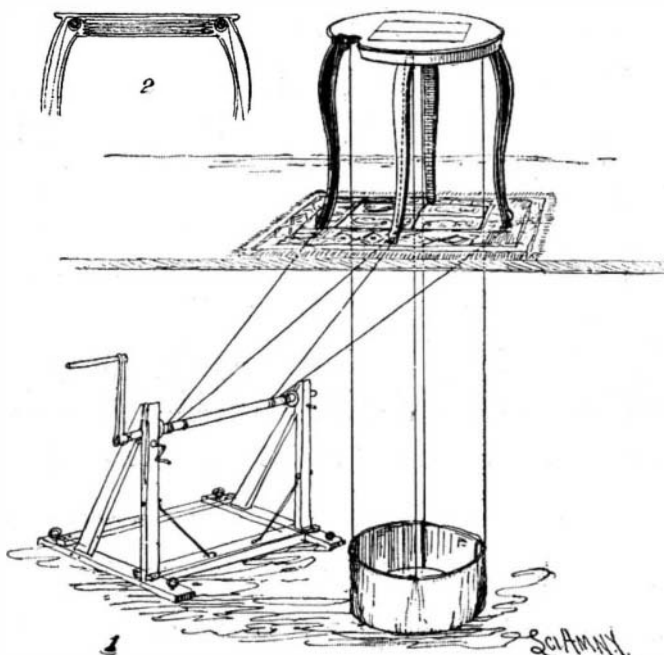
straightening out the cloth to draw it back over the table. All that now remains to be done is for the lady to open the trap in table and slowly take her place on top of the table, and close the trap.

The top and bottom of the box by means of which the lady is placed under the table are connected by



THE APPEARING LADY—STAGE ILLUSION.

means of three strong elastic cords placed inside of the cloth covering. These elastics are for the purpose of keeping the bottom and top frame of box together, except when distended by the weight of the lady. Thanks to this arrangement of the box, it folds up as the lady leaves it for her position on the table top, and is concealed inside of the frame of table after her weight is removed from it.



DETAILS OF THE APPARATUS.

Ruins of Ancient Troy.

Dr. Wilhelm Dörpfeld, the first secretary of the Imperial German Archæological Institute of Athens, came to this country to attend the commemorative exercises at Princeton University and incidentally delivered a number of lectures of great interest at Columbia University, the Brooklyn Institute, etc. Dr. Dörpfeld is an industrious explorer of the remains of classical antiquity on the site of Troy, at Olympia and elsewhere, and his researches have given him an enviable reputation as one of the leading archæologists of the world. His lecture on "Troy and the Homeric Citadel" was very interesting.

The question of the site of Homer's Troy was briefly reviewed by the lecturer, as it has been discussed in ancient and in modern times. The views of Strabo, of Demetrius, and of modern scholars were briefly set forth, and the results of Schliemann's excavations and the careful and successful work of Dr. Dörpfeld himself were dwelt upon at some length. On the site now proved to be the place where Homer's Troy stood, the excavations have revealed nine strata of earth and ruins, representing recognizably distinct periods in the history of the three cities that have there been built—first the prehistoric, before Homer's time; then the Greek, the city of Priam; lastly, the Roman city. In the uppermost, or ninth, stratum were found a temple, theater, and other buildings of unmistakably Roman construction, with many inscriptions which show that the name Ilios is historic. Below this, in the eighth and seventh strata, are the remains of small houses of the Greek city, with evidences of fortifications of no

great magnitude. In the sixth stratum is an acropolis, with many buildings and storehouses, strong fortifications, marked by towers and gates. Mycenaean vases, the painted archaic terra cottas that are not later than 700 B. C., found in this stratum determine its date to be that of the Trojan war, as told by Homer—that is, between 1500 and 1000 B. C. In the fifth, fourth, and third layers, period unknown, prehistoric objects occur. Still deeper, in the second stratum, are the foundations of the acropolis hill, with sumptuous houses built of unburned brick. The wall of the acropolis is massive, with towers and gates, and shows signs of having been several times rebuilt. Here is the "treasure house of Priam," about which Schliemann had so much to say. In the first stratum, the lowest of all, the town walls rest upon the rock. Other articles discovered are of an unknown antiquity.

Summing up the testimony of these resources, which he explained in detail, showing their significance by means of pictures upon the stereopticon screen, Dr. Dörpfeld declared that the upper stratum, the ninth, was clearly made up of the ruins of the Roman city of Ilium. The Greek settlements of various periods visited by Demetrius, Alexander, and Xerxes have left their traces in the eighth and seventh strata. In the sixth stratum have been found the remains of the Homeric Troy, the city of which the siege and capture, with the varying fortunes of the war for the punishment of Helen's ravisher, formed the subject of the Iliad. The excavations below this base revealed only prehistoric—that is, pre-Homeric—objects and remains.

So, in conclusion, the lecturer declared that the question of Troy was solved. ("Die trojanische Frage ist gelöst"). The site, the very existence, of the city had furnished the subject of learned research for 2,000 years. The most recent excavations had settled all doubt as to the existence, the site, and the character of the city. The citadel of Troy he held to be the most interesting group of ruins now accessible to the investigator of classical antiquity and of ruins still more remote.

The Roentgen Rays in Pharmacy.

Dr. Ferdinand Ranzen has made use of the X rays to detect mineral substances added to saffron as adulterants, says the Pharmaceutical Journal. Out of four specimens so examined, only one was found to be pure; another contained 62.13 per cent of barium sulphate, and a third 11.75 per cent of that compound, together with a certain proportion of potassium nitrate. The fourth specimen contained 50 per cent of pure saffron, and the rest consisted of some substitute for that drug, faced with barium sulphate to the extent of 28.6 per cent. The plan adopted was to wrap a gelatino-bromide plate in black paper, place the saffron upon this on the same side as the sensitive film, then allow the rays to act for four minutes, afterward developing and fixing in the usual manner. The foreign matter is very sharply indicated in the print illustrating the paper, in the Annales de Pharmacie for May.